

KEEP IT DRY!

Golf turf water management is tied to a number of variables. The goal is to maintain it dry.

by BOB BRAME



It is much better to hand water dry spots, ridges, and knobs as opposed to turning on the irrigation system and overwatering the majority of the area. A well-designed irrigation system will reduce hand watering, but it will still need to occur at some level.

FEW COMPONENTS of a turfgrass maintenance operation will impact both course health and playability like water management. The agronomic and playability benefits of maintaining relatively dry surfaces are far reaching. Contrary to what some golfers may think, there is much more to pursuing dry than to simply make the verbal declaration, “We want ‘em dry.” This article will focus primarily on putting surface management, although the principles apply to all areas of a warm- or cool-season grassed course.

First, why is it important to maintain putting surfaces as dry as possible? Volumes could be written to answer this question, but it comes down to four key benefits:

1. Healthier turf.
2. Less chemical usage/cost.
3. Reduced water usage/cost.
4. Improved playability.

Plant health, rooting in particular, is improved with deep and infrequent irrigation cycles. However, soil structure and root depth determine what “deep and infrequent” actually means. A key goal with the watering cycle is to maintain adequate oxygen in the root zone. In conjunction with the fertilization program, this strengthens rooting depth and mass, which in turn allows for a more aggressive pursuit of *dry*.

Virtually all turfgrass diseases are triggered and spread by readily available moisture/water. Soil and air temperature, humidity, and the microenvironment (sun and air movement) also influence disease activity, but turf management toward the dry end of the continuum will aid in reducing disease

and fungicide usage. Less disease and fungicide usage equate to a more environmentally friendly operation.

Most experts agree that even those portions of the country that currently have no water availability problem may experience a shortage in the future. Water is a natural resource that should be conserved wherever possible. An agronomically sound maintenance program, which combines sensible fertilization and mowing practices along with healthy grass growing microenvironments, is part of the equation in keeping the upper soil profile dry and minimizing water usage/cost.

Although Mother Nature doesn't always make it realistic to pursue consistent putting surfaces, dry does. In fact, smooth, true, firm, and consistent all tie to dry. Conversely, wet leads to a soft upper root zone, which in turn can cause marking and rutting from equipment and foot traffic. This translates to surfaces that are not smooth, true, or consistent. Regardless of a player's handicap index, playability is better when the surface and upper root zone are maintained on the dry side.

Few would seriously challenge the benefits of keeping the course dry. So why doesn't it happen more? Following are several key pitfalls that help answer this question.

A Poor Irrigation System

Irrigation systems that do not provide for good coverage and individual sprinkler head control around greens and/or those that don't have a second set of sprinklers around greens to supplement bank watering would fall

under the classification of being a poor system. In fact, a system with any component that restricts the superintendent's ability to water deeply and infrequently is a limitation that should be corrected. Another example would be the lack of or insufficient quick couplers used with hoses. Regardless of sprinkler head, pump station, and overall system efficiency, hand watering and/or syringing via hoses will occasionally be necessary to efficiently pursue dry. A well-designed irrigation system will reduce the need for hand watering/syringing, but the need will still exist. Clearly, a high-quality irrigation system is a vital component in the maintenance infrastructure. Should there be any doubts or concerns at your course, have an independent irrigation consultant make an evaluation to guide future investments.

Inadequate Drainage

Closely related to the irrigation system is drainage. While no one can control rainfall, the two primary aspects of drainage – surface water runoff and the internal movement of water into and through the root zone – can be modified.

It is common in most areas of the country for courses occasionally to be hit by a two- or three-inch frog strangler – the kind of water volume that can't possibly be handled by internal drainage alone. Design contours that avoid birdbath depressions or swales that hold water are critically important to runoff flow. Surface contours are an important feature to monitor closely during new course

construction. Yet, even with initially positive surface water runoff, settling over time can obstruct flow. Installing drainage tiles is often perceived to be the quick fix. However, careful and precise reshaping of the surface to establish good runoff will provide better long-term value. This is true despite the likely short-term disruption to play and higher cost to implement as compared to simply installing a drain tile.

Aerification, topdressing, and drainage tile are all factors that affect water movement within and through the root zone. In today's golf turf management we have a variety of aeration options that must be custom fitted to a course's needs. It is common to see courses combining deep- and shallow-tine aeration. Typically, plugs are removed following shallow-tine coring. Back-filling aeration channels with an appropriate topdressing sand will enhance porosity, and this means quicker movement of water away from the surface. A consistent (integrating sand into the surface in sync with growth) topdressing program complements sound aeration, while also improving surface quality (smooth, firm, and true). Drain tile, properly placed, adds the quick removal of excess water. Yet, water must first get to the tile for any value to be realized, which points back to the importance of good aeration and consistent topdressing. Investing in better drainage is always money well spent.

Failure to Hand Water/Syringe

It is much better to hand water dry spots, ridges, and/or knobs as opposed

to popping up a sprinkler and over-watering most of the spray pattern area. The intent is to extend the time between irrigation applications using the sprinkler heads in the pursuit of deep and infrequent watering cycles. In some cases hand watering/syringing is not done because of irrigation system limitations (e.g., inadequate or no quick-coupler valves). More often, however, it is play volume, staff size/budget and/or maintenance priorities that block hand watering/syringing.

Hand watering is normally done in the morning with the intent to move water down into the root zone. Syringing is typically done during midday heat to cool the leaf tissue without allowing water into the root zone. Both are important in pushing apart the use of sprinkler heads and pursuing dry surfaces. Hand watering and/or syringing needs cannot be scheduled around play. When it's needed, it should be done. Like properly timed aeration and topdressing, hand watering and/or syringing occasionally will cause some minor inconvenience to players. Not allowing the work to be done to avoid disrupting play is a mistake.

Staff size or budget is not normally a legitimate limitation to hand watering/syringing, although sometimes they are blamed. It boils down to the maintenance priorities. What's more important – hand watering or raking bunkers? Hand watering or trimming the creek bank? Bottom line: If dry is a priority, resources must be shifted as conditions dictate. Saying “we don't have the budget or staff size to hand

water/syringe” is a cop-out. The superintendent should be given the latitude needed to pursue dry. This means the boss(es) must first understand and then support what it takes to keep it dry and that hand watering/syringing are important components in the equation.

Poor Turf Quality/Health

Shallow roots, inadequate sunlight, poor air movement and/or mowing too low are other common pitfalls that compromise turf health and, as a result, the quest for dry. Shallow roots or grasses that are shallow rooted (e.g., *Poa annua*) will block the push toward deep and less frequent watering cycles. In like manner, inadequate sunlight and/or pockets of poor air movement make dry surfaces more difficult, or at least more expensive, to achieve. Mowing too low, often done to increase green speed, compromises the plant's ability to conduct photosynthesis and, here again, elevates the cost of keeping the course dry. It is vitally important for the maintenance program to be fundamentally sound and yield healthy turf with reasonably deep roots. Healthy turf aids in moving toward dry, and dry improves turf health – they (*dry* and *healthy*) can't be separated.

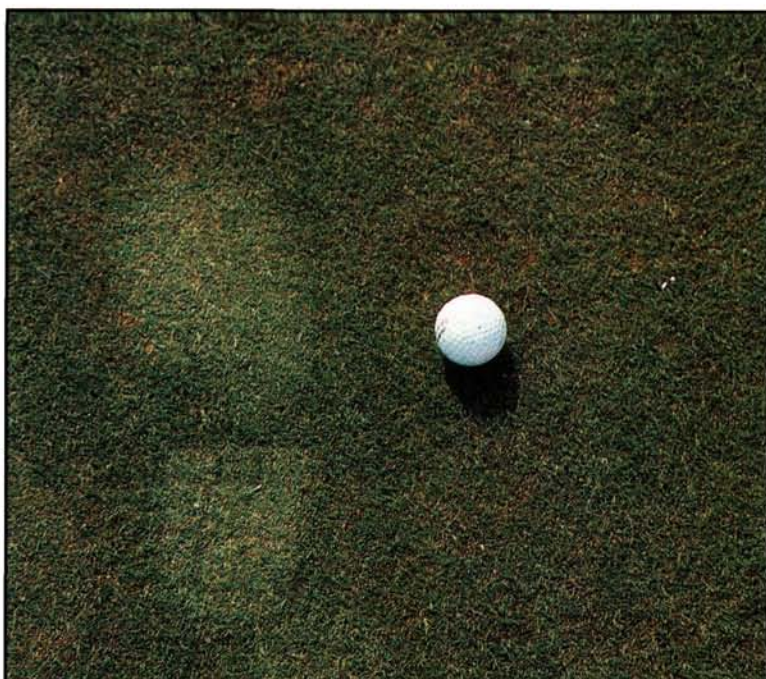
Isolated Dry Spots

The occurrence of isolated dry spots is a major management problem for many superintendents. Pushing toward the dry end of the continuum increases and intensifies the occurrence of isolated dry spots. While wetting agents can aid in managing isolated dry spots, be sure to consider irrigation system coverage and the level of thatch accumulation. Improving system coverage and/or going after thatch more aggressively (via aeration and topdressing) often reduces or even eliminates the dependency on wetting agent usage.

Conclusion

It must be emphasized that the pursuit of dry requires a team effort. The superintendent must be given the needed tools and scheduling flexibility, and all parties involved must understand and support the fact that maintaining the course on the dry side is a high priority. Resolve now to push the envelope – keep it dry!

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The loss of plant turgidity points to the immediate need for syringing. Water is best applied during the early morning hours.