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Research Summary

Cultivar Evaluations

As the introduction and promotion of new turfgrass cultivars continues, you have the opportunity to choose from among many species and cultivars. Your choice(s) will be determined by a number of factors that must be prioritized as dictated by site-specific conditions. They include (a) climate—temperature and rainfall distribution, (b) sun vs. shade, (c) soil—drainage, fertility, pH, salinity, and compaction proneness, (d) disease and insect severity by species, (e) type of use—ornamental vs. sport, (f) intensity of use, and (g) cultural requirements—mowing height, nitrogen requirement, ET rate, etc.


Development of a new turfgrass cultivar should include peer-reviewed, published research to characterize it relative to the above criteria. Unfortunately, too many new cultivars are being rushed to the market without adequate performance, adaptation, and cultural assessments! The developer who releases a new cultivar prematurely is generating information concerning its performance characteristics at the expense of the end-user, who may be the loser.

The performance assessments of a prospective new cultivar require a minimum of four years (after full turf establishment) in each individual location. The evaluations must be conducted in replicated plots (3 reps minimal) along with other cultivars of the same species that are currently in widespread, successful use. Five years usually are needed for the turfgrass ecosystem to evolve into a semi-stable state. Only then can one make a reliable, overall assessment of a cultivar's resistance or tolerance to environmental, soil, disease, and insect stresses. **Over the past 44 years of cultivar evaluations I have observed many entries that looked outstanding for 2 to 3 years, but subsequently failed miserably in year 4 or 5!** Do you want to take a chance on an inadequately assessed cultivar to essentially pay the assessment costs of a developer, and possibly experience a failure within 5 years? 

Ask Dr. Beard

- Q.** *As a Mid-Atlantic golf course superintendent I have always been taught to raise the cutting heights to promote root growth and increase carbohydrates during the summer stress. Now I am told that an increase in mowing height in the summer during periods of stress is a bad thing to do. This will cause the plant even more stress. I now mow my greens during the spring and fall at 1 1/64 and in the summer at 10/64 to 9/64.*
- A.** During the summer period when soil temperatures exceed 80°F (17°C) there is a distinct loss of creeping bentgrass (*Agrostis stolonifera*) root depth and density, followed by slowing of vertical leaf growth and eventually a thinning of the shoot density, if soil temperatures continue to rise. **Generally under these conditions, raising the cutting height even 1/64 inch (0.25 mm) will prove beneficial in enhancing the potential for turf survival under these summer stress conditions, especially if there is relatively intense traffic at the same time.** Then be sure to lower the cutting height back down after the summer stress period is over.

There is one exception to the above guidelines, specifically it relates to the newer super-high density creeping bentgrass cultivars that tolerate very-close mowing heights and have better resistance to heat stress. Included are Penn G-2 and Penn G-6. These cultivars have the ability to sustain very acceptable shoot density and rooting under high levels of heat stress when compared to many other cultivars. In this case raising the cutting height above 1/8 inch (3.2 mm) may actually increase the stem biomass accumulation and require an increase in cultural control practices. However, even the most heat resistant creeping bentgrass cultivars have an upper limit at which significant symptoms of root and shoot loss will start to occur.

It also is important during the stress period to be sure adequate potassium nutritional levels are available and to maintain moderate to low nitrogen nutrition of a sufficient level to avoid actual nitrogen stress in cool-season grasses. 

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