JB COMMENTS

Interpreting Cultivar Assessments for Putting Greens

Penncross creeping bentgrass (*Agrostis stolonifera*) and Tifdwarf hybrid bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) have been the dominant cultivars of choice for use on putting greens in the cool and warm climatic regions, respectively, for many decades. More recently, a number of new cultivars of both species have been introduced, including very high-density types that are adapted to extraordinarily close mowing and also some intermediate types. Consequently, a great deal of interest has been generated concerning research assessments of these new cultivars.

As one reviews the research data conducted under putting green conditions, **it is important to know the particular cutting height and mowing frequency utilized, as well as the nitrogen fertility program maintained relative to the type of root zone utilized.** With this information, one can assess the results relative to the particular cutting height and fertility level desired on any specific golf course. Unfortunately, there is a lot of research being published on putting green cultivar performance from various locations that does not indicate the cutting height and/or nitrogen fertility program practiced. This negates its practical usefulness.

Cutting height strongly influences the ball roll distance or speed achieved on putting greens. The trend on many golf courses has been to the very high speeds achieved by close mowing of from 3.6 to 2.5 mm (9/64–1/10 in.). There are other golf facilities, such as lower-budget public golf courses, where intermediate speeds and higher cutting heights may be preferred. **If high speeds are desired, it is important to make decisions concerning cultivar performance based on research methods where the turf has been maintained at the same close mowing heights.** At the lower cutting heights, lowering the cutting height by just 0.8 mm (1/32 in.) in a study can result in a distinct separation in cultivar performance among either the hybrid bermudagrass or the creeping bentgrass cultivars.

The nitrogen fertility level also is an important consideration in cultivar selection. Generally, the preference should be for cultivars that have a lower nitrogen fertility requirement. **Among the newer cultivars released, the nitrogen requirement can vary from 4- to 6-fold in the case of the hybrid bermudagrasses and 2- to 4-fold in the case of the creeping bentgrasses.** Typically, both Penncross and Tifdwarf bermudagrass have been maintained at relatively high nitrogen fertility levels. Many of the current cultivar assessments ongoing are utilizing the traditional nitrogen fertility rates. **Under these situations the cultivars with one-sixth to one-fourth the nitrogen requirement being used, as expected, will form a high biomass/thatch accumulation, which is objectionable.** In contrast, **utilizing the lower nitrogen fertility requirement of certain cultivars will result in minimal thatch accumulation, especially if combined with a very close cutting height.** Thus, in assessing studies addressing the potential biomass/thatch accumulation problems of certain cultivars, it is important to consider the nitrogen fertility level and cutting height used in the experiment.

ASK DR. BEARD

Q *A turfgrass newly planted on a high-sand root zone initially had good rooting, but subsequently exhibited a distinct loss of roots. What is the problem?*

A **The key in this situation is sustaining nutrient availability in a high-sand root zone over an extended period of time.** Preplant fertilization of both major and minor nutrients is normally practiced prior to seeding or sod transplanting. Initial root development is good if proper preplant fertilization has been provided.

Subsequently, the root system may decline and the aboveground shoot growth may slow. **Quite commonly this is due to a lack of essential plant-available nutrients caused by rapid downward leaching of the water-soluble nutrients from the surface root zone.** This nutrient leaching is particularly severe in high-sand root zones, and may be accelerated even more by excessive irrigation. The key in irrigation of a high-sand root zone with a perched hydration construction is to replace only that soil water that has been lost by evapotranspiration. Any water applied in excess of this amount simply is flushed through the root zone, which in turn also accelerates the leaching of water-soluble nutrients.

A second dimension in this nutrient stress development is the inability of many controlled-release fertilizers to effectively release the essential elements, because there is a lack of microorganisms needed for the decomposition and nutrient release process.

Clearly, the solution is to avoid applying excessive amounts of water and to practice timely applications of all appropriate essential nutrients as needed. Frequently, **a safe approach in terms of ensuring plant nutrient availability in the initial 2 to 3 months with a high-sand root zone is weekly foliar applications of a complete soluble fertilizer containing a full compliment of both macro- and micronutrients.**

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