JB Comments

All-Encompassing "Ultradwarf" Terminology Confusing

There are a number of turfgrass specialists grouping the newer high-density hybrid bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) cultivars that are tolerant of very-close mowing heights on putting greens as "ultradwarfs." Included in this grouping are Champion, FloraDwarf, MiniVerde, MS Supreme, and TifEagle. **In utilizing the "ultradwarf" terminology they also assume the five cultivars have similar growth habits and cultural requirements. Unfortunately, this is not the case and is leading to problems.** A more correct terminology would be **ultradense.**

In terms of growth habit, certain of these ultradense cultivars are full dwarfs, while others are vertical-dwarfs with normal to accelerated lateral stem development. An example of the former is FloraDwarf, while Champion and MS Supreme are examples of the latter vertical-dwarf characteristics. The reason that the type of growth habit needs to be described and understood is that it can strongly affect the cultural practices to be used.

In terms of specific cultural requirements the research information is limited at this point in time. **There is evidence that among these five ultradense cultivars the nitrogen requirement can range between 0.3 to 0.5 lb N/1,000 ft^2 (0.15–0.25 kg N/100 m^{-2}) per growing month, to as high as 2 lb N/1,000 ft^2 (1 kg N/100 m^{-2}) per growth month.** Obviously, a cultivar having a nitrogen requirement in the lower range will tend to develop a serious biomass/thatch problem if fertilized in the higher nitrogen range, whereas a cultivar requiring the high nitrogen level will perform unacceptably if fertilized in the lower nitrogen range.

There also is research indicating that certain of these five ultradense cultivars vary in their response to lowering of the cutting height from 0.2 to 0.1 or 3/16 to 1/10 inch (4.8 to 2.5 mm). There is an increased density for certain of these cultivars, while certain others will start to thin at cutting heights of 1/8 inch (3.2 mm) and below.

The same principles apply to the newer high-density creeping bentgrass (*Agrostis stolonifera*) cultivars that tolerate very-close mowing.

In summary, it is important to recognize that each of the ultradense cultivars has specific cultural requirements to maximize their performance. Thus, it is important to obtain clear information in writing from the developer/marketer of each individual cultivar as to the cultural requirements they recommend.

Turfgrass Shade Adaptation

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better shade adaptation of FB 137 bermudagrass was associated with a very short internode length, which facilitated a better sustainable shoot density under shade stress.

TURFGRASS SPECIES SHADE ADAPTATION

Turfgrass shade adaptation is the relative ability of a turfgrass to persist and grow under a multiplicity of shade-related stresses. It does not involve a single factor, but a rather complex microenvironmental regime. The comparative shade adaptation of turfgrasses in their respective climatic adaptation regimes and optimum cultural practices are summarized in Table 2. There may also be variations in shade adaptation among cultivars within certain species.

Cool-Season Turfgrasses. The **fine-leaf fescues** (*Festuca* spp.) continue to be the preferred species for shaded environments in cool climates. **Rough bluegrass** is adapted to cool, wet shaded environments. The **bentgrasses** (*Agrostis* spp.) are satisfactory, especially if a preventive fungicide program is followed and the soil is moist. **Tall fescue** is adapted to shade in the warmer portions of cool-humid climates where freeze stress kill is not a problem.

Warm-Season Turfgrasses. The shade adaptation of **St. Augustinegrass** is excellent in warm climates, except for the Floratam cultivar, as is kikuyugrass (*Pennisetum clandestinum*). The zoysiagrasses (*Zoysia* spp.) have good shade adaptation, while the bermudagrasses have very-poor shade adaptation. Only a few bermudagrass cultivars, such as MS-Choice, show promise for use in shaded environments.

Root Zone Aspects. The comparative role of the root system in the competitive adaptation of various turfgrass species to tree roots has received little attention. One *in vitro* study has been published in which **tree roots significantly reduced the shoot growth of four cool-season turfgrass species even when water and nutrients were maintained at optimum levels.** It also was found that **Kentucky bluegrass was more severely affected by competition from tree roots than red fescue, rough bluegrass, and perennial ryegrass.**