

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 and vegetative zoysiagrass have been released in recent years, and their performance as fairway turfs in Tennessee warrants investigation. Plant growth regulators (PGRs) and frequent grooming are two management practices that have the potential to increase the quality of turfgrass species. PGRs

have the potential to improve winter survival, improve texture, and density on some of the coarser seeded bermudagrass varieties. Frequent grooming has the potential to minimize thatch accumulation keeping the turf crowns closer to the soil surface lessening the potential for 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 twelve seeded bermudagrass varieties maintained as fairway turf. Grooming treatments consisted of either mowing three times per week at a ½" mowing height with and without light vertical grooming three times per week.

Mowing and grooming comparisons were initiated in early May and finished in 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 was present.

Plots were visually rated for quality monthly throughout the growing season. Quality was 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 will also be rated in 2007 and 2008. Thatch thickness is being estimated at the end of each growing season by extracting random 1" cores per subplot and measuring thatch depth. 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 measure the percent green turf cover per subplot immediately following scalping, as well as visually rated.

Treatments were replicated four times in a 4 x 2 x 2 strip block design. For each evaluation parameter, an analysis of variance will be computed to determine if the effects of cultivar, grooming, plant growth regulator, and their interactions are significant ($P < 0.05$). When effects are significant, means will be separated using Fisher's least significant difference test ($\alpha = 0.05$). Treatments will be repeated again in 2007 and initiated on three varieties of zoysiagrass as well.

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

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Summary Points

- Frequent light grooming (three times per week) was too aggressive for all twelve bermudagrass varieties compared.
- Plant growth regulators improve 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.



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.