# Ohio State Turfgrass Research Field Day update

BY **PAMELA J. SHERRATT, DR. JOHN R. STREET, & DEB HOLDREN**

Here is a recap of presentations made before hundreds of turf managers last summer in Columbus. Please note these research results are, in many cases, preliminary results that have not been peer-reviewed and published yet:

***Establishment Rate, Wear Tolerance & Recuperative Potential of Athletic Field Grasses.*** The aim of this study was to evaluate traditional and non-traditional athletic field grasses on a native soil and subjected to medium-high maintenance (irrigated, fertilized, aerated, and mowed). The plots were subjected to simulated traffic/wear (25 games in the fall of 2003 simulated a Midwestern high school varsity football field). Germination and establishment rate varied among treatments. First to establish (in order): Festuloliums; perennial ryegrass; tall fescue; bluegrasses. Quality, wear tolerance, spring green-up and recuperative potential are ranked 1-9, with 1 representing poorest and 9 representing best. Percent rhizome activity was assessed spring 2004 by taking a known sample from a plot and isolating plants that had rhizomes. The study is being repeated in 2004. Preliminary results can be seen in Table 1.

**Table 1: Characteristics of Traditional and Non-Traditional Cool Season Grasses for Athletic Turf**

| *Cultivar (s)* | *Quality 15 WAS†* | *Traffic tolerance* | *Spring green-up* | *Rec. potential* | *Percent rhizomes* |
|---|---|---|---|---|---|
| Labarinth tall fescue | 7.1 | 3.0 | 4.3 | 6.1 | 10.0 |
| Grande II tall fescue | 8.6 | 5.8 | 5.6 | 7.5 | 11.0 |
| Thermal Blue bluegrass hybrid | 7.6 | 6.1 | 4.6 | 7.1 | 29.6 |
| Orfeo Kentucky bluegrass | 7.1 | 4.6 | 4.6 | 6.0 | 28.3 |
| Aberelf + SR4420 (50:50) Perennial ryegrass blend | 9.0 | 6.3 | 6.6 | 7.8 | -‡ |
| Spring Green Festulolium* | 5.0 | 3.6 | 4.6 | 5.3 | - |
| Barfest Festulolium* | 5.0 | 3.0 | 5.3 | 5.3 | - |
| Showcase Kentucky bluegrass + SR5100/SRX5961 fine fescues | 7.1 | 4.3 | 4.3 | 6.1 | 28.3 |
| Nexus Perennial ryegrass | 8.6 | 5.8 | 6.3 | 8.3 | - |
| Rendition tall fescue | 8.3 | 5.6 | 6.0 | 7.6 | 6.0 |
| Titan Ltd., Kittyhawk 2000+ Rendition (3-way tall fescue blend) | 8.3 | 4.3 | 5.0 | 7.1 | 13.0 |
| Winter Active Fescue (WAF) | 9.0 | 5.0 | 5.3 | 7.1 | 12.3 |
| Grande II tall fescue + Rugby II Kentucky bluegrass (80:20 mix) | 9.0 | 6.0 | 6.3 | 7.3 | 23.0 |
| Rugby II Kentucky bluegrass + Renaissance perennial ryegrass (80:20 mix) | 8.8 | 6.1 | 5.6 | 7.5 | 6.0 |
| Barlennium perennial ryegrass | 9.0 | 6.5 | 6.6 | 8.1 | - |
| Bariris Kentucky bluegrass | 7.6 | 7.6 | 5.3 | 7.8 | 33.0 |
| LSD (0.05) | 0.5 | 1.6 | 1.9 | 1.0 | 9.5 |

† 15 WAS denotes fifteen weeks after seeding
‡ Data not collected from Perennial ryegrass or Festulolium cultivars
*Festuloliums are not considered "turf" grasses at this time, they are used as forage grasses.

***New Insecticides for Turfgrass Management.*** Dr. David "Bug Doc" Shetlar says over the next year, there will likely be one to two new neonicotinoid (same category as Merit = imidacloprid) insecticides registered for turf use. Syngenta is still working on registering thiamethoxam (=Meridian) for turf after getting Flagship registered for nursery and greenhouse ornamentals. A new company, Arvesta, has Clothianidin, which they are registering, as Arena. These new compounds appear to have slightly broader spectra of activity (Arena kills caterpillars quite well) or they work faster (Meridian and Arena control ants in 3-4 weeks compared to Merit that takes 6-8 weeks). You can also expect some combination products this next season, mainly mixes of neonicotinoids with pyrethroids, which improve rapid knockdown of surface insects.

***Bermudagrass Management for the Cool-Season Zone.*** Bermudagrass use in the Midwest has been limited mainly due to poor low temperatures hardiness, delayed spring green-up and early loss of color in the fall. Discoloration is reported to typically occur at soil temperatures below 50 degrees F and persists until soil temperatures rise above this level in the spring. One aim of this study was to look at how covers can be used to improve winter survival and spring green-up. The two seeded cultivars were Yukon & Riviera. Their performance was similarly affected by the covers. See Table 2 for preliminary results.

***Foliar Feeding & Dollar Spot Incidence.*** Initial research has shown a positive relationship between foliar feeding and turf performance/disease incidence. Foliar feeding in preliminary OSU research appears to significantly reduce the severity of dollar spot when compared to less frequent but equivalent monthly nitrogen rates of granular fertilizers.

In this study, there are four sources of nitrogen (both granular & foliar) and four rates (0.175 lb. & 0.25 lb. N/M weekly and 0.35 lb., and 0.50 lb. N/M biweekly). In addition, the study includes fungicide treatments, full rate and half rate Daconil Ultrex at 30-day intervals and a non-fungicide treatment. The fertilizer treatments were initiated on May 7, 2004 and fungicide treatments were initiated on May 11, 2004. Turfgrass quality ratings are being taken every 2 weeks and dollar spot ratings are being taken during major outbreaks.

Results to date: On September 14 (89 days without fungicide) the 0.25 lb. N weekly rate liquid treatments exhibited no dollar spot present.

***Influence of Sand & Rubber Infill Mixtures on***

**Table 2: Percent Bermudagrass Green Cover Affected by Cover Treatments**

| | % Bermudagrass Cover | | | |
|---|---|---|---|---|
| *Date* | *NO COVER* | *STRAW* | *GEOTEXTILE* | *EVERGREEN* |
| **April 10** | 0 | 5 | 30 | 50 |
| **April 20** | 30 | 50 | 60 | 75 |
| **May 1** | 50 | 80 | 80 | 80 |
| **May 20** | 50 | 95 | 95 | 95 |
| **June 11** | 80 | 100 | 100 | 100 |

† 15 WAS denotes fifteen weeks after seeding
‡ Data not collected from Perennial ryegrass or Festulolium cultivars
*Festuloliums are not considered "turf" grasses at this time, they are used as forage grasses.

**Table 3: Fungicides vs. red thread, rust**

| | % plot blighted by red thread ** | | | | % plot blighted by rust ** |
|---|---|---|---|---|---|
| **Treatment, formulation, and rate per 1000 sq ft** | **May 12** | **May 21** | **May 29** | **June 6** | **July 11** |
| Untreated | 5.0 | 8.3 | 15 | 13.3 | 16.7 |
| Medallion 50WP 0.25 oz | 5.3 | 1.0 | 5.0 | 3.0 | 43.3 |
| Medallion 50WP 0.33 oz | 6.7 | 3.0 | 1.7 | 2.0 | 33.3 |
| Medallion 50WP 0.5 oz | 4.0 | 2.3 | 1.0 | 0.7 | 26.7 |
| Cuprofix MZ 30 42DF 6 oz | 3.3 | 0.3 | 0.0 | 0.0 | 16.7 |
| Bayleton 50DF 0.5 oz* | 3.3 | 2.3 | 0.7 | 0.0 | 3.0 |
| Heritage 50 P 0.2 oz* | 3.3 | 0.0 | 0.0 | 0.0 | 13.3 |
| Bayleton 50DF 1 oz* | 6.0 | 1.0 | 0.3 | 0.0 | 4.7 |
| Endorse 2.5WP 4 oz | 3.7 | 0.0 | 0.0 | 0.0 | 7.3 |
| LSD0.05 | 2.5 | 2.5 | 4.2 | 3.4 | 19.2 |

* A single application was made on 8 May.
** Ratings are visual inspections of plots to determine % plot area blighted by red thread (0 = no disease and 100 = entire plot diseased).

Surface Hardness & Temperature. Currently there is only one hardness standard for synthetic turf systems. ASTM requires that average Gmax (hardness) be less than 200. Companies installing high sand to rubber ratios typically guarantee that Gmax values will not exceed about 175. Companies installing 100 percent rubber infill systems usually warranty that Gmax won't exceed 135. Low sand to rubber ratios are warranted at about 150. Synthetic turf system research at major universities is attempting to determine what is a safe Gmax threshold value.

In addition to surface hardness evaluation, this study is assessing the effect that irrigation can have on controlling surface temperatures. On natural turf, the turf canopy temperature seems to mimic the ambient air temperature. Thus, if air temperature is 85F, then the turf canopy is also 85F. If natural turf is lightly irrigated (syringed), the canopy temperature decreases by about 10F for 30-60 minutes, whereby it returned to the original temperature. On artificial turf (infill), the canopy temperatures were in the range of 110-120 degrees F when ambient air temperature was 85F. When syringed, the infill canopy temperature decreased by 30F for 30-60 minutes, whereby it returned to the original temperature.

***Bentgrass Removal in Kentucky Bluegrass Turf.*** Dr. T. Karl Danneberger & Robert Kerr say the product being used in the experiment is an experimental herbicide (Mesotrione) from Syngenta. The project was to see if the Mesotrione could remove creeping bentgrass from Kentucky bluegrass turf without affecting the Kentucky bluegrass. Treatments were applied July & August 2004. Some of the applications were made sequentially, which proved to be the most successful way of controlling the bentgrass. At the time of the field day, the results suggest that there was approximately 50-70 percent decline in the bentgrass.

***Fungicides for the Curative Control of Red Thread in Perennial Ryegrass.*** This test, conducted by Joe Rimelspach, Dr. Mike Boehm, and Todd Hicks, was on perennial ryegrass mowed at 3.5-in. with clippings returned and no irrigation. No fertilizer was applied before the study. The soil was silt loam, pH 7.3. Treatment applications were made on May 8, May 22, and June 6. Red thread developed in early May in the area from natural inoculums. Treatments were initiated during the early stage of the disease. Significant disease reduction was observed in 13 days by all treatments. Bayleton, Heritage, Endorse, and Cuprofix all showed exceptional red thread control throughout the study. Medallion gave significant red thread control compared to the untreated plots. Rust developed in July and plots were rated 35 days after the last application of treatments. One of the lower rates of Medallion had a significant increase in the amount of rust affecting the turf.

***TSll Alternative Species Establishment.*** TSll is a sand stabilizer material system consisting of polypropylene fibers and natural grass. Previous research has shown that turf species that have limited biomass (e.g. thatch) accumulation but do have aggressive establishment potential are candidates for this kind of system (in Ohio Stadium, the TSll is seeded with 100 percent perennial ryegrass for this reason). The aim of this study is to evaluate establishment rate and performance of several "new" alternative grasses on TSll.

Grasses are: turf-type annual ryegrass (Panterra), transitional ryegrass (TransEze), improved tall fescue (Grande ll), Kentucky bluegrass x Texas bluegrass hybrid (Thermal Blue), Bermudagrass (Riviera), and tufted hair grass (Barcampsia). The rate of seed establishment ranked as: annual ryegrass; transitional ryegrass; tall fescue; bluegrass hybrid; Bermudagrass; >tufted hair grass. In particular, the annual ryegrass germinated in 4 days, had achieved 60 percent cover in 7 days and was 3 inches tall by 10 days. **ST**

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Dr. Charles Mancino demonstrates the F355-01 "Standard Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials" on an infill system.