



"After all the things that can go wrong, we subject it to further abuse from the game itself: bruising, stomping, divots... burns from cigars and cigarettes."

KARL DANNEBERGER, PH.D., *Science Editor*

Respect the putting green

I have found that one of the thrills in golf is hitting a green in regulation, taking that long walk up the fairway through the approach area onto the putting green, where if I'm lucky, I have the opportunity to fix my ball mark and then wait for my playing partners. What I often overlook, and most golfers take for granted, is the 100 million — give or take several million — individual turfgrass shoots waiting for me on that green. Think about it, a single putting green has the approximate population of Bangladesh (150 million). From a geographical point, Bangladesh is roughly the same size as the state of Illinois; however we have crowded that same population number into a 6,000- or 6,500-square-foot putting green.

Originally, each creeping bentgrass shoot on that green can be traced back to a germinating seed. What is fascinating is that the seedlings that emerged from these tens of millions of seeds are all a little different genetically. Creeping bentgrass cultivars are synthetic. Golfers may think putting greens are pure and uniform and each plant is exactly the same, but actually we are dealing with a whole lot of individuals. And then once they grow and develop a little, we mow them down to a height of cut as low as 0.090 of an inch in some cases.

Getting to mowing heights this low didn't occur overnight. The ancestors

of creeping bentgrass emerged some 70 million years ago during the Mesozoic era and over 40 million years of continual grazing and adaptation, the basal internodes became shortened. Through recent breeding efforts and advances of mowing equipment technology, incredibly small plants can be maintained.

These extremely short plants face challenges each and every day. Looking at the environment that surrounds the green, we find it is not very uniform. Turf shoots are exposed to varying microclimates. Some shoots are living in low areas that might be susceptible to water logging, or flooding to them,

while higher areas are prone to moisture stress. All of this happens within a few yards of each other. These shoots also live in their own waste that we describe as thatch or organic matter accumulation. If we do not adjust and modify our microclimates through drainage, irrigation and air movement, or manage organic matter accumulation, we run the risk of catastrophic injury to our shoots.

Our putting green is also under constant assault from internal and external invaders. Crowded populations like that found on a putting green can serve as a catalyst for disease. Sanitation and control of pests is critical to the health of our putting green. The constant battle to protect and provide a healthy environment for our shoots and in turn produce the perfect surface is an ongoing battle that often escapes the attention of golfers.

And then, after all of the things that can go wrong with these shoots, we subject them to further abuse from the game of golf itself: bruising, stomping, being rolled over, divots from angry golfers who happen to miss a putt or even burns from a cigar or cigarette left behind, to name a few examples. The amazing thing is, new shoots emerge to take the place of injured or dead ones. Through all of these trials and tribulations, our putting green may actually be 100 years or older!

I wrote this column to remind myself that oftentimes we look at a putting green as an innate object to be manipulated and modified like some sort of electronic device because, as many things become part of our daily life, we take them for granted. This is unfortunate because a putting green is a living, ongoing and evolving system much like nature itself. It should be respected and cared for.

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