

Green Speed: Trick or Treat?

A combination of research and common sense can provide exactly what is needed for golfers and your greens — healthy surfaces with smoothness and a desirable speed.

BY LARRY GILHULY

Put your books down, class, it is time for a pop quiz. There are only five questions, and I am sure you will get them all correct. Please answer the following five statements true or false based on your knowledge of turf management and the game:

Question 1. Raising green mowing heights makes greens healthier. (True)

Question 2. Mowing heights can be raised while retaining desired green speed. (True)

Question 3. Green rolling increases green speed, but rolling should not exceed three times weekly to avoid wear. (True)

Question 4. Golfers gauge green speed near the hole and are poor judges of green speed. (True)

Question 5. Target green rolling may be the answer to your green speed woes. (True)

Now, let's look at the research and reasoning behind these five answers. Or, as they say, here is the rest of the story that you may be able to use to address green speed issues.

RAISING MOWING HEIGHTS MAKES GREENS HEALTHIER

Since the introduction of the Stimpmeter in the late '70s, the quest for ever-increasing green speed has resulted in a three- to four-foot increase that can be traced primarily to lowering mowing heights from $\frac{3}{8}$ " (0.188) to well under $\frac{1}{8}$ " (.125) to achieve regular green speeds in excess of 11 feet. The negative effect of this "need for speed" has resulted in the following:

- Needless green reconstruction of interesting, older, contoured greens.
- Fewer useable hole locations.
- Slower rounds due to more putts.
- Excessive difficulty not suited for most players.
- Slower recovery of ball marks and old hole plugs.



- Increased turf stress caused by heat, summer moisture stress, disease, moss, insects, weeds, etc.

The first four negatives relate to the play of the game, while the final two points are of greatest concern to golf course superintendents. Research has shown numerous times that greater root mass and depth is achieved as mowing heights are raised, resulting in healthier turf that can withstand various stresses. However, the reluctance to raise mowing heights is understandable, as research (and common sense) suggests that greens are slower as mowing heights rise. What to do? Research provides part of the answer to the green speed issue.

MOWING HEIGHTS CAN BE RAISED WHILE RETAINING GREEN SPEED

Some very interesting research conducted during 2004 and 2005 by Dr. Bruce Clarke and col-

No golfer facing an uphill, sidehill 40-foot putt similar to the one shown can tell if the lower two decks of the green are not rolled.



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leagues at Rutgers University will be published later this year. Although the details of this project will be available soon, their research shows that mowing heights can be raised approximately 0.030" and, with double mowing or single mowing in conjunction with rolling, will produce a green speed similar to that of a lower mowing height. This simple study clearly shows that lowering mowing heights is not the only way to obtain green speeds desired by some players, duplicating results found at Michigan State University.¹ So there it is — the simple answer. Other rolling research, however, shows that too much of a good thing can cause problems.

GREEN ROLLING INCREASES GREEN SPEED, BUT ROLLING SHOULD NOT EXCEED THREE TIMES WEEKLY

Research conducted by Chris Hartwiger² and Dr. Thomas Nikolai¹ indicates that rolling greens definitely will increase green speed when conducted more than once weekly, but turfgrass wear is a concern when rolling frequency is increased to more than three times weekly. The Rutgers study and other research conducted at Michigan State show that rolling is a perfectly acceptable alternative to lowering mowing heights, but simply alternating mowing and rolling throughout the week has not been accepted by players who want "lightning fast" greens. For those golfers who think they can judge green speeds easily, research again leads us to another very interesting portion of the green speed equation.

GOLFERS ARE VERY POOR AT GAUGING GREEN SPEED

Two very interesting research projects were completed in 2002 at Michigan State³ and 2004 at the University of Connecticut⁴ that came to the same conclusion — golfers are not very good at determining green speed, and they become even more challenged as green speed increases. At Michigan State, researchers found that players of all skill levels could not distinguish differences in green speed of 6" or less. Also, as green speed increased, differences of as much as 12" became less distinguishable. At Connecticut, a survey approach was used for a two-month period with more than 300 samples taken to determine if players (all skill levels) knew the green speed of the hole they just finished. They did not. Also, 87% of the golfers surveyed rated the green just played as satisfactory, regardless of the actual speed. Finally, consider this very important question: "Where on the green do players judge the speed?" There is little question that green speed is judged at or near the hole. This last part of the survey provides the final piece to the green speed puzzle and leads to the entire premise of this article.

TARGET GREEN ROLLING MAY BE THE ANSWER TO YOUR GREEN SPEED WOES

To review, research has shown the following:

1. Putting green rolling is a very important tool in smoothing greens while increasing green speed.
2. Putting green rolling should not be conducted more than three times weekly.

3. Double mowing or mowing plus rolling allows mowing heights to be raised approximately 0.03 inch with the same green speed.

4. Golfers are poor judges of green speed, especially as greens increase in speed. And finally and most importantly . . .

5. Higher mowing heights allow greens to survive better during the summer and tolerate many common stresses.

When these five research results are added together, it becomes apparent that one answer to the green speed issue consists of more rolling and raising the height of cut. However, rolling more than three times weekly causes problems with turf wear. It is the fourth point where the different concept of “target” rolling comes into play to provide a common-sense approach to this entire issue. Since golfers generally are poor judges of green speed, yet they do desire smooth greens and they judge green speed around the hole, why not simply roll 20-30 feet around the hole, rather than the entire green? For example, if holes are changed six times weekly and the greens are of adequate size, green rolling in a target manner could be completed six times weekly, which would be equivalent to rolling two or three times since the entire green is not being rolled every time. Also, putting green rollers generally increase speed from 6 to 10 inches, depending on the type of roller used. Since players have a difficult time determining this magnitude of difference, and rollers make greens smoother, the golfers benefit without placing the turf under more stress.

DOES THIS REALLY WORK?

During USGA TAS visits to nearly 100 golf courses last year in the Northwest Region, the following question was asked, “Have you ever used ‘target’ or ‘site specific’ or ‘tournament’ rolling techniques for your greens?” More than 50% of surveyed golf course superintendents had used this technique when they were short of manpower or when a shotgun did not allow for full green rolling. At least two cases (one *Poa annua* and the other hybrid bermudagrass noted in Figure 1) had followed this program on a regular basis with excellent results — no excess turf wear was noted when greens were target rolled 20-30 feet around the holes from four to six times weekly. Mowing heights were raised 0.03 inch with the same speed achieved and much healthier greens.

Figure 1

Can this work at your golf course?

- It has worked well for more than two years at Ironwood C.C., Palm Springs, Calif., for Mark Cupit, CGCS.
- 2004 — rolled 6 times weekly, 4 target, 2 complete
- 2005 — rolled 4 times weekly, 3 target, 1 complete
- Cutting height changed from 0.95" to .125"
- Green speed remains 10'6" on Tifdwarf
- Deep slice — every 2 weeks
- Regular aeration — 2 times yearly, 3/8"-1/2" tines
- Roller used — lightweight, includes spiker on unit
- Root depth/turf health — greatly improved
- No complaints about green inconsistency!

The final critical question was, “When using this type of rolling technique, did any players notice or complain about inconsistency?” The answer was unanimous — not one player has ever noticed when this technique was used, but they truly noticed how smooth the greens were when they were rolled only around the holes on a daily basis. This provides the same type of “anecdotal” observation as indicated in the previously noted research — golfers are poor judges of speed and gauge their speed near the hole when the ball loses its speed.

The idea of “target” rolling offers the perfect combination of rolling without causing excess stress, creating smooth surfaces at whatever speed your membership desires (stay in the 9'6" to 10'6" range, if possible), and, most important, the opportunity for mowing heights to be raised to a more practical level. Are you trying to “trick” the golfers using this technique? Not at all, as it is a “treat” to play smooth greens that consist of healthy turf.

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LARRY GILHULY provides agronomic tricks of the trade to USGA TAS subscribing golf courses in the Northwest Region of the Green Section.