

Understanding the New Dwarf Bermudagrass Cultivars

The new high shoot density dwarf hybrid bermudagrass (*Cynodon dactylon* x *C. transvaalensis*) cultivars are being grouped together under one description by a number of authors and speakers. However, this is inappropriate and in fact can be very misleading to the golf course superintendent. These cultivars may vary substantially in their stem morphological-growth characteristics, and consequently the specific cultural practices required for their maintenance on putting greens at a 1/8 inch (3.2 mm) mowing height and lower also may vary. Their only common attribute may be a higher shoot density in comparison to Tifdwarf and Tifgreen.

One morphological-growth group termed **vertical dwarf** has a distinctly slower leaf extension rate than Tifdwarf and Tifgreen, but has lateral stem number and growth characteristics that are much greater than for Tifdwarf, Tifgreen and Tifway. An example of the vertical dwarf growth habit type is the cultivar Champion. This type of cultivar requires a distinctly

different cultural strategy in terms of stem biomass management. Mowing at less than 4 mm is essential, plus frequent vertical cutting and high-density mini-tine cultivation of up to weekly during periods of rapid shoot growth. A lower nitrogen nutritional level than for Tifdwarf also is probable, depending on the specific cultivar.

A second cultivar grouping would have a slower leaf extension rate than for Tifdwarf and a lateral stem morphology and development comparable to that of Tifdwarf. Finally, a third group would be those cultivars with a vertical leaf extension rate and a lateral stem development both of which are much slower than those for Tifdwarf. A cultivar with much less lateral stem development could be significantly slower in its establishment rate and recovery from turf injury, especially on putting greens.

Certain of the recently released high-density dwarf bermudagrass cultivars are yet to be characterized as to their comparative stem morphology-growth characteristics. **This research is needed in order to guide selection of the most appropriate cultural strategy to be employed.** 

Ask Dr. Beard

Q *The use of covers to protect against winter injury has been employed increasingly on putting greens in our colder, northern regions. What is the possibility of turfgrass kill under these covers by heat stress?*

A Under certain conditions it is possible for temperature buildups to occur under covers that would result in turfgrass kill, especially for cool-season grasses. The potential temperature rise is greater under clear covers than under opaque or black covers. In the case of clear covers, the solar radiation is transmitted through the cover and is both absorbed and reflected by the grass canopy. A major portion of the absorbed energy is reradiated at a longer wavelength, which in turn is trapped under the cover, resulting in an accumulation of heat. **Temperatures in the grass plant would have to reach 104°F (40°C) for kill of annual bluegrass (*Poa annua*)**

to occur. Kill to other species would involve higher tissue temperatures. Conditions under which these temperatures most likely would occur include intense solar radiation for an extended period of time, relatively warm soil temperatures, dry soils, and a mild atmospheric temperature with minimal wind. If conditions are right, the heat buildup under a transparent cover can occur relatively rapidly. Thus, **it is very important to monitor temperatures under these covers when such conditions exist.** If there is a potential lethal heat stress problem developing, the cover must either be removed or a means of introducing cooler air under the cover must be employed. 

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