

Impact of Mowing Practices on Green Speed and Turfgrass Disease Severity and Quality

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Objectives:

1. Determine the impact increasing mowing practices have on turfgrass disease severity.
2. Evaluate management practices that can maintain greenspeed while decreasing turfgrass disease severity.

Start Date: 2006

Project Duration: two years

Total Funding: \$6,000

Turfgrass disease severity is influenced by management practices including mowing height, mowing frequency, and lightweight rolling. Previous research has shown that these mowing practices all positively affect ball roll distance as measured by the Stimpmeter. Most of the research has focused on increasing this measure of greenspeed without attention to the negative impacts of these practices, such as increasing disease severity. As mowing height decreases, it becomes increasingly difficult to provide a high-quality playing surface due to surface disruptions, decreased fungicide efficacy, and increased turfgrass disease. This is especially true in the south-eastern US where summers are hot and humid, and these stresses negatively affect putting green quality throughout the season.

This trial was conducted at Elizabeth Manor Country Club in Portsmouth, VA on a creeping bentgrass putting green. Our results will focus only on the greenspeed differences in response to mowing height and rolling practices. Management practices were initiated on May 21. Mowing was performed six to seven times per week at heights of 0.120 or 0.140 inches. The rolling treatment was applied using the same greens mowers, but with the reel in the off position so mowing was not performed.

The test site was arranged in a split-split-plot design with the fungicide treatment as the main plot, the two mowing heights as the sub-plots and lightweight rolling as the sub-sub-plot with three replications. Individual plots measured 1 ft. wide x 15 ft. long. Because of the limited space that was available, there was one plot area that could not be accurately measured and therefore the plots were removed from the statistical analysis



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(Fungicide + Rolled + 0.140). Ball roll distance was measured on six rating dates: June 11, July 10, August 3, 10, and 22, 2007.

We did observe statistical differences with regard to mowing heights and rolling practices that were performed. However, previous research has shown that differences greater than 6 inches of ball roll distance can be detected by average golfers, while differences less than 6 inches are not detectable. Most of the differences that were observed fell below this six-inch threshold, and while in some cases, there was a statistical difference, the difference to the golfer would presumably be negligible.

The 0.140-inch mowing height was significantly faster than the 0.120-inch mowing height on 5 of the 6 rating dates. The difference was approximately 9 in. for the first four rating dates, while the difference on the last date was about 15 inches. The plots that were not rolled were statistically faster than the rolled plots, however, with the exception of one date (August 10) when the difference was about 8 inches, the difference that was observed between the rolling treatments was approximately 3 inches.

We also had the opportunity to conduct a small survey about green speed

perception during a golf course superintendents outing at the golf club. Golfers were invited to putt in plots corresponding to each of the four mowing height x rolling treatments, and determine whether the rolled or unrolled plot of a particular mowing height was faster. Golfers were placed 8 ft. from a target flag, and given one opportunity to read and play the putt.

After putting on the two plots at each mowing height, golfers were surveyed to determine which plot they believed to be faster. The green speed difference for the plots at the 0.140-inch mowing height was 15 inches, and the difference for the plots at the 0.120-inch mowing height was less than 0.5 inches.

Summary Points

- Most of the differences that were observed for putting speed for different mowing heights fell below a six-inch threshold that an average golfer can detect.
- In a golfer survey of rolled versus non-rolled greens, three out of 10 golfers correctly guessed the faster green for the 0.140-inch mowing height. However, this number of correct guesses was not statistically different from a random guess. Seven of 10 golfers correctly guessed the faster green for the 0.120-inch mowing height