The Trials & Tribulations...

... of tending turf in the transition zone

BY BRUCE ALLAR

The 11th hole green at Valhalla GC in Louisville, Ky., is a superintendent's nightmare, with turf so troublesome it can make even veterans wake up in a cold, wet wilt. Surrounded by air-impeding mounds and trees, the two-tiered putting surface on the par 3 suffers from the dual plagues of summer weather in the transition zone — heat and humidity.

The transition zone is the climatic region running above and below a line roughly from Washington, D.C., to Kansas City, Mo., that can be classified as neither Southern nor Northern.

Mark Wilson, the superintendent at Valhalla, site of next summer's PGA Championship, ticks off his 11th green woes in a litany that would impress even the staunchest golf course hypochondriac:

• Trees block the morning sun, preventing the bentgrass from drying out naturally.

• The air movement is impeded, allowing moisture to linger like a wet blanket.

• Golfers all exit, like a herd of buffalo, along the same trail near the fringe, wearing down that side of the green.

Then there's that steep slope up to the second tier with its own set of maintenance problems. "I've

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Superintendent Mark Wilson faces the task of managing a golf course located in the transition zone, known for its extremes of heat and cold and stifling humidity.

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got to manage this green for stress all of the time," Wilson says.

The transition zone is imfamous for extremes of heat and cold, but its real villain is humidity — a stifling, steam bath-like moisture that prohibits vegetation from drying out. In such conditions, wet wilt moves to the top of a superintendent's list of woes.

At Valhalla, every three holes are assigned to a different maintenance staffer, and on a morning last summer the one responsible for 11 noticed a thinning along the heavily trafficked side of the green. He tells Wilson: "I was thinking about aerating it."

"The worst problem we always have [with wet wilt] is reacting to the problem," Wilson says. "Sometimes the cure is worse than the problem. I've gone in before at this stage and aerified it and created more trouble. We've also come in and put a little extra fertilizer on it and made it worse."

Wilson says it's most important to get through the season's first bad spell with wet wilt, but it takes patience and smarts — and the realization that you know the course will suffer some damage.

Hour by hour

Jokesters in this climatic region quip that if you don't like the weather, just wait 20 minutes and it will change. Mother Nature's fickleness, however, can sap the humor from anyone attempting to manage grass in this area, particularly on short-cut greens.

Tom Van De Walle, the superintendent at Sunset CC in St. Louis, notes how conditions that can change by the hour often lead to an overreaction. Temperatures might hover near 80 degrees for an entire humid summer night, dictating no watering. Then a cooler, less moist air mass might move in the next day, tempting the crew to apply water. But the stifling humidity, even rain, can return within hours. If they've been watered, overmoistened greens take ill quickly in such a scenario.

"Guys start seeing the stressful time and overreact," Van De Walle says, "and then at 6 p.m. the conditions change again and you're done."

"In my view, the biggest obstacle is your water management," says Ken Harding, superintendent at Shadow Glen GC in Olathe, Kan. "It happens to everybody: It seems real hot, you think you should be watering, when in reality it's real humid and the water can't escape."

Hand and machine

Top turf managers in the transition zone command a variety of low- and high-tech tools to beat the heat and humidity.

Wilson tries to train his grass for stress. The Valhalla greens—and the turf in general—get watered very little in the spring. Most of the watering is to wash in an insecticide or fertilizer.

"You're trying to do everything you can to dry the roots down," Wilson says.

This translates into a lot of handwork. Crew members carry probes, searching for isolated dry spots. They hand-aerify the old-fashioned way with a variety of tools. "I remember an old superintendent told me once: 'Get a pitchfork out and probe that area, getting the water down in,' " Wilson says.

He also fertilizes sparingly. The motto: You can always add a little more; you can't take it out. So the Valhalla crew spoon feeds small amounts at a time for more control, often spraying it on. The reactions of these fertilizers can spike with heat and humidity, causing the grass to explode when you'd least like it to — during the stress period. Wilson avoids agricultural fertilizers on his greens because they exacerbate this problem by releasing all at once, blowing the plants out of the ground.

"Then you get in the hot weather and you get disease outbreaks," he adds.

Having found that roots of green grasses grow better in old aerification holes, Wilson uses the new aerifiers that allow depth changes on the holes. His crew will go four inches one time, 12 inches the next, then six inches, varying the depths for overall root health. This also helps prevent the formation of a hard pan, Wilson says.

In extremely dry spots, he might use a wetting fork, a 1-foot-square hose attachment with five probes, each with pinholes in it through which water is forced underground.

Manage your water

One of the valuable resources at Harding's suburban Kansas City course is a Campbell Scientific weather station. The station's computers record the day's high and low temperatures and humidity, then gauge factors such as evaporation, transpiration and solar radiation. The information is networked into the central-irrigation system, which can be operated automatically by the computers.

Still, Harding does not let technology take over. The weather station is a great tool, he says, but he uses it very little.

"I'll look at what it recommends, but I think visual inspection is still a huge key," Harding says. "But sometimes you'll be thinking one thing, and it'll be saying totally the opposite."

The Network 8000 irrigation system at Shadow Glen has had three software upgrades and one hardware upgrade over the past decade to reach its present compatibility with the Campbell Scientific technology. However, keeping water away often presents the biggest challenge. Two years ago, Harding nearly lost his 13th green because of flooding, followed by 90-degree, high-humidity days. He saved the grass by needle tining 8 inches to 10 inches deep with pencil-size holes.

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On less-stressed greens during the summers, the Shadow Glen crew water aerifies with a hydrojet once a month. This preventative maintenance is combined with a program of syringing and visual inspection to identify areas in need of more care.

Dale Minick, superintendent at the 1-year-old Victoria National GC in Newburgh, Ind., calls upon the most elaborate tool of all — an in-ground, two-way airflow system powered by elec-

DEALING WITH IT

Mark Wilson, superintendent at Valhalla GC in Louisville, Ky., is a pro when it comes to managing turf in the transition zone, which is known for extreme heat and cold, as well as humidity. Here are some of the problems Wilson encounters and how he deals with them:

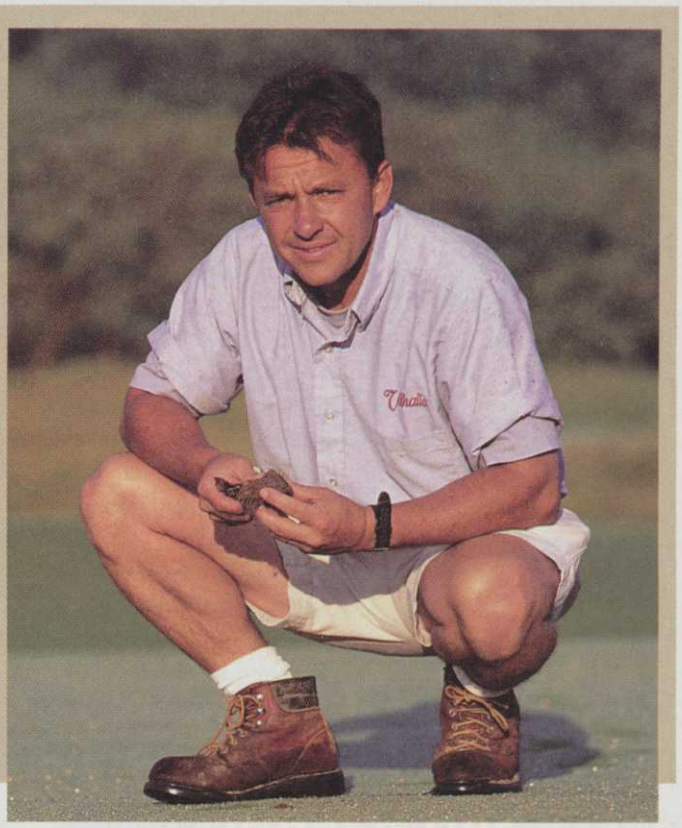
• Water management: You're always asked how to water in the transition zone — more than anywhere else — but there's no concrete answer. It depends on the humidity and what kind of turf you're trying to grow. Under low humidity, we water without much concern for timing and amounts. Under high humidity, we use little water under tight observation. Many times, we use just enough water to cool the grass during the day.

• Drainage: If you need to control watering, you want to put it on without any puddling or wet areas. Such areas will be prone to disease, weeds and scald.

• Hand watering: This is more of a people and logistics problems. Training people to properly hand water is difficult. During the summer, we have two people hand water for every three holes. We make sure each has a soil probe and knife to check moisture.

• Disease management: It's a priority since our course is susceptible to most every disease. But controlling disease chemically is as not important as controlling it culturally.

• Weed management: This is the most difficult task. If there's an open area, a weed will germinate in it. Controlling weeds is a science itself.



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tricity. Every green at this new course near Evansville, including the practice and chipping surfaces, is fitted with an underground vault unit (it sits under a manhole hidden from the golfers) connected into an eight-inch main trunkline. The 7.5-horsepower motors power a fan blade that produces high-volume air movement. The system is manufactured by SubAir.

The fan can force air through the pipes into the green's subsurface to blow-dry it (commonly used together with syringing for routine care), or it can reverse and vacuum out excess moisture on rainy days. During the winter months, the vacuum function allows Victoria National's crew to achieve a kind of solar heating on sunny days by sucking in warmer air and keeping ground temperatures up.

"Last year, we were still topdressing the greens and mowing on a regular basis in November," Minick says. "It will never replace aerifying, but it's a good backup tool."

Course owner Terry Friedman wants to host a U.S. Open at Victoria National, which is built on the site of a former coal strip mine. Installation and equipment for the SubAir system cost $600,000. Other courses might opt for an underground system only on the most troublesome greens. It's already in use at Augusta (Ga.) National, Hudson (N.Y.) National and on other courses around the country.

"In the construction phase, you certainly need to think about doing the piping. The cost is not that much greater," Minick says. Then the permanent units can be retrofitted as needed, or gas-powered portable pumps can be moved from green to green.

Another key to success in the transition zone is speed management. Van De Walle calls it the "trap of the speed wars." When members play another course that registers 10s or 11s on the Stimpmeter and then ask for the same tournament-type speed on their links, superintendents must be prepared to explain the possible consequences: Cutting the grass too short affects root depth and, thus, the ability to withstand extreme conditions.

"I've watched guys do this, and I've watched them get in a lot of trouble," says Van De Walle, who keeps the greens at Sunset rolling at about 8 to 8.5. "High stimps are not achievable at all courses."

Both Van De Walle and Wilson swear by the Data Transmission Network, a weather forecasting system that gives everything from hourly to monthly prognostications. Accurate weather predictions and experience in the field take some of the guesswork out of greenskeeping.

Wilson advises superintendents to comprehend the annual peaks and valleys of grasses, particularly the bentgrass on the greens. He points out that he has at least four different growing environments on his Valhalla greens, ranging from exposed, desert-like conditions to shaded tropical-like settings.

"I've spent more money on drainage systems and trying to get rid of water than I ever have trying to put water on," he says. "It seems that drought turf will always come back, but diseased or wet wilt-type of turf won't. It dies.

"Sometimes you have to accept a little loss, ride it out," he says. "The problem is, I've found that everybody wants to do something, and sometimes you would be better off not to do anything." ■

Bruce Allar is a freelance writer based in Floyd Knobbs, Ind., the heart of the transition zone.