

A common saying is that 50 percent of putting greens are overwatered. Although an anecdotal statement, I tend to believe it, especially when viewing greens management in a global perspective. Reducing the potential for overwatering — and the odds are good that many of you are overwatering — should be a priority for every golf course superintendent heading into the summer months.

Hand-watering, accomplished by a well-trained staff, is one method to avoid overwatering. In some instances, it is not uncommon to shut off a green's irrigation system and hand-water entirely during the summer. Actually, hand-watering should be considered if you have isolated shade or problem greens where there's the potential for excessive moisture.

Now, if 50 percent of greens are overwatered, does that mean 50 percent are watered correctly? I don't know. But a common trend, especially at high-end golf courses, is to keep greens as firm, fast and dry as possible.

That said, is it possible to be too dry — resulting in detrimental effects to the turf? Research suggests that drying can be beneficial to turf going into and through the summer stress periods. From a physiological perspective, carbon partitioning (carbohydrates) increases to a greater extent in roots under moisture stress than nonstressed plants. Over longer periods of drought stress, carbohydrates accumulate in stems and leaves promoting quicker recovery (DaCosta and Huang, 2006).

Morphologically, root-growth activity is enhanced deeper in the soil profile when surface soil drying occurs (Huang, et al., 1997). Although many of the experiments done with plant responses to moisture stress are done under what most turf managers would consider extreme moisture stress, beneficial effects occur with a low degree of moisture stress.

In studies where root activity increases at deeper depths with surface drying, moisture is present at these deeper depths. In an irrigation study done in Texas, multiple creeping bentgrass cultivars were subjected to one-, two- or four-day irrigation schedules with the total

It's Best to Water On the Dry Side

BY KARL DANNEBERGER



REDUCING THE
POTENTIAL FOR
OVERWATERING
SHOULD BE A
PRIORITY HEADING
INTO THE SUMMER
MONTHS

amount of water applied the same for all treatments (Jordan, et al., 2003). The data revealed that reduced frequency produced a healthier plant under putting green conditions.

Given the above research and other similar findings, a deep and infrequent irrigation from an agronomic standpoint is beneficial to overall turfgrass health. The rootzone profile is moistened deeper in the profile and also allows for the benefit of surface drying.

Additionally, under extended periods where rainfall is lacking and salt accumulation is a concern, deep irrigation helps move or keep the salts deeper into the rootzone.

Watering is a complex and often controversial topic, with the impact of wetting agents, root depth, pests, soil type, water source and water availability influencing irrigation practices. However, acknowledging these factors, and given the space limitations of this column, here is my broad view of watering:

In humid temperate regions, check for moisture stress during the morning hours. General signs of moisture stress include the lack of dew patterns, wilting, rootzone materials crumbling or dry to the touch when checked with a soil probe, and baseline moisture stress levels determined by moisture sensing devices. If watering is required, water those areas by hand preferably. Follow up with moisture checks of the rootzone. Timely rainfall events should suffice for a natural deep and infrequent irrigation.

Should an extended drought occur or you are in area of minimal rainfall, periodic deep irrigation treatment is needed.

Karl Danneberger, Ph.D., Golfdom's science editor and a turfgrass professor from The Ohio State University, can be reached at danneberger.1@osu.edu.