

Frequent Grooming Effects on Surface Quality of Bermudagrass and Zoysiagrass Fairway Turf with and without Trinexapac-ethyl

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Objectives:

1. To determine the effects of frequent grooming on surface quality characteristics of bermudagrass and zoysiagrass fairway turf with and without trinexapac-ethyl (Primo).

Start Date: 2006

Project Duration: two years

Total Funding: \$6,000

Turfgrass selection for fairways in the mid- to upper-transition zone is difficult. Winter survival, from disease or winterkill, and scalping, from thatch accumulation, are two problems that occur on golf course fairways in Tennessee. Several new cultivars of seeded bermudagrass have been released in recent years, and their performance as fairway grasses in Tennessee warrants investigation.

Plant growth regulators (PGRs) and frequent grooming are two management practices that have the potential to increase the quality for the aforementioned turfgrass species. PGRs have the potential to improve winter survival, improve texture and density on some of the coarser seeded bermudagrass varieties, and frequent grooming has the potential to minimize thatch accumulation keeping the turf crowns closer to the soil surface decreasing the potential scalping.

Experimental studies were conducted on established bermudagrass fairway turf at the University of Tennessee Experiment Station in Jackson, TN beginning May 2006. Grooming and plant growth regulator (trinexapac-ethyl) treatments were applied to 12 seeded bermudagrass varieties maintained as fairway turf. Grooming treatments consisted of either mowing three times per week at a fi" mowing height with and without light vertical grooming three times per week. Mowing and grooming comparisons were initiated in early May and finished in late September when bermudagrass growth slowed. Trinexapac-ethyl was applied to each mowing and grooming treatment for each variety tested. Thus, each cultivar plot was divided into four subplots so that each combination of grooming and plant growth regulator is present.

Plots are visually rated for quality monthly throughout the growing season. Quality is rated on a scale of 1 to 9 where 9 represents dark green, uniform, dense, ideal turf; 6 represents minimum acceptable quality; and 1 represents dead turf. Spring green-up and winter survival was also rated in 2007. Surface firmness was evaluated throughout the growing season using a Clegg Impact Soil Tester. In addition, mower scalping was evaluated. Scalping damage was evaluated using digital image analysis to precisely measure the percent green turf cover per subplot immediately following infrequent mowing regimes, as well as visual ratings.

Treatments were replicated four times in a 12 x 2 x 2 strip-block design. For each evaluation parameter, an analysis of variance was computed to determine if the effects of cultivar, grooming, plant growth regulator, and their interactions are significant ($P < 0.05$). Similar treatments will be initiated in 2008 on five established varieties of zoysiagrass.

All treatments receiving plant growth regulators had increased turfgrass quality, especially coarser textured bermudagrass varieties which appeared to benefit the most. On average, grooming three times per week was too aggressive regardless of the bermudagrass variety tested. Even though the frequent grooming was set at a shallow depth, the constant opening of the turf canopy or clipping of stolons resulted in less dense turf and overall lower quality.

Plots receiving frequent grooming initiated earlier spring green-up. However, ten of the 14 seeded varieties evaluated, regardless of mowing and PGR treatments, greened up less than 20% by June 30, 2007. Because of the poor winter recovery from several of the varieties tested, plot contamination from contiguous varieties occurred and prevented proper comparisons from being conducted in 2007. This study is being repeated in 2008



Frequent light grooming (three times per week) was too aggressive for all twelve bermudagrass varieties compared, but results suggest that plant growth regulators improve bermudagrass quality regardless of bermudagrass variety.

and 2009 comparing zoysiagrass varieties with less frequent vertical grooming regimes.

Summary Points

- Frequent light grooming (three times per week) was too aggressive for all 12 bermudagrass varieties compared.
- Light grooming initiated earlier spring green-up.
- Plant growth regulators improved bermudagrass quality regardless of bermudagrass variety.
- Coarser textured bermudagrass varieties showed the greatest increase in turf quality as a result of plant growth regulator applications.