Amendments contribute to water efficiency when they fit course conditions

Water Precisely

By Michael Coleman

You've been in the industry a while, and you're ready to take your turfgrass management program to the next level. You need tools that will reduce your maintenance time and make your course look better using less water. The right surfactants and wetting agents can reduce watering and boost turf health.

Determining the best combination of surfactants, wetting agents and other inputs for a course depends on local conditions. Superintendents might have fairways that stay too wet on top, even with less watering, or localized dry spots that always need hand-watering. It's possible to solve these issues, but superintendents should rely on their experience and experiment before investing too heavily in certain products.

MOVING WATER

Rich Cope, golf course superintendent at the University of Texas Golf Club in Austin, planned his surfactant program while he was growing in the course. With five years under his belt at the club, Cope has used various products, depending on what he needs to accomplish on the course. On the TifEagle greens, he uses Wet-Sol.

"It helps penetration a great deal and aids tremendously in capillary movement of the water," he says.

Course conditions tend to guide his wetting agent usage, especially when he detects dry spots. On the other hand, too much precipitation during the winter calls for another tool he likes to use.

"During wet season, when I need to move water through the green, I use Surfside," he says. "It's good at moving water vertically."

When selecting a surfactant that will help use water more efficiently, specific properties of a course are some of the biggest factors involved. Selecting the right product can be complex, involving a lot of variables.

Kelly Durfee Cardoza, founder of Avalon Consulting in Taunton, Mass., helps superintendents determine how to use water more efficiently while keeping courses healthy. Avalon specializes in water management practices and helps superintendents reduce the amount of water they use throughout the year.

"I have clients who've said to me, 'I'm consistently too wet on the top, no matter what we do,'" Cardoza says. "They've switched from one product to another before they find the right solution for their situation."

Variables such as course traffic, turf age and condition, soil type and thatch point to the best option.

At the University of Texas Golf Club, superintendent Rich Cope spends about $14,000 a year on two wetting agents but in return reduces water usage about 30 percent. Photo: Texas Golf Club

A DIFFERENT MIX

Greg Hollick knows from experience different soil conditions require a different mix of surfactants and wetting agents. Hollick, director of golf course operations at Ballymeade Country Club and The Golf Club at Cape Cod, both in Falmouth, Mass., has two distinct agronomic challenges. Ballymeade is an older course with fairways that are capped with a loam material. Cape Cod, a Rees Jones Design, opened in 2007 with sand-based tees and greens. The course has native soils on the fairways, and Hollick has no issue with excess water.

"It's almost like one large USGA green," he says. "It moves through pretty quick."

Hollick's experience working for the PGA at the TPC of Jasna Polana in Princeton, N.J., and the TPC of Boston during its grow-in proved valuable when he moved into the lead superintendent role at Ballymeade and started planning for the new course at Cape Cod. The first-hand knowledge helped him when he selected surfactants and wetting agents, which he considers just a few of the tools a superintendent needs to grow in a healthy course.

Hollick uses Cascade on the greens and tees and Dispatch on the fairways at The Golf Club at Cape Cod. At Ballymeade, Hollick uses Rely on the fairways and tees and Revolution on the greens. He spends about $9,000 on wetting agents each year at Ballymeade and $12,000 a year at Cape Cod.

"You see immediate results where your water is penetrating and moving down through the profile," he says. "If you have a hydrophobic situation on your greens or your tees after you apply it, you can see the following morning that there's definitely dew removal there. It doesn't bead up on the surface."

Better penetration isn't the only bonus from surfactants, Hollick says. They reduce man-hours, expedite drought recovery and improve turf color and quality.

THE RIGHT PRODUCT

Veteran superintendent Doug Petersan, who has been at the Austin Golf Club in Texas for nine years, has a clear focus for his water management program. For Petersan, golfers are No. 1, and cost factors and efficiency are secondary considerations.

"What we're looking at more than the economics is the quality of the product we deliver to our members," he says. "We measure more from the quality of the surfaces we're providing than the cost."

Petersan has used various products at several courses throughout the years, and some work better than others.

"I don't want any product that's going to keep the top inch or two very wet," he says.

"I have a soil sampler, and I pull cores out of greens every day."

Cope brought another product, Hydratain, into his arsenal during the past two years, after experimenting with it.

"I was probably the first guy to use it on a golf course in Texas," he says.

Cope spot treated dry areas to test the product. Because of hot conditions and a tendency for limestone to heat up quickly below the surface, there's often water vapor trapped in the soil unavailable to the plants. Cope likes the way Hydratain causes condensation of water molecules in the ground, making more water available to the TifSport turf. Areas where he used the product recovered, looked better and stayed green, which was a big factor in his decision.

If an area is hydrophobic, a wetting agent is needed to help the product penetrate the profile. While Cope estimates he spends about $14,000 a year on Hydratain and Wet-Sol, he estimates his reduction in water usage at about 30 percent. Studies covering a variety of products have shown a 30-percent reduction in water usage is realistic in many situations.

However, just because one product works well on the front nine of a course doesn't mean it will work as well on the back nine.

"Even in the same small general area, it's a function of your soil conditions, how much play you get and how your irrigation system operates," Cardoza says.

OTHER INFLUENCES

Soil variations, which include the presence of fungicides, also can have an influence on these products. Dara Park, Ph.D., a researcher at Clemson University, initiated a study with Bruce Martin, Ph.D., investigating the effect of surfactants and fungicide combinations on Champion ultradwarf Bermudagrass and

Superintendents can use devices to measure volumetric water content at different soil depths. Photo: Dara Park, Ph.D.

localized dry spot.

"Past research demonstrates that certain combinations of surfactants and fungicides tend to increase disease control to a greater

extent than if the fungicide was applied alone," Park says. "During those experiments, it was observed that there was also an influence on quality and LDS."

A new study Park started this year examines how different surfactant chemistries influence soil moisture within the soil profile along a depth gradient. This will help superintendents combine the proper surfactant with their course's soil conditions.

"Making sure you get the most from a surfactant depends on identifying the proper surfactant chemistry for the situation," Park says. "This process is important because there are different surfactant chemistries for different purposes. To identify which surfactant to use, the superintendent must fully evaluate the situation."

After looking at the options, it helps to run a test on a small area to see what works best. Suggestions from colleagues can be helpful, but superintendents shouldn't always take into account the differences in specific turf conditions between courses. Proper identification of combinations which increase quality and reduce localized dry spot can help reduce time, labor and chemical costs.

PART OF THE BIGGER PICTURE

The ideal situation is to get turf to the right height and eliminate the need to mow, Cope says. He uses the plant growth regulator Primo Maxx on the greens only to help reduce mowing time during the week. Another noticeable benefit is less water loss from transpiration and evaporation. Plus, deeper rooting puts more moisture within reach.

Plant growth regulators aren't universally popular, though. For instance, Petersan purposely avoids the need for plant growth regulators by limiting the amount of fertilizer he uses.

No product is a replacement for a well-devised maintenance program. Surfactants, wetting agents and plant growth regulators are part of a larger program that includes tracking evaporation, using weather stations and generally following good agronomic practices.

Whatever the product, proper focus needs to be placed on the use of these aids.

"They can be helpful, but they can also cause you problems under certain environmental conditions," Hollick says. "If you have a wet year, obviously you're not going to be putting a wetting agent down that will last you 90 days."

With all the other factors to consider when maintaining healthy turf, superintendents can't just throw any surfactant or wetting agent out there and hope it works well.

"It's another tool for the superintendent's belt," Hollick says. "You have to customize it to your golf course." **GCI**