



TURFGRASS MATTERS

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HOW TO MANAGE PUTTING GREEN SPEED

By Steven Langlois

Monitoring golf ball roll has been of interest since the 1930's. Edward Stimpson monitored golf ball roll in 1937 using an inclined plane which he had developed. The United States Golf Association (USGA) modified Mr. Stimpson's device and produced the version that we use to measure golf ball roll today. They honored Mr. Stimpson by calling it the stimpmeter. The USGA also developed standards for golf ball roll. By measuring the length of golf ball roll in feet and inches, we can determine if greens are slow, medium or fast (Table 1). Hence, the term used for measuring golf ball roll is putting green speed.

Table 1

6 feet	6 inches	— Slow
8 feet	6 inches	— Medium
10 feet	6 inches	— Fast

It has been 25 years since the release of the stimpmeter by the USGA and during this time, a lot of research has been conducted to determine how turf management affects putting green speed. Universities across the United States including Rutgers, Penn State, Ohio State, Nebraska, Michigan State, North Carolina State, University of Arizona, Texas A & M, Virginia Tech, University of Wisconsin-Madison and the University of Florida have investigated this issue. Research has also been done overseas in the United Kingdom and Australia. By knowing how to change the speed of greens, we can make greens faster or slower by the way they are managed. In the remainder of this article, I would like to highlight the results of this work.

One of the first things learned using the stimpmeter was a wide variation in putting green speed. Researchers in the late 1970's

and early 1980's went out and determined speed on many golf courses. Three things were proven regarding putting green speed:

1. Speed differences of five to six feet existed between golf courses.
2. Speed varied by as much as two feet within a course.
3. Speed consistency varied weekly by as much as one foot and seasonally by as much as three feet. 6

This initial information created controversy between golf courses. The stimpmeter became a tool used by golf courses to compete with one another. While this was not the intended purpose it is still used that way today by many in the golfing industry. However, its original purpose holds true; it is an invaluable tool to determine putting green speed consistency within a golf course.

I will now discuss some of the maintenance practices used to change putting green speed. These include mowing, rolling, plant growth regulators, irrigation, nitrogen fertility, and topdressing. I will also report the findings of different turfgrass varieties on speed as well as one study that was performed to determine how well the golfer can determine speed differences.

Mowing

Mowing has the greatest impact on putting green speed. The height of cut and the frequency of cut both play a role in determining speed. For every 0.03 inch reduction in height, a speed increase of six to eight inches will be measured. However, once cutting height has decreased below .125 of an inch, the increase in speed is only four inches for every 0.03 inch reduction in height. Also, these extremely low mowing heights can severely stress the turf leaving

the turf manager to decide if the speed increase is worth risking poor turf quality. Frequency of cut also affects putting green speed. After the first mowing, an eight inch increase in speed has been measured. If double mowing is maintained for at least three days and additional eight inch increase in speed is likely to be found.

Rolling

Rolling is a practice that has been used on putting greens for a long time. Its effect on speed has been studied for the last 20 years. We know that rolling increases speed. Single rolling will increase speed six to twelve inches while double rolling adds an additional six inches. These increases will last from one to two days.⁴ However, the concern exists regarding the negative affects this rolling will have on the turf. Recent information indicates that frequent rolling between four and seven times per week decreases turf quality and increases compaction. The good news is that rolling three times or less per week appears to not have negative affects on the turf quality.

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MD Nutrient Management

There seems to be confusion and numerous rumored requirements regarding nutrient management standards for Maryland golf courses. Starting May 2001, superintendents have been required to keep nutrient application records. The actual guidelines recommended by Dr. Turner and the University of Maryland should be completed sometime this spring. The following information is required for the Maryland Nutrient Management Plan:

1. Records must be kept in a form approved by the Department;
2. Provide commercial fertilizer recommendations prepared for the land and for the plants, documenting that University of Maryland Cooperative Extension recommendations were followed, including:
 - a. Soil tests
 - b. Production or management objectives
 - c. Timing of nutrient application.

For each application of nutrients to the land and to plants, the person shall make and keep for least three (3) years a record that includes:

1. The amount of nutrients applied to the land and to the plants
2. The location of the nutrient application
3. The timing and rate of the application
4. The nutrient content of any fertilizer applied to the land and to the plants.

Should you have any questions, please contact Earle Canter, Marland Department of Agriculture at 410-841-5959.

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Plant growth regulators

With the high use of plant growth regulators on greens in the past decade, their affects on putting green speed needed to be determined. Research has shown that six to ten days after an application, a six inch increase in speed was measured without changing the mowing practices.⁷ This management tool has allowed superintendents to reduce the amount of mowing and rolling treatments to greens if they so desire.

Irrigation

It is often commented that wet greens are slower greens. One study has disputed this claim. This study compared irrigated turf to nonirrigated turf over a ten day period. The turf area did not receive any rainfall during the ten day period. The researchers expected to see gradual speed increases in the nonirrigated turf. However, the nonirrigated turf did not have a speed increase. While the researchers could not explain this lack of speed increase, they did report a severe reduction in turf quality. They concluded that drying out the turf was not a good practice for increasing putting green speed. This was further supported by findings on the irrigated turf area. The irrigated turf area showed speed decreases of only six to eight inches immediately following irrigation. Once this moisture evaporated, (within one hour), the speed returned to prewetting levels.

Nitrogen fertility

Applications of nitrogen will cause a decrease in speed. Speed reductions of twelve inches have been recorded when 0.5 lbs of soluble nitrogen are applied. ⁴ Spoon feeding of nitrogen, a common practice on golf greens using 0.1 to 0.125 lbs of nitrogen per application, will have less noticeable impacts. However, seasonal nitrogen rates have shown decreases of three inches for every 1 lb. of nitrogen applied.

Topdressing

Topdressing is a practice that most believe will increase speed. The research is conflicting. One study showed a long term increase in speed while a second showed no change. Since topdressing is a practice that has many other benefits to golf turf, affects on speed have not become an issue.

Varieties

Several creeping bentgrass and bermudagrass variety studies have been performed. There have been no significant differences in speed reported between varieties.

Golfers and Putting Green Speed

There was a study performed to see if golfers could determine differences in speed. Researchers have been able to prove that golfers cannot detect speed differences of six inches under any conditions and they cannot detect differences of twelve inches without there being a change in the mowing height.

Final Thoughts

As the golf course superintendent, you have the tools to change putting green speed. Use the stimpmeter wisely and you will have more consistent green speeds. Using the stimpmeter only for speed increases, obtained through very low cutting heights

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Student News



Since December the student chapter has been involved in several events. On January 20 and 21 a number of students participated in the 2002 Toro University, sponsored by Turf Equipment and Supply Co. (TESCO). The educational program was excellent and the chapter also conducted several fund raising events, such as a 50/50 drawing and operating 2 popcorn machines at Toro U. Students manned a booth at the Maryland Turfgrass Council Education Conference and Trade Show in Baltimore on January 29-30 in which shirts and windbreakers were sold.

Two teams competed in the 8th Annual Collegiate Turf Bowl at the national Golf Course Superintendents Association of America Conference in Orlando Florida this past February. The Collegiate Turf Bowl covered seven topics within the area of golf course management from weed and turf identification to fertilizer and pesticide calculations and calibration problems. In a field of 58 teams the University of Maryland team of Eric Long, Adam Newhart, Jed Vail, and George Waranowitz placed 5th with a team score of 234 and the best team placement to date in this competition. The team of Rob Rosier, Chris Pence, and Josh Jordan placed 32 nd with a score of 174. In addition to the Collegiate Turf Bowl competition students attended educational seminars, visited the trade show, networked with superintendents, and attended the University of Mary-



land Turfgrass Alumni and the Mid-Atlantic Association of Golf Course Superintendents (MAAGCS) receptions. The seven students that participated would like to thank the MAAGCS, Mr. Steve Evans and Dr. Kevin Mathias for their support and efforts in preparing the teams for this competition.

Students from the chapter are looking forward to some upcoming spring events such as the 2002 MAAGCS Education Seminar to be held here on campus. Also many students are pulling out their golf clubs to prepare for the Third Annual Mid-Atlantic Challenge Cup with Virginia Tech and the University of Maryland's Ag Day on April 27. One other expectation this spring is the 2002 NCAA Basketball Championship.

GCSAA COLLEGE TURF BOWL 2002 RESULTS

	<u>Total Points</u>	<u>Institution</u>
1st	264	Iowa State A
2nd	245.5	Iowa State B
3rd	245	Mississippi State
4th	240.5	Purdue
5th	234	University of Maryland

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and reduced irrigation, may lead to poor turf.

When trying to develop a management strategy for putting green speed, I recommend three things:

1. Pick the speed you and your golfers want your greens to be year round.
2. Use the different management practices to maintain that speed on all greens without making them slower or faster at any time during the year.
3. Remember that most golfers prefer to putt on good turf.

Steve Langlois is a professor at Rutgers University in the two-year Golf Turf Management Program. He has a Masters Degree from Penn State University and wrote his thesis on green speed.

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ports such a professional group as MAGI.

In closing, the Board of Directors earlier this year, approved funds to support Dr. Peter Dernoeden's research on alternative methods for dollar spot control. This promises to be an interesting study, on what has become an increasingly difficult problem, and we look forward to Dr. Dernoeden's results. The MAAGCS remains committed to supporting university research and the Board has set a goal of funding another trial this year.

Best wishes for a successful 2002.