



## Whither fast greens?

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In recent years, golfers have been smitten by fast greens, an affliction most would agree was nourished by, and is now becoming entrenched by, televised tournament play. But, is the faster for the better?

Do fast greens intensify the golfing challenge? Is the presumption correct that faster will be truer? Is it a fetish to establish bragging rights? Has it evolved into a permanent part of the game, or will it go away?

Whatever the answers may be, the unfortunate downside of fast greens is that they are synonymous with maintenance nightmares for golf course superintendents. Fast greens adversely affect playability. They pervert the architectural character of too many golf courses. And fast greens destabilize the psyche of too many golfers.

The fast-green syndrome was triggered in the 1980s by the availability of thinner and closer-cutting bedknives on greensmowers. But at what price? By so severely stressing the grass plant that it must totter on the brink of disease and damage from the weather and traffic? By blithely accepting forevermore the need for intensive, if not esoteric, maintenance practices and swollen budgets? By limiting the number of fair pin positions? By reducing green size to only a safe putting area? By penalizing aggressive play?

Our time-honored golf course architects — the Rosses, Tillinghasts, MacKenzies — whose designs are revered and emulated, challenged golfers by the shapes, sizes and contours of putting greens, not by their slickness. The challenges their greens posed, whatever the degree of difficulty, were intended to be fair, no matter what the golfer's handicap index. They neither conceived nor contrived undulations so steep and/or so slick that the ball would putt out of control because it couldn't stop rolling. Yet now, in the quest for speed, that can very well be the case when an undulating green is cut too close and, consequently, becomes too hard.

On an extremely fast green that has been cut to  $\frac{1}{8}$  inch, raising the cut by only  $\frac{1}{6}$  inch to  $\frac{3}{16}$  inch translates to a 50-percent height increase. That would be to the relief of the scalped and critically stressed grass plants. It would also more assuredly maintain uniform turf for the ball to roll true, thus rewarding a good read, as intended.

The fetish for fast greens was popularized by the Stimp-meter, a disarmingly simple tool devised to evaluate green speed and provide a measure against which to maintain reasonable consistency from one green to the next. It turns out that the Stimp-meter, beyond its original purpose, can also serve to mathematically quantify the speed limitations imposed by prevailing putting green slopes.

These speed limitations necessarily vary from one golf course to the next. That is to say, not all golf courses can fairly accommodate the same green speed. Said another way, green speed should be customized to the individual golf course, and carried to an extreme, from hole to hole.

By derivation from conservation of energy principles, Stimp-meter speed measurements averaged on a reasonably level green establish the coefficients of friction that prevail between a rolling golf ball and the measured putting surface. These coefficient of friction values can then be used to establish — depending upon their undulation angles — the same putting speed characteristics between the ball and the turf for sloped greens. As one would expect, downslope has a much more pronounced effect upon Stimp-meter measurements than upslope — the steeper the green and faster the cut, the more the relative difference between the downhill and uphill measurements.

For sloped greens, "speed quotients," defined as the Stimp-meter downslope measurements divided by the upslope measurements, can be derived. These quotients, then, would correlate for different green-slope angles the downhill-to-uphill Stimp-meter ratios required to maintain the same coefficients of friction on such sloped greens — for example, the same putting-speed characteristics corresponding to Stimp-meter measurements taken on reasonably level greens.

Speed quotients can be tabulated and graphically plotted for ready reference. Maximum permissible downslopes, steeper than which the ball will not stop rolling, can also be so derived.

Such speed quotients can serve the superintendent with realistic indices to prepare greens for play. Perhaps more importantly, this speed quotient concept, as a measure of green-speed difficulty, can be promulgated for golfers' understanding and acceptance, just as golfers have come to accept course ratings and slope ratings as measurements of the architectural difficulty of the courses they play.

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*Art Weber, a consulting chemical engineer, is the creator of "Code of Environmental Conduct" — a set of principles, policies and procedures for golf course maintenance adopted by the USGA. He is the 1994 recipient of Metropolitan Golf Course Superintendents Association's John Reid Lifetime Achievement Award and last year was given the Metropolitan Golf Association's Distinguished Service Award. A nuclear engineer, as well, Weber worked on the Manhattan Project during World War II and later helped develop the first two nuclear submarines — Nautilus and Sea Wolf.*