

Seeded bermudagrass varieties offer new opportunities

BY DR. MIKE RICHARDSON

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One of my favorite sayings is that "bermudagrass can cover a multitude of sins." Because of its toughness and tenaciousness, this tried and true turfgrass continues to be one of the most successful grasses for sports fields in southern and transition-zone environments. Some of the strengths of this aggressive grass include good wear tolerance, fast recuperative potential, good heat and drought tolerance, and relatively good disease and insect resistance. In addition to being tough, bermudagrass can produce a very high quality surface for a range of sporting activities.

There are currently some 40-50 cultivars of bermudagrass (*Cynodon* spp.) that are available to sports field managers in the United States. Of these, "common" bermudagrass is probably found on more municipal parks, school grounds, and recreational sports fields than any other bermudagrass type. However, there has always been a stigma associated with common bermudagrass that it produces an inferior turf and is not suitable for many higher-end sports facilities. While it does not produce a surface that will compete with some of the advanced hybrid bermudagrass cultivars such as Tifway, Midlawn, or TifSport, there are many sports turf applications where common bermudagrass is an excellent option.

Most of the high quality bermudagrass cultivars that were developed from 1950-1990 were vegetative hybrids between *C. dactylon* and *C. transvaalensis* or natural clones that were selected for improved turf performance characteristics such as darker color, increased density, and finer leaf texture. During that period, hallmark cultivars such as Tifway, Midlawn, and Tifdwarf were released and became the dominant cultivars in the bermudagrass market. Although these cultivars did produce an outstanding surface and were genetically pure lines, a downside to the grasses was that they did not produce viable seed and had to be planted from vegetative sprigs, plugs, or sod.

In the 1980's, many private and public plant breeders began to work

with fertile *C. dactylon* clones, making crosses to produce seed-propagated cultivars of bermudagrass with improved performance over the standard "common" bermudagrass. The early days of that work yielded several important cultivars such as NuMex-Sahara, Mirage, and Sonesta. These cultivars showed improvement over "Arizona common," but there was still a sizable gap between these improved seeded types and the vegetative standards. However, continued efforts by several plant breeding groups made large strides during the 1990's to develop seeded cultivars that are now considered the equal of vegetative standards such as Tifway.

The three cultivars that have received the most interest include Princess-77, Riviera, and Yukon. These grasses are much improved over earlier seeded types and are now being used in many high-profile sports facilities.

When considering a vegetative vs. seeded bermudagrass, there are several things that a sports field manager should consider. The first and most important issue is performance. Will seeded bermudagrasses hold up on an intensively used sports field compared to vegetative grasses? Most of the data that has been collected to date in this area would suggest that they would. Research from the University of Kentucky has shown that the seeded cultivars (Princess-77, Riviera, and Yukon) performed similarly to Quickstand (vegetative) bermudagrass when simulated traffic was applied to the plots in the fall after establishment, according to David Williams at UK.

We have also used Riviera to renovate areas of our football game field at the



Baum Stadium, University of Arkansas

University of Arkansas and it has thrived in areas where the existing Tifway had problems from traffic injury and winterkill. Another testament to the increased acceptance of seeded bermudagrass is that Princess-77 has been used to sod the last two Super Bowl venues, says Charlie Rodgers at Seeds West Inc.

Method of planting

A second important factor to consider in selecting a bermudagrass is the ease at which the grass can be planted and maintained. This is an area where I believe that seeded cultivars shine. As many new sports fields feature sand-based construction, the method of planting is critical to avoid soil layering or contamination. With vegetative grasses, the primary option is

sprig planting, as sod will generally contain a soil base and introduce a layer that will affect drainage and long-term performance. Seeded bermudagrass can be planted directly into the sand without introducing other contaminants such as soil or weeds that might come in from the sod fields. Although an option for vegetative grasses would be washed sod, this is a very expensive propagation method and would only be feasible for elite stadiums.

In addition to the initial establishment, renovation and repair of damaged turf is a fact of life on almost every sports field. With vegetative bermudagrasses, sprig planting or sod have been the options of choice to renovate worn areas. Although sod is an excellent choice when fast turn-around is needed, the issues of soil layering and maintenance of the surface grade must be handled appropriately. Sprig planting can also be accomplished, but specialized no-till planters are typically required to incorporate sprigs into existing fields and can add significantly to the cost of repair. With seeded bermudagrasses, most renovations are possible with equipment that is readily available to the turfgrass manager, such as a verticutter, drop seeder, and topdresser. We have successfully renovated weakened areas of bermudagrass using a seeded bermudagrass by verticutting the area in several directions, seeding at an appropriate rate (0.5-1.0 lb. pure-live-seed / 1000 sq. ft.) and top-dressing the seed with a light rate of sand. Complete stands of bermudagrass were ready for play within 6 weeks of planting. Also, as with initial establishment, there is minimal concern using seed with introducing contaminants or affecting the surface grade during renovation.

Another area that we have researched at the University of Arkansas includes the use of dormant seeding techniques to renovate weakened areas of sports fields. In these studies, we have found that bermudagrass can be successfully seeded as early as February 15, approximately 8 weeks before bermudagrass would normally break dormancy. This allows turfgrass managers to renovate areas during period of low use such as mid- to late-winter and the seed will maintain viability until soil temperatures reach a critical threshold (~65 degrees F).

Cost

The final area of consideration between seeded and vegetative bermudagrass cultivars is cost. When compared to sprig planting or sod, improved seeded bermudagrasses are very cost-effective. Costs for the seed are approximately 50% the cost of sprigs and less than 10% the cost of sod and installation can generally be accomplished by the turfgrass manager, where sprig and sod establishment will generally require additional equipment or labor to accomplish the task. In addition to the cost advantage, establishment rates for seeding are generally about 1/2 the time it takes to establish full cover from sprigs.

As seeded bermudagrass cultivars gain acceptance throughout the turfgrass industry, sports field managers will increasingly be asked to consider these new grasses. The initial observations that have been made through research and in some case studies would suggest that these grasses will find a more prominent place in sports field management and will give sports turf managers another tool for the maintenance of high quality surfaces. **ST**

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