

Progress Report 2000
Breeding and Evaluation of Turfgrasses at Rutgers University

William A. Meyer and Reed Funk

1. Promising turfgrass germplasm and associated endophytes were collected from Romania, Uzbekistan, Finland, Inner Mongolia, and USA.
2. Over 10,400 new turfgrass evaluation plots and over 115,000 spaced-plants were established in 2000.
3. The first harvest of certified or foundation seed was produced from the following turfgrass cultivars developed with the participation of the Rutgers turfgrass breeding program: a) Cabernet, Bordeaux, Sonoma, Boutique, and Brooklawn Kentucky bluegrasses; b) Somerville, Applaud, SR 4820, SR 4801, SR 4RHT, Pizzazz, Promise, Gator II, SR-4330, and Amazing perennial ryegrasses; c) Genesis II, SR 8600, SR 8250, SR 8V9, Signia, Finesse, Focus, Exceeda, Bingo, and Mustang III tall fescues; and d) Longfellow II Chewings fescue.
4. A severe, uniform, but short-lived, attack of gray leaf spot (blast) incited by *Pyricularia grisea* occurred on a newly planted perennial ryegrass test at the Plant Science Research and Extension Farm, Adelphia, NJ in September, 2000. All commercially available cultivars showed moderately severe to severe turf loss. However, a few experimental entries showed little or no damage. Most resistant plants trace to recent selections from Eastern Europe. Gray leaf spot also occurred on an adjacent new seeding of tall fescue. Many of the newer turf-type cultivars and experimental selections showed moderate to good resistance compared to susceptible plots of Kentucky 31 and highly susceptible plots of Torpedo.
5. Dollar spot was severe on turf plots of endophyte-free cultivars and selections of strong creeping red and Chewings fescues in field trials established in 1997 and 1998 at Adelphia, NJ. Fine fescues containing endophytes showed good resistance.
6. Significant opportunities for substantial genetic improvements of colonial and velvet bentgrass are becoming apparent in our germplasm collection and breeding program. Velvet bentgrass seed as a component of South German Mixed Bentgrass was planted on many golf courses during the early 1900's. A few seedlings with improved adaptation to our hotter, more humid summers survived to produce attractive turfs. Varieties being developed from collections of these plants appear to have significantly improved summer performance in New Jersey turf trials but often need protection from pre or post emergence damping-off.
7. A new putting green bermudagrass developed by Geng Yun Zhang shows promise in field trials in Georgia and New Jersey. It is also being tested in Arizona and North Carolina.

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Breeding and Evaluation of Turfgrasses at Rutgers University

William A. Meyer, James Murphy, Stephen Hart, Karen Plumley, Faith Belanger, James White, Bruce Clarke, Bingru Huang, Thomas Gianfagna, Joseph Heckman, John Sacalis, Qin Yue, Barbara Zilinskas, Dirk Smith, Ronald Bara, Melissa Mohr, Chrissy Kubik, Geng Yun Zhang, Stacy Bonos, Eric Watkins, Yuanhong Han, Michelle Da Costa, Thomas Molnar, Rachael Bara, Eugene Szerszen, and Reed Funk.

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5. Gray leaf spot also occurred on an adjacent new seeding of tall fescue. Many of the newer turf-type cultivars and experimental selections showed moderate to good resistance compared to susceptible plots of Kentucky 31 and highly susceptible plots of Torpedo.
6. Dollar spot was severe on turf plots of endophyte-free cultivars and selections of strong creeping red and Chewings fescues in field trials established in 1997 and 1998 at Adelphia, NJ. Fine fescues containing endophytes showed good resistance.
7. All named hard fescues showed serious summer turf loss in the 1998 NTEP test at North Brunswick, NJ and in a turf trial seeded at Adelphia, NJ in 1996. Hard fescue turfs had become excessively dense in both tests prior to summer turf loss. Hard fescue turfs maintained with little or no supplemental fertilizer after establishment have performed well at both Adelphia and North Brunswick. A few experimental selections of hard fescue in the 1996 test at Adelphia have showed good resistance to this summer thinning.

8. We are seeing substantial progress in the genetic improvement of strong creeping red fescues during our latest cycles of population improvement. Genetic improvement during many previous cycles was more moderate.

9. Significant opportunities for substantial genetic improvements of colonial and velvet bentgrass are becoming apparent in our germplasm collection and breeding program.

10. Velvet bentgrass seed as a component of South German Mixed Bentgrass was planted on many golf courses during the early 1900's. A few seedlings with improved adaptation to our hotter, more humid summers survived to produce attractive turfs. Varieties being developed from collections of these plants appear to have significantly improved summer performance in New Jersey turf trials but often need protection from pre or post emergence damping-off.

11. A new putting green bermudagrass developed by Geng Yun Zhang shows promise in field trials in Georgia and New Jersey. It is also being tested in Arizona and North Carolina.

Publications Since June 30, 1999 (most acknowledge support from the USGA)

A. Referred Journal Articles

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✓ Johnson-Cicalese, J., M.E. Secks, C.K. Lam, W.A. Meyer, J.A. Murphy, and F. Belanger. 2000. Cross species inoculation of Chewings and strong creeping red fescues with fungal endophytes. *Crop Science* 40:1490-1491.

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Rose-Fricker, Crystal A., Melodee L. Fraser, William A. Meyer, John Zajac, and C. Reed Funk. 2000. Registration of 'Jaguar 3' tall fescue. *Crop Sci.* 40:290-291.

Rose-Fricker, C.A., M.L. Fraser and W.A. Meyer. 2000. Registration of 'Shademaster' strong creeping red fescue. *Crop Science* 40:291.

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Bara, Ronald F., Michael Richardson, William A. Meyer, Rachael Bara, Dirk A. Smith, Steve Tubbs, and C.R. Funk. 2000. Registration of 'Millennium' tall fescue. *Crop Sci.* 40:1503-1504.

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C. Refereed Journal Articles Submitted

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