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Seed

Development



by Eugene Mayer and Doug Brede

Groundskeepers and turf managers are constantly looking for new varieties and species of seed that will improve the quality of their playing surfaces and tolerate more wear. Historically, seed research has produced a considerable amount of variety improvement in both cool-season and warm-season grasses over the past 20 years. With the current level of plant breeding and the increasingly prevalent use of genetic engineering, seed researchers hope to continue this trend to meet the demands of athletic fields.

Trends

Researchers agree that in terms of the research being done in athletic turf seed development, there are no new trends. Work continues to pursue the same goals that it has for years.

The problems Sports Turf Managers find in their fields remain the same. Facilities are often larger than their budgets, so seed varieties that help ease maintenance duties are very desirable. Turf must provide excellent resistance to a number of diseases; tolerance to a wide range of stresses, such as heat, drought, and shade; the vigor and durability to withstand traffic; and the ability to recover from damage that these factors cause.

If there is a trend in athletic turf seed development, it's specialization. More and more, breeders are developing specialized varieties to meet high-intensity traffic and other conditions

found on sports turf. No longer are varieties being bred for the mass market.

Today, varieties are tailored to specific applications. There are more turf breeders and more breeding programs ongoing than ever before. Competition between breeders has opened the door for specialty varieties suited to specific niches.

A successful variety maintains a careful balance between superior turf performance and robust seed yield. Seed yield is something that many athletic field managers take for granted in a turf variety. But when it comes to long-term success, a top grass variety will remain in production only if it satisfies the user *and* the seed farmer. It's got to be tops at both.

High-maintenance turf

With a high-maintenance sports field comes high visibility. These are fields that draw a large pool of spectators, and the size of their maintenance budgets is proportional to the attention they receive.

These fields have to produce a display of color and texture that really catches the eye. They require careful attention to every detail. Most importantly, they've got to withstand the demanding wear and tear of athletic competition.

Kentucky bluegrasses perform well under high-maintenance conditions that provide abundant fertilization and irrigation. Their underground rhizomes help hold the turf together and

fill in worn spots quickly. Bluegrasses also exhibit good tolerance to a wide range of diseases.

Bluegrasses perform best in turf when combined with perennial ryegrasses. Ryegrasses provide a higher level of wear tolerance than other cool-season grasses. They germinate and establish quickly, and can provide a useable turf within three to four weeks. This gives the slower-establishing bluegrass seeds a bit of a cushion. The bluegrass seeds return the favor by providing stability upon maturity with the rhizomes that ryegrasses lack.

Warm-season bermudagrasses provide another option for high-profile field seeding, particularly in warm climate zones. Bermudagrass produces a stable playing surface, especially on sand-based fields.

Brenda Dossey of Seeds West explains that while there aren't many disadvantages to using the species in high-maintenance situations, "Bermudagrass, as a species,

has two characteristics that some may consider drawbacks. First, it has relatively high nitrogen requirements. Second, it does go dormant in the winter."

species has not adapted to the climate. This is creating new challenges to groundskeeper's cultural maintenance practices.



Breeders continue to develop specialized seed varieties to meet high-intensity traffic and other conditions found on sports turf.

Courtesy: Jacklin Seed

Despite this second problem, bermudagrass use is becoming increasingly common in high-profile fields in northern regions, where the

Low-maintenance turf

Low-maintenance fields are not watered and fertilized as often as their higher-maintenance counterparts, and they may be constructed from compacted clay. Sustainability is the prime factor in choosing a grass seed.

Turf varieties for low-maintenance sites must have a proven track record. A good showing in the National Testing helps, but viable varieties must prove successful in sports turf applications over a period of time.

When choosing a good grass for low-maintenance fields, one mistake buyers often make is to seek out the lowest priced seed. This is the wrong strategy. Paying just a few pennies more per pound of seed will save water, fertilizer, and pesticide costs over the life of the turf.

In the past, common varieties were

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recommended for low-maintenance turf. Unfortunately, these varieties lack performance features that allow turf to endure the wear particular to sports fields. They may perform well in their first year, but they will fail to meet the field's needs in the long term.

Cool-season tall fescues perform well on low-maintenance athletic fields. They have extensive root systems that can grow deep into the soil profile to gain access to water and nutrients. Tall fescues also exhibit good disease tolerance, and they form a dense and finely textured turf that is desirable for athletic applications.

For warm-season applications, there are several bermudagrass varieties that work well on low-maintenance turf. Several varieties provide tolerance to drought and wear, while still maintaining the uniformity that sports fields require.

Future

Certain industry trends are already having an impact on sports turf seed development. The new BancOne retractable-dome stadium in Phoenix has created a new and challenging environment for the facility's turf crew. The University of California developed a variety of Zoysiagrass to meet the stadium's particular needs.

Crystal Fricker of Turf Seed reports that combgrass is also offering promise to covered facilities like the one in Phoenix. First introduced in Europe, the new species has tested well in cool climates and in shaded areas. The species' good winter color and growth, high density, and quick establishment give it lots of potential to be a future player in the sports turf market.

Genetic engineering will also play a big role in the future of seed development. It's likely that the next big gains

in sports turf seed research will involve the isolation of single genes for such traits as herbicide resistance, disease resistance, and insect resistance.

Engineered herbicide resistance will allow us to use safer herbicides without risking damage to turf. This will promote greater uniformity in turf, which will translate to safer and more playable fields.

Increased disease and insect resistance will decrease our reliance on pesticides. Plants will be healthier, and better able to withstand the stress of heavy traffic. □

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