Research Newsflash

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News From the World of Turfgrass Science

American Society of Agronomy

by Doug Brede, Ph.D.

Every November, turf scientists from across North America gather at the American Society of Agronomy annual convention to share their latest research findings. This year's meetings were held at the newly repaired convention center in downtown New Orleans.

Data presented at this meeting can take years to make their way into the popular press. However, your note-taking scribe herein provides you with an advanced glimpse of the latest findings and hottest topics from the world of turfgrass research.

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✓ Jason Lewis, Dale Bremer, Jack Fry, and Steve Keeley of Kansas State Univ. compared irrigation requirements of 30 bluegrass varieties under a large movable rainout shelter in the Transition zone. The rainout shelter, described by the researchers as a greenhouse on wheels, rolled over the plots whenever precipitation was sensed. Irrigation was withheld from the plots until visual symptoms of wilt appeared; at that point, individual plots were re-watered with 1 inch of water using a hose-end nozzle and a very busy graduate student. The varieties Diva, Touchdown, and Kenblue consumed the most water over the summer. Award and Nu Destiny used significantly less. To the researcher's surprise, both Texas hybrid bluegrass varieties in the trial used more water than Award and Nu Destiny. Award and Nu Destiny had among the highest turf quality during the droughts. Moonlight Kentucky bluegrass had the most "wilt cycles" over the summer. A wilt cycle was defined as wilting, re-watering, regrowth, and recovery.

✓Thomas Serensits, Andrew McNitt, and James Brosnan of Penn State Univ. brought the PENNSWING divot machine to bear on the divoting resistance of bluegrasses. The researchers evaluated divot size on turf grown on a sand-based rootzone under various levels of simulated traffic and Primo treatment. They concluded that Rugby II and Limousine had shorter divots and more divot resistance than Midnight Kentucky bluegrass. Primo treatments on the bluegrasses also decreased divoting. Spring aerification treatments did not alter divot length, though they noted a non-significant trend.

✓ Robert Shortell, William A. Meyer, Bingru Huang, and Stacy A. Bonos of Rutgers Univ. studied the capability of bluegrass varieties to reroot after simulated sod cutting under summer heat stress. Some varieties, including Cabernet and Eagleton (typical Mid-Atlantic types), grew fewer roots quickly into the deep profiles and then began to branch. Liberator, Chicago II, and Midnight were classified as "steady rooters" and grew slowly but had a higher amount of roots. Other cultivars such as Baron did not produce roots deep in the soil profile even at the end of the six week study period. Texas hybrid bluegrasses rerooted primarily into the top 14 cm of the soil, while Kentucky bluegrass rerooted into the deeper 21 to 35-cm soil depth.

✓ David DeVetter and Nick Christians of Iowa State Univ. studied late summer chlorosis (yellowing) of Kentucky bluegrass to help determine its cause and cure. A preliminary study by David Minner pointed to iron deficiency as the cause. A series of iron chelates were applied at up to 1.12 kg/ha of iron (the highest rate). Preventive applications, applied before symptoms showed, were totally ineffective. Only curative treatments (applied following symptoms) cured the chlorosis. Chlorosis could be accelerated by heating the rootzone and then cooling it artificially. This finding indicates why the symptoms seem to occur mainly in late summer. Nitrogen applied along with the iron seemed to provide faster recovery. *cont. p. 2*

Kentucky bluegrass chlorosis
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✓ Kelly O'Connor, Katerina Jordan, and Eric M. Lyons of the Univ. of Guelph grew annual bluegrass and creeping bentgrass in simulated golf greens in a greenhouse in monocultures and in combination. Fertilizer was applied at 45g N/100m^2 using either granular, soil drench, or foliar application. Annual bluegrass performed best when *foliar* fertilized twice weekly at 0.023 kg N/100 m^2. Bentgrass produced the most tillers when *soil-applied* fertilizer was added every 2 weeks at 0.045 kg N/100 m^2. Urea produced fewer tillers and smaller plants than ammonium sulfate. A follow-up field interseeding study was commenced in 2007 using T-1 bentgrass seeded into annual bluegrass.

✓ Mark Slavens and A. Martin Petrovic of Cornell Univ. studied the impact of simulated waste water on Kentucky bluegrass and creeping bent grown on a wide range of soils during extended drought. Simulated NY saline waste water was applied for irrigation at two rates: Normal (EC=0.82 dS/m; 2.1 mg NaCl/liter; SAR=0.55) and high salt (twice as salty; EC=1.64 dS/m). In the first year of the trial salt level had little or no effect on turfgrass quality and soil health (soil salt level and water infiltration rate). However in 2006 with an extended drought, normal waste water resulted in lower quality (but acceptable) and higher soil salt levels. After four months of saline irrigation, a sod of Liberator, Rugby II, Total Eclipse, and Odyssey Kentucky bluegrass tolerated 0 to 4 dS/m of salinity compared to 0 to 6 dS/m for creeping bentgrass. Slightly more salt damage on turf was noted in sand.

Testing for soil salinity

✓ Sanalkumar Krishnan and Rebecca Nelson Brown of the Univ. of Rhode Island performed an experiment in the greenhouse to evaluate the salt tolerance of 48 fescue plant varieties. In the 15000-ppm salt treatment, three red fescues and one tall fescue showed the best salt tolerance with 20 to 39% green tissue remaining after treatment. The relative salinity tolerance of Festuca species (from best to worst) was *F. arundinacea* > *F. rubra* > *F. rubra* spp. *fallax* > *F. ovina* > *F. filiformis* > *F. idahoensis* = *F. arizonica*. Seabreeze GT, a fine fescue variety promoted for its salinity tolerance, ranked last place and was virtually dead at 15000 ppm salt.

✓ Stephen Hart and Patrick McCullough of Rutgers Univ. evaluated Syngenta's new herbicide, Tenacity, in the fall of 2006 and 2007 on newly seeded and seedling Kentucky bluegrass for annual bluegrass control. They applied rates of 0.14, 0.21, 0.28 (the label rate), and 0.56 kg ai/ha. Tenacity selectively controlled annual bluegrass when applied preplant, especially at the 1x or 2x label rates. Annual bluegrass control was lower with 4-weeks-after-seeding applications than with preplant applications. The most complete annual bluegrass control was observed with preplant applications followed by sequential applications 4 weeks at 1x or 2x label rates. Treatments provided 73 to 99% annual bluegrass control the following spring. Commercial availability of Tenacity is expected in 2008. The product will have application on low-mow bluegrass fairways for weed and annual bluegrass control.

✓ John R. Watson, Alex J. Porter, Eric M. Lyons, and Katerina S. Jordan of the Univ. of Guelph conducted a greenhouse study to determine the effect of nitrogen rates on SR7200 velvet bentgrass and L-93 creeping bent on 80:20 sand:peat and 100% sand USGA profiles. They measured clipping production, visual turf quality, and root accumulation. Both species improved with increasing nitrogen rate, but the velvet bentgrass declined over time at the higher rates. The researchers found that higher nitrogen fertilizer rates can lead to chlorosis in velvet bentgrass, possibly from ammonium toxicity. SR7200 had significantly less rooting at 30-cm soil depth than L-93. With L-93, foliar applied fertilizer at mid to high rates produced less clippings than a granular product.

L-93 tee and fairway at Aronomink Golf Club near Philadelphia.

Jacklin Seed Welcomes John Rector

John Rector is a new addition to Jacklin Seed's west coast sales team. John worked for Pacific Green Lawn Care Company after graduating from college. In 1980, he was territorial sales representative for Pacific Sod in Camarillo, CA, where he tested hundreds of on-farm grass variety plots. Later he moved to Oregon to work for Turf-Seed, Inc. until they were sold in 2006, when he went to work for Rose Agri-Seed in Hubbard, OR. Through his years of service in the turf industry, John has developed a 'hands-on' technical background in all aspects of turf management.

John's primary role with Jacklin Seed will include supporting sod accounts and distributors, and sales to wholesale seed companies. In addition to his efforts with turfgrass seed, John will be representing the BEST® brand fertilizer line in the Pacific Northwest.