Superintendent

FEATURES

# Water's World

Superintendents are wowed with what irrigation equipment manufacturers have provided them over the years. Future offerings could be even more impressive

**By Larry Aylward**



It's June in Arizona and as dry as a dust storm on the planet Mercury.

"It hasn't rained here for a few months," says Rob Collins, golf course superintendent of the Paradise Valley Country Club in Paradise Valley, Ariz.

But you would never know that from the looks of Paradise Valley. The course is green and healthy, and the golfers are happy.

"The product out there is the result of our irrigation system," says Collins, who has been the superintendent at the course for 16 years.

What Collins means is he has been able to irrigate effectively because he has the technological tools to do so. He's not just turning on the sprinklers and walking away.

Paradise Valley, which was built in 1953 and irrigates with potable water, has a water allotment issued by the state. Like other area courses that irrigate with potable water, Paradise Valley must make do with the water it's allowed, which is a constant challenge.

"It starts with the irrigation system and how we manage it," Collins says. "We must be on our game when it comes to water management."

At the 36-hole Grand Cypress Golf Club in Orlando, Fla., Director of Golf Course Maintenance Tom Alex faces a similar story.



Paradise Valley Country Club's Rob Collins credits modern technology for helping him irrigate efficiently in one of the dryest parts of the country.
PHOTO: COURTESY OF PARADISE VALLEY COUNTRY CLUB

"This year has been extremely dry," says Alex, noting the drought that has occurred in Florida for the past several months. "We're pumping more water (effluent and well water) because we're not getting any rain. But I know the technologies we're using are efficient - and that's the important thing."

## About that technology

Alex says he stays on the cutting edge of irrigation technology. He's amazed at the changes he has seen in the field while at Grand Cypress for the past 28 years.

"When I first got in the business ... it was go turn on the pump and make sure you have some snap valves in so you don't blow any pipe out of the ground," Alex says. "Today, we have central control for two golf courses and one is a normal two-wire path to communicate and the other communicates via radios. We have pump station monitoring controls. We have weather station data, we have soil sensor data, and all this ties back into the central controllers. We have the ability to turn on irrigation heads four ways. It's like we've come light-years."



Lahontan Golf Club's Kevin Breen (right) credits his assistant superintendent, Jake Miller (left), for helping the maintenance staff understand more about irrigation technology.

*PHOTO: COURTESY OF LAHONTAN GOLF CLUB*

Kevin Breen, who's in his 15th season as golf course superintendent at Lahontan Golf Club in Truckee, Calif., agrees with Alex's statement. Breen is impressed at how user-friendly central control systems have become over the years, specifically their ability to be accessed remotely from hand-held devices and to categorize different areas of a golf course so they can be irrigated more efficiently.

"We've got it now where we can control our irrigation system from our phones," Breen says.

Breen recalls the day when he would climb into his utility vehicle with a laminated map in hand, drive around the golf course and identify hot spots, make note of them and drive back to the maintenance facility. Then he'd go into his office and turn on his computer, open the map of the golf course, locate the spots he noted and adjust the irrigation run time for those spots.

Now, Breen can drive out to the spots, locate the software and course map on a hand-held device, and make any irrigation adjustments on the spot.

Breen suspects that geographic information systems (GIS), which are designed to capture, store, manipulate, analyze, manage and present all types of geographically referenced data, will play a bigger role in irrigation technology in coming years. Of course, irrigation mapping will just be one component of GIS, he notes.

Paradise Valley's Collins is impressed with the continued evolution of sprinkler technology as it relates to spacing, uniformity and water conservation.

Despite all of the technology, Collins points out that it's vital to "execute the fundamentals" of irrigation practices. One of those is maintaining sprinkler levelness.

"Sprinkler levelness is paramount to maintaining good uniformity," he says.




*PHOTO: COURTESY OF LAHONTAN GOLF CLUB*

Collins has utilized subsurface irrigation on several of Paradise Valley's bunker faces. He says the irrigation method is effective and saves water.

Collins says he pushes himself to learn more and more about irrigation science technology for the sake of his golf course.

"We have some 50-foot trees on the course, and the shade that's cast from those trees has a huge impact on wetness and dryness," he says. "The adjustments we make to the irrigation system are literally day to day and week to week because of changing conditions."

Collins says Paradise Valley's more than 1,000 members are conscientious of the water challenges facing their golf course and community.

"As a result, they've spent millions of dollars on our irrigation system for the sake of conservation," he adds, noting that a new Toro system was installed in 2008.

Breen says he's lucky to have a tech-savvy assistant, Jake Miller, who has helped the entire maintenance staff understand the intricacies of irrigation technology better.

"He's in charge of our irrigation, and he has brought it to new level," Breen says.

## Learning curve

Some of the new technology may need to be more user friendly, Breen says. Some superintendents don't utilize all the irrigation technology at their hands because they're not sure how to use it.

"I'm always surprised by the number of courses that have the current versions of irrigation system software, and they only use 10 to 20 percent of the features they have on that system," he says.

Irrigation manufacturers may need to get involved to better educate superintendents on technology they could, and should, be using because they already have it, Breen says.

"I don't think most superintendents take advantage of the technology that's out there, and it's because they have to invest a lot of time in figuring it out," Breen says.

Alex agrees. "The bells and whistles are nice as long as you can hear and see them."

The technology can be confusing at times for superintendents, Alex says.

"It takes commitment and dedication to learn that technology in order to use it effectively," he adds.

## Measuring moisture

With many courses going to firm and fast conditions, Breen says it's more important than ever to monitor moisture.

"To produce firm and fast conditions, you ride that line of playability and color much closer, which makes it important to stay on top of things to avoid grass losing its color or density," Breen says. "That makes all this technology even more important."

Soil sensors have enabled Alex to "take some of the guesswork" out of determining soil moisture. Combining data taken from soil sensors with weather data has enabled Alex to irrigate more uniformly, among other things.

When you know soil temperatures, you know when to make pre-emergent herbicide applications in the spring, Alex says.

"We can also look at soil temperatures and know exactly when the *Poa triv* overseed is going to check out, regardless of how much syringing we do," he says.

Soil sensors have also aided superintendents who have salinity issues on their courses, which relate directly to water use.

"They can get much more precise in terms of when they need to flush and how long they need to flush," he says.

Collins is also impressed with soil moisture technology, including hand-held soil moisture meters to gather moisture data. Collins says the data tells him when to hand-water "based on value rather than just visual sense."

Soil moisture meters may be perceived as expensive, but they are worth the cost, Collins says.

"We have two of them, and we use them every day," he says.

Collins says the soil moisture meters help the maintenance team avoid "the five-alarm fire."

"You don't want to get to the hottest time of the day and find out you have the five-alarm fire because you were busy with other things," he says. "By using the meters, we can avoid the five-alarm fire."

The technology enables you to water more efficiently; you're not wasting water. It can also save on labor; you're not sending out four workers to put out a five-alarm fire in the early afternoon, Collins says.

It's also good for employee morale when a superintendent introduces such impressive technology to his staff. It makes employees feel like they're using the best tools available to do their jobs.

"It's meaningful to them," Collins says. "I see it with our staff here."

## What the future holds

Ten years from now, Breen expects golf courses will have reduced their irrigated acreage throughout California.

"I think a lot of it's going to look like the Southwest," he says, with courses featuring more native plants and less maintained turf acreage.

Breen also expects more courses will be irrigating with reclaimed water, especially because of a new law in California that requires everyone, including golf courses, to reduce water use by 20 percent by 2020.

"There's a lot of surveying going on right now," Breen says. "A lot of courses have never had to report how much water they're using."

Alex expects the future to bring even more sophisticated equipment to irrigation technology.

"Can you imagine what the next 25 years will be like?" Alex asks. "We'll be controlling everything from an iPhone or handheld device. The kids growing up today with iPhones who will be superintendents in 15 years will expect it."

Alex wouldn't be surprised if future superintendents will be able to turn on a sprinkler head with a flip of their eyelids.

For sure, irrigation technology will become more wireless in the near future. Alex points to Rain Bird's Integrated Control System, which features 90 percent less wire, as a step in that direction. The IC System's control technology is located in the rotors.

"One day, it will all be wireless," Alex says. "One day, you'll just have to put pipe and heads in the ground, tie it in with soil moisture monitoring and let it run on automatic. I think that's the way we're heading."

At the same time, however, irrigation companies must be all things for all people in regard to affordability, Alex says.

"Certainly, the technology that some of the higher-end clubs can afford may be more difficult for some of the lower-end courses," he says. "Each club has to figure out what it can afford as it relates to these new technologies."

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