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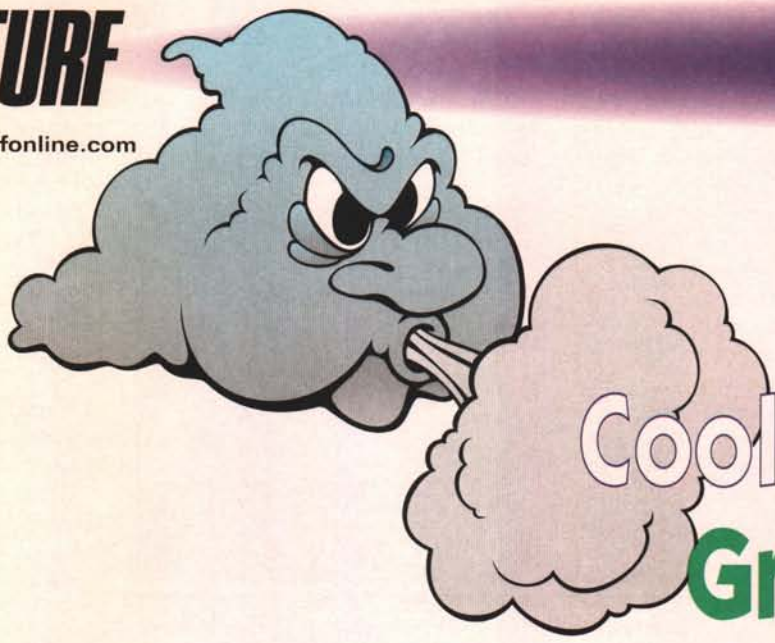

Cool-Season Grasses

Selecting the proper seed variety can improve the overall performance of your turf.

by Victoria Wallace

Turfgrass selection affects the density, uniformity and overall consistency of your playing surface. Correct selection can improve a field's quality and playability, and can greatly reduce potential concerns of sports turf managers.

In cool-season climate zones, the sports turf industry relies primarily on Kentucky bluegrass, perennial ryegrass and tall fescue. Over the past 20 years, turfgrass breeders have provided athletic field managers and other landscape professionals with vastly improved cultivars of these turfgrasses.

Kentucky bluegrass

Kentucky bluegrass (Poa pratensis) has long been a favorite of athletic field managers. Known for its ability to spread vegetatively via tillers and rhizomes, Kentucky bluegrass produces a dense turfgrass surface.

Its rhizomes contribute to the turfgrass' tensile strength and allow the plant to recuperate from injury easily. On sports fields, capacity to re-grow and recover from divot injury is crucial to turf density and overall uniformity.

Kentucky bluegrasses exhibit excellent cold tolerance, and can survive well into the USDA's Hardiness Zone 2. However, compared to other cool-season turfgrasses, Kentucky bluegrass can be slow to germinate and establish itself from seed.

Soil temperatures cause tremendous variations in germination. If soil temperatures are above 60 degrees F, germination can occur within 10 days. However, cool spring temperatures of less than 55 degrees F can result in a slower germination range of 14 to 21 days.

Kentucky bluegrass generally requires moderate to high levels of fertilization to maintain its density and overall health (3 to 4 lbs. per 1,000 sq.ft. per yr.). If bluegrasses are maintained at lower fertility levels, turf is subject to greater environmental stress and pressure from pests.

Over 120 cultivars are listed in the current NTEP High Maintenance Kentucky Bluegrass Trial, and this is only a partial representation of the numerous varieties on the market. Varieties differ in color, blade width, heat tolerance, aggressiveness, seed yield, plant height, density, pest resistance, green-up, and fall color retention.

Aggressive bluegrass cultivars, such as Limousine, P-105 and Touchdown, exhibit the most dense lateral growth. They have excellent recuperative potential, but may produce excessive thatch unless managed properly.

For fields that host spring sports, early green-up is an important consideration. It indicates that the turf has resumed its active growth. Varieties such as Dellwood, Washington and Georgetown green-up more quickly than other bluegrasses. They start growing earlier in the spring season, so they are better able to recover from injuries associated with spring sports.

On the other hand, bluegrass varieties such as Ram I, Classic and Challenger retain their color late into the fall season. This indicates that they have an extended season of active growth, which makes them better able to tolerate stress and recover from late season injury associated with fall sports.

Varieties such as P-105, NuGlade, Limousine and Ram I exhibit better persistence under a low height-of-cut, and still maintain density and recuperate from wear easily. This can enhance playability, foot traction and ball roll in such sports as field hockey and soccer.

Eagleton, Ram I, Nustar, Belmont, Dellwood, Midnight and Preakness have faired well in the low maintenance category. They show good tolerance to heat and drought stress, low fertility soils, and pest pressures. These varieties are useful in the Mid-Atlantic and transition regions of the U.S., where heat tolerance is particularly important. They can delay the window of summer dormancy and allow active growth to continue longer

into the season, so turf exhibits improved recuperative growth.

Perennial ryegrass

Turf-type perennial ryegrass (Lolium perenne) has long been a staple of sports turf managers across temperate regions and transition areas in the U.S. Its ability to germinate and establish quickly allows perennial ryegrass to get a foothold while other grasses wait to germinate. Seeding with perennial ryegrass can extend the window of opportunity for overseeding, and can add some flexibility to the seeding schedule of the athletic field manager.

Recognized for its excellent wear tolerance, perennial ryegrass performs well on heavily used fields and on areas of intense wear within individual fields. Ryegrasses tolerate compacted soils and are able to compete with weeds such as annual bluegrass.

There are approximately 100 entries in the current NTEP Perennial Ryegrass Test. The top rated varieties include: Palmer III, Pennant II, Premier II and Brightstar. They provide a high-density turf that can compete with Poa annua.

Recent breeding efforts have developed many positive improvements in turf-type perennial ryegrasses. Some of these include: a rich, darker green color; finer blade width; lower growth profile; improved disease resistance; improved heat and wear tolerance; and improved mowability. Also, most new perennial ryegrasses contain an endophyte that provides resistance to surface feeding insects and improved turf vigor.

Tall fescue

Turf-type tall fescues are popular athletic field grasses in the Mid-Atlantic and transition regions of the U.S. They are becoming increasingly popular in cooler, temperate regions, and on multi-use fields with heavy play and limited supplemental irrigation.

Recent tall fescue releases have improved upon the coloration of past varieties. Their dark green color matches more closely with that of Kentucky bluegrasses and turf-type perennial ryegrasses. New turf-type tall fescues have improved tolerance to the traffic and lower heights-of-cut associated with sports fields.

A study completed at Rutgers University in 1995* identified different categories of tall fescues and examined the wear tolerance of the tall fescue groups. The group labeled "lower growing vigorous" types contained a lower growing, but more vigorous tall fescue than the "dwarf" type. They proved to be excellent for athletic field use.

These types, such as Rebel Jr., had a greater number of tillers per unit area than the other categories of turf-type tall fescues. In general, tall fescues perform best when a one- to two-inch height-of-cut is used for sports fields.

Tall fescue prefers to grow in warm soils. In northern climates, where soil temperature cools early in the season, the active growth of tall fescue turf will slow more quickly. The turf will possess a decreased ability to recover from injury during the fall season. If a heavy fall schedule is permitted on tall fescue fields, the turf cannot actively recover from injury.

Mixtures

Perennial ryegrass compliments Kentucky bluegrass nicely in top-quality sports turf mixtures. Perennial ryegrass' rapid rate of germination, wear tolerance, endophyte presence, and lack of thatch production add to the recuperative potential, cold tolerance, and natural winter injury resistance of Kentucky bluegrass.

Mixtures of the two species can vary based on the level of intended activity of a field and on planned maintenance schedules. For high maintenance fields with minimal to moderate activity, either 100% Kentucky bluegrass or a blend of 80% Kentucky bluegrass/20% perennial ryegrass (by weight) is recommended. Fields with moderate maintenance schedules that must tolerate moderate to heavy levels of play should be seeded to ratios of 70-60% Kentucky bluegrass/30-40% perennial ryegrass.

When adding Kentucky bluegrass to mixtures, moderate to aggressive

varieties should be included (Limousine, P-105 or Touchdown). They have proven their ability to recover from injury quickly.

A higher percentage of ryegrass is recommended on heavy-use fields, where wear can be critical and there is less opportunity for the turf to recover. 100% turf-type ryegrass blends are recommended on fields where play is heavy, maintenance is low to moderate, compaction is prevalent, and a turf cover needs to be maintained.

Ryegrass may be repeatedly overseeded on areas that are particularly worn, even if the remaining portions of the field continue to use a bluegrass/ryegrass mixture. For high-use fields, overseeding is strongly recommended with all mixtures or blends.

Typically, tall fescues can be used in combination with Kentucky bluegrass and/or perennial ryegrass. A popular formula has combined 80% turf-type tall fescue, 10% Kentucky bluegrass, and 10% turf-type perennial ryegrass. Because tall fescue spreads only via tillers, the rhizomatous bluegrass helps keep the turf knitted together while the ryegrass provides additional wear tolerance.

Be aware that over time, the species population within the turf of a given playing surface will change due to a variety of factors, such as wear, overseeding, and susceptibility to environmental stresses. Also, bear in mind that turfgrass selection cannot prevent or alleviate problems associated with a poorly constructed field, or problems associated with compaction from unrelenting and incessant, heavy use.

However, proper seed selection can improve the overall performance and density of your turfgrass. This goes a long way toward providing a safe playing surface. ❑

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**References: Ventola, M. W. 1995.* Wear Tolerance and Recovery of Tall Fescue Cultivars under Selected Maintenance Regimes. *Master of Science Thesis. Rutgers University.*