

New Warm Season Grasses

by Dr. Gil Landry

This article focuses on bermudagrass, since probably more than 90 percent of all warm season sports fields use some type of bermudagrass. As with many items for use on athletic fields today, we have more options to choose from in bermudagrasses than there is scientific data to support. However, there are sources of unbiased information, such as your local County Extension office. This office is part of your state Land Grant University system or Agricultural College.

Another excellent source of information comes from the National Turfgrass Evaluation Program (NTEP) which works through these Land Grant Universities. This organization works with turfgrass growers to organize and help fund turfgrass evaluation trials with the Land Grant Universities throughout the country. NTEP has a web site (<http://www.ntep.org>) where many of these research reports can be found.

As NTEP literature notes, "New turfgrass varieties are constantly being released from public and private sources. In addition, turfgrass breeders are continually interested in having experimentals tested under a variety of growing conditions. In order to determine relative adaptability and performance, it is necessary that test turfgrasses be tested under different environmental conditions. Likewise, turfgrass research scientists and extension agents are interested in the relative performance of new turfgrasses and thus routinely establish evaluation tests.

"In evaluation tests, it is important to have seed of varieties or test entries from certified sources or sources from which the evaluator would be able to verify origins. This gives assurance as to the purity of the entries tested and results reported would likely be reproducible."

NTEP lists the proper name and

experimental number of the turfgrass varieties, along with the company or institution willing to supply them for turf evaluation trials. NTEP also notes whether these varieties are commercially available.

The Options

So what are your options? Table 1 lists the seeded and vegetatively produced bermudagrasses that were in the 1992 and 1997 National Bermudagrass Trials organized by NTEP. In 1992 and 1997 there were 26 and 21 research sites, respectively, throughout the South and transition zone of the country. Locations ranged from Maryland in the east to California in the west to Illinois in the north and Florida in the south.

Historically, these tests provide a good general evaluation of a turfgrass over a wide range of environments and maintenance programs. However, the key to in-the-field usability of any performance data is how closely the growing conditions and program match your specific conditions. So basically, the closer one is to a study and the more similar the maintenance practices are, the more meaningful the information.

Obviously, there are other options to consider in variety performance consideration, including reputable industry sources and local examples of turfgrass performance near you in both testing and in field-use situations.

Tifway is the most common bermudagrass used on moderate to high budget facilities and most of the better performing sports field grasses have been vegetatively reproduced. However, there probably are more recreational sites with seeded grasses in the south because of budget constraints.

When you access cultivar performance data, you need to evaluate how similar your facility maintenance pro-



The turfgrass traffic simulator has drums with cleats attached, to simulate one football game under wet conditions.

Courtesy: Gil Landry

gram is to those used in any study. Along with environmental conditions, consider the soil profile, soil pH, soil phosphorus and soil potassium levels, the rates and timing of nitrogen applications, the mowing height and any weed, insect, or disease controls.

In the 1992 NTEP test, the top ranked bermudagrasses for the four year study nationally were Baby and Tifgreen. These were closely followed by Tifway, Midlawn, Midiron and Midfield. All six of these entries are vegetatively produced grasses. The top performing seeded types were Mirage, OKS 91-11, J-27 and Jackpot. Arizona Common, the industry standard, was the poorest performing entry in the study.

In the 1997 NTEP test, the top ranked entries were OKS 95-1, OKC 18-4, Tifgreen, Tifway, Midlawn and Princess. These were followed by TifSport and CN 2-9. In 1999, the top performers were TifSport, OKS 95-1, Tifway, and OKC 18-4. These were followed by Tifgreen, Princess, Midlawn and OKC 19-9. For the first time there are seeded types, OKS 95-1 and Princess, performing as well or better than the best vegetative types.

Traffic Tolerance Testing

For most sports field managers, traffic tolerance is another major factor that helps one select the best turfgrass for their conditions. At the University of Georgia we have applied simulated traffic to the 1997

NTEP trial.

Eighteen seeded bermudagrasses were planted on June 26, 1997, at the rate of one pound per 1,000 square feet. Ten vegetatively reproduced bermudagrasses were plugged with 1.5-inch diameter plugs on 6-inch centers on June 30 or July 2, 1997. The plots are 6 by 16 feet with three replications arranged in a randomized complete block design. The site has a sandy loam soil with a soil pH of 5.9 and high P and medium K levels. It is in full sun.

The mowing height is 0.75 inches and the area is cut two times a week. The N rate is 5.25 pounds per 1,000 square feet per year with 0.75 lbs. applied each month from April through October. The trial is irrigated to prevent dormancy. Pest problems are treated as needed, with a preemergence herbicide being used for crabgrass control.

Traffic tolerance is being evaluated using a "Traffic simulator." The simulator is used to simulate one football game under wet conditions. It has two drums with football cleats attached to each drum. The drums have different size sprockets so they turn at different rates to cause tearing as well as digging or cleating, just as the players do.

Traffic was applied in June, September and twice in October in 1998. Obviously, the grasses recovered from traffic more rapidly during the rapid growth cycle of summer and much slower in October. Generally, most vegetative entries have better traffic tolerance than the seeded ones. Traffic tolerance appears to be closely associated with turf density. Those grasses with high density are not thinned out as fast as the more open seeded types.

Mini-Verde, a dwarf bermudagrass, has excellent traffic tolerance and was followed by CN 2-9, Tifway, OKC 19-9, and TifSport. Princess was easily the best performing seeded type and was followed by Jackpot, PST-R69C, OKS 95-1, J-540, and Shangri La. Common bermudagrass had the poorest traffic tolerance.

Such research provides data to assist sports field managers in making turfgrass variety decisions.

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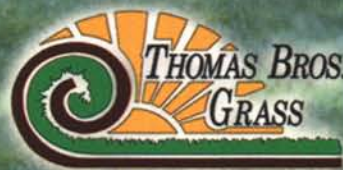
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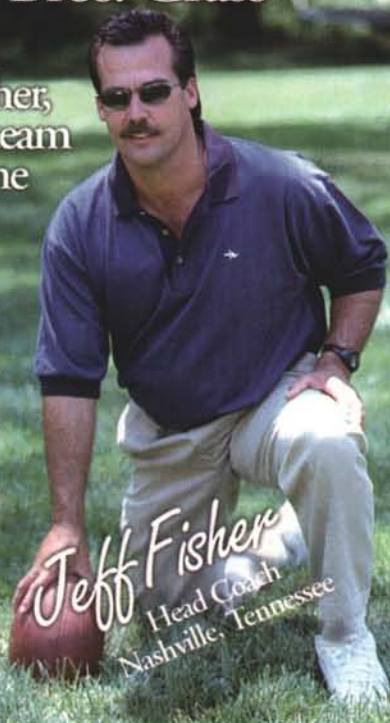
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