

Rolling Greens - Help or Hindrance?

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Introduction

Rolling putting greens to enhance green speed has been practiced for a number of years. In the past, however, rolling with heavy rollers had lost favor due to soil compaction problems (1). With the introduction of more technology advanced lighter rollers, interest in rolling greens - especially sand based greens - has increased (2).

Pressure to increase green speed is often associated with a golf tournament, or a special club function. Rolling may serve as a means of enhancing speed during these times. The purpose of this study was to evaluate the effect of rolling on green speed, water infiltration and turf quality over a short period of time.

Methods and Materials

A short term rolling study was initiated on May 28, 1993 and continued through June 15, 1993 at The Ohio State University Turfgrass Research Center, Columbus, Ohio. Two locations with different green construction methods were used in the rolling study. The first site was a 21-year-old USGA-constructed green seeded to "Penncross" creeping bentgrass (*Agrostis palustris* Huds.) (3). The second site was a 10-year-old "Penncross" creeping bentgrass turf established on a Brookston silty-clay loam. Both sites were mowed at 5/32 of an inch with a John Deere Walk Behind mower preceding the rolling treatments. Irrigation was applied between 1400 and 1700 hours when needed. Treatments consisted of a single, daily rolling with a Toro Greensmaster 3000 with rolling units and a non-rolled control. Each plot measured 5 feet by 19 feet and each treatment was replicated three times.

Green speed was determined by using a stimpmeter. Stimpmeter measurements were made immediately after mowing but preceding the rolling treatment and then again immediately following the rolling treatment. A total of four stimpmeter readings (two readings each from opposite directions) were taken from

each plot. The rolling treatment and stimpmeter measurements were conducted between 1100 and 1400 hours. A total of 7 stimpmeter readings were made over a 13-day period (May 25-June 9, 1993).

Two water infiltration measurements per plot were made on June 15, 1993 with an Infiltrometer (TurfTec International, Miami, Florida). In addition, visual quality ratings were made at this time. Treatment effects were statistically analyzed on a one-way ANOVA (MSTAT, Michigan State University, East Lansing, MI).

Results and Discussion

Stimpmeter readings during the duration of the study varied from 7 feet, 0 inches to 9 feet, 6 inches on both the USGA and native soil greens. As measured by the stimpmeter, rolling increased green speed significantly on both the USGA and native soil greens compared to the non-rolled control. On the USGA sand green, rolling increased green speed between 5 and 11 inches compared to the non-rolled plots. As the duration of the study increased, a general increase in putting green speed was observed.

On the native soil green speed was greater for the rolled treatment than the non-rolled control with green speed increasing between 5 and 13 inches. However, on the native soil green the number of significant ($P=0.05$) stimpmeter readings were less (3 out of 7 for the native soil versus 6 out of 7 for the USGA green). Increasing green speed with successive rollings was not observed on the soil green. Considerable variation in weather might have accounted for some of the variation. During the 13 day period, stimpmeter readings were made when the weather varied from cloudy and cool with rain to hazy hot and humid.

Comparison of stimpmeter readings of the rolled plots versus the control plots immediately preceding the rolling treatment revealed no difference in green speed on both the USGA and native soil greens. From these data it

appears that rolling increased green speed, but the effect is shortlived (less than 24 hours).

Rolling had no effect on water infiltration rate over the duration of this study. Rolling did negatively affect the overall visual quality of the turf. The rolled plots were more off-color and showed some wear.

In conclusion, rolling over a short duration increases the green speed as measured by the stimpmeter. However, the longevity of the increased green speed is short. Rolling had no apparent negative impact on water infiltration rates during the duration of this experiment. However, the turf went slightly off-color and wear signs were apparent at the conclusion of the study. Preliminary results appear to show that rolling for a short duration as a means of increasing putting green speed with minimal detrimental agronomic affects. However, long-term use of rolling may be detrimental to the turf.

***Trade name and company name of equipment used in this study are included for the benefit of the reader and does not imply any endorsement or preferential treatment of the product by The Ohio State University.*

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