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WATER, WATER EVERYWHERE

Back in mid-April I attended the 2010 Intelligent Use of Water Summit in Washington D.C. that explored some of the key water conservation issues facing the green industry.

Not surprising, this Rain Bird-sponsored event drew a packed house with countless other green industry members attending the conference online and tweeting questions to the conversation. As I sat in the crowd I waited patiently for the anvil of perception and opinion to come hammering down on the golf course industry. Like with many eco-issues, people easily paint a large, red target on the back of this industry. And when it comes to topics like water use, the average Joe sees well manicured fairways and neat greens at their local public links or country club and they point a collective finger in disgust.


Mike Zawacki

Instead, I was pleasantly surprised to hear that one of the main strains on available water resources is intense population growth within and around many U.S. metropolitan areas. And contrary to popular belief, the smart, systematic irrigation of a golf course cannot hold a candle to the amount of water used – and wasted – by the average suburbanite flushing, watering and washing during the course of a typical day.

In fact, the actions taken by many golf courses – such as converting "green" areas into "natural" native habitats and adopting progressive irrigation practices – were cited as examples of commendable smart water usage. And in many cases, the experts made the case that, through the adoption of state-of-the-art irrigation technology, it's actually possible to save water through smart irrigation.

Now, in light of the unprecedented rainfall and flooding many of you in the South and Midwest are still recovering and drying out from, water conservation may not be top of mind in your collective communities. Mark my words, though, this is a short-lived luxury.

As cyclical as turf pests, periods of extreme rainfall will eventually give way to periods of parched earth. And as such, you can almost hear your neighbor's collective gripe of, "As my front lawn browns, so goes the 9th green."

I know, this sounds like preaching to the choir, but remember, there's nothing finer than the sound of a well-rehearsed and finely tuned choir.

You can do a lot to better educate your facility's members and your community by extolling the advanced irrigation technology your facility has invested in. Inform them that you're pumping your irrigation water from one of your facilities retention ponds, and not the nearby water main. Explain to naysayers that yes, your course maintains healthy, green turf, but you are able to achieve this through smart watering practices that actually utilize less water than the typical backyard hose and oscillating sprinkler. Okay, maybe that's a little bit of a stretch, but you see my point.

As modern course caretakers you have to be equal parts turf nerd and PR agent. And if you're not already, then you need to get out there and start interacting and educating those who are the quickest to wave that finger of disapproval at your industry when the rain fails to fall.

"And contrary to popular belief, the smart, systematic irrigation of a golf course cannot hold a candle to the amount of water used – and wasted – by the average suburbanite flushing, watering and washing during the course of a typical day."

Lastly, GCI presents our annual Smart Irrigation supplement, which highlights some of the water-use issues the industry faces. This year we've focused much of this special supplement's editorial on soil moisture and how this impacts a superintendent's ability to keep greens, well, green. Make sure you check it out.

And if you have a story about how you've innovated irrigation practices at your facility, then we want to hear about it. Drop us a line at gci@gie.net. SI

DEEP ACCESS

Providing users with more detailed data, Toro's recently released Lynx irrigation control system has begun to make waves. By John Torsiello

It may be a bit too early to label it as a game-changer, but Toro's Lynx Control System has been making waves in the golf course turf management industry since its formal launch early this year.

After spending more than two years in development and a year in testing, Toro's Lynx Control System sets new levels for ease-of-use and integration, says John Fuller, the company's senior product manager. "Simply put, customers will be able to do more and spend less time and effort using it," he says.

Perhaps a bit biased, Fuller doesn't hold back judgment when he says, "It's a game changer for us and the industry."

So what sets Lynx apart? It differs from other systems in several key areas.

According to Toro, the system's software is presented in a "flat" display, where all of the information needed is available to the user for a given operation without having to open and close additional windows, thus reducing the amount of time the user spends going between screens, thus improving efficiency.

The control of the system is based on a "hierarchy" that is organized along the same lines as a golf course. Areas (greens, tees, fairways) followed by holes (1 through 28), followed by the individual sprinklers.

This is not necessarily a new concept, Fuller says, but the way the hierarchy is presented to the user, with the ability to view the system at any of the three levels (area, hole, sprinkler) by clicking on a plus/minus box (similar to Windows Explorer), gives a superintendent a level of control and ease of access that they've not had before, Fuller says.

Lynx also allows a superintendent to control a facility's irrigation system by either minutes of runtime or application amount, and shows the corresponding values.

For instance, if a superintendent enters a runtime in minutes, the system will calculate and display the corresponding inches of application. If he enters an application amount in inches, it calculates and displays the corresponding minutes of runtime. "Users can decide to run their systems by either minutes or inches, for each individual area of the golf course," Fuller says. "But in either case, they get to see the corresponding minutes/inches, and this helps in understanding just how much water is being used in each area."

Superintendents can create and edit their own digital map and employ it in controlling their irrigation system.

"Digital maps have tended to be more static in the past but the golf course changes over time – the addition of a sprinkler head, moving a tee box, modifying a bunker," Fuller says. "Now the map can change as the course changes."

In addition, Lynx reports scheduled activity and actual activity results to the end user. "When they are setting up their irrigation for the upcoming night, superintendents have a clear picture of how much water was put out the previous night and how much water was put out manually during the previous 24 hours, regardless of whether the manual activity was initiated at the computer, on the handheld radio, or at the satellite's faceplate," Fuller adds. "It all gets captured and reported to users, allowing them to make more informed decisions about the upcoming night's irrigation needs."

Lynx calculates and executes station runtimes to the second rather than rounding to the whole minute, with the turf getting precisely the amount of water it needs.

A "pump profile" allows a superintendent to limit the amount of irrigation that takes place on an hourly basis, based on the amount of electricity that the pump station will consume. This allows him to avoid penalty charges for consuming excess electricity during peak hours.

The system is tightly integrated with the company's Turf Guard soil monitoring system, which allows the sensors to report when an area needs water and when it doesn't. "It's all about better information, better decisions, and more efficient watering," Fuller says.

Cost for a Lynx system is in keeping with typical purchase prices for golf irrigation control systems, according to the company, and varies based on the size of the system and field hardware selected.

There is sure to be some reaction to the new Toro irrigation control system from other high-end tech control companies. Fuller quipped, "Our competition is nervous. They were hovering around our booth at the Golf Industry Show."

Rob Tanaka, superintendent at Oak Creek Golf Club in Irvine, Calif., which has been a Lynx testing site since last November, has been happy with the new system. Lynx's system architecture is different than what the company offered superintendents in the past and it includes a number of technical improvements."

Tanaka believes Lynx allows for significant integration, adaptability and simplicity, which he says are key improvements in irrigation control. "As superintendents, we want to have a system that is easy to operate but also something that we can dig deeper into for information when we need it," he says. "This is

Lynx's software is presented in a "flat" display, where information is available to the user for a given operation without having to open and close additional windows.

An ongoing battle

A superintendent in New Mexico experiments with wetting agents to combat localized dry spots

For Steve Campbell, wetting agents aren't a miracle product; they're just another gun in the arsenal of turfgrass management.

"If you know how to use them and what they're supposed to do, they work," says Campbell, director of agronomy at Las Campanas, a 36-hole facility that sits on 5,000 acres of high desert in Santa Fe, N.M. "If you don't know what they do, you won't get good results. There's no 'follow A, B, C and D,' and you'll be successful. Find out what your problems are and figure out how to fix them. If wetting agents work for me, I believe they'll work for everyone if they apply them to their individual needs and situations. Each golf course is different. You don't treat them all the same."

Campbell manages 100 employees and runs the golf course, landscape, public works and revegetation divisions at Las Campanas, a Lyle Anderson development. Budgets are confidential, but Campbell's is more than $1 million.

Campbell, who's been at Las Campanas for 12 years, is a big believer of wetting agents and has used them his entire career. He injects wetting agents into the irrigation system, using 1/16 to ¼ of an ounce per thousand square feet of turf per day.

Las Campanas receives just 12 inches of rainfall a year, so water is king.

"I need to make water wetter to conserve and use every drop," Campbell says. "Wetting agents break the surface tension of the water droplet and force it to go into the soil."

Under water conservation mandates, the most water Campbell can use per golf course per day is 600,000 gallons, even though he says he can use less than that during less stressful months of the year. Determining how much water he uses is a complicated system, he says. He checks water use every morning via a computerized monitoring system and reports it monthly. Other parties, namely municipalities, can check his water use daily if desired.

The water is high in salts and bicarbonates, which makes it difficult for Campbell to flush the soil. He can flush salts down into the soil profile with the annual 12 inches of rainfall and the wetting agents he uses.

The bentgrass Campbell grows isn't native to the area. He says there has been ongoing talk about changing the turf, but the native grasses (buffalograss, for example) would never be used because they wouldn't survive if cut at turf heights.

STEVE CAMPBELL
CGCS

"I have bentgrass on greens, tees and fairways," he says. "The temperature will go down to zero degrees Fahrenheit in the winter, and if I don't have snow cover, I irrigate the turf once a week because the plant will freeze dry if I don't because of the high winds and very low humidity. The crown needs to stay wet or it desiccates. We're at 7,000-feet elevation. The Rocky Mountains begin here in Santa Fe."

To treat localized dry spots, Campbell uses eight ounces of wetting agent per thousand square feet every two weeks. No matter how uniform a green is, there will be inconsistencies and localized dry spots, which is compounded with salts, he says.

Campbell says he has tried every wetting agent on the market and started using them in Philadelphia where it was hot and humid with an entirely different set of weather, soil and agronomic conditions.

"Surfside is the best wetting agent I've used," he says. "I use it exclusively."

Campbell uses wetting agents throughout the year and is always looking for a deal. He buys the 55-gallon drums even though the shipping is expensive.

"I spend a minimum of $12,000 on wetting agents a year," he says. "There has been no year where I spent less than $10,000 on wetting agents. The drier the year, sometimes as little as four inches of rainfall a year, the more I need to supplement my irrigation."

Campbell acknowledges there's an uncertainty about wetting agents in the industry, but he says a superintendent has to know his soils, drainage, irrigation and turf problem areas.

"You need to spend the time to experiment," he says. "One size doesn't fit all. What I used in Philly is different than what I use out here. It's no different than any other business. Attention to detail is the key, and versatility is key to success. You need to make adjustments. You don't just dump a wetting agent in the tank and go."

When Campbell sees a water-related problem, he applies a wetting agent, which alleviates the problem but doesn't eliminate it.

"It will be different for me every year," he says. "It's frustrating, but just because it worked last year, doesn't mean it will work exactly the same way this year. It's an ongoing thing."

Superintendents will always deal with localized dry spots and wetting-agent use, Campbell says.

"Every superintendent should have a wetting agent as part of his arsenal," he says. "They've been around a while, but they must be doing something for someone because they've last a long time. That's somewhat of a testimonial." GCI


Davis

a well thought out system that allows a great efficiency of use and reduces the amount of time we need to spend on running our irrigation. We can look at the different facets of the system – weather conditions, course mapping – and make changes very quickly if we need to. Simply put, it's very user friendly."

Training staff to either manage or merely understand how the new system works has been easy, Tanaka says.

Lynx should create efficiencies in Tanaka's water management program, which he adds will translate into cost savings for his course in the long run.

Old Chatham Golf Club in Durham, N.C. has been another test site for Lynx. Head golf course superintendent Brian Powell says his experience with the system so far has been positive. His facility has been a test site for the system since last winter. From his experience using the system, he describes it as easy to use, intuitive and flexible.

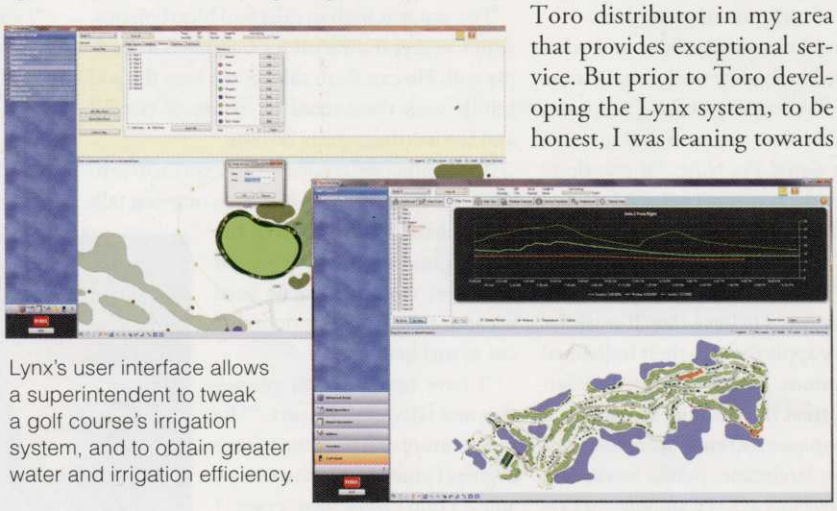
"It is a time saving, powerful tool that can be expandable when needed," he says. "I'm a second generation golf course superintendent and I have not seen anything that has the strength and easy-to-use features that Lynx has."

Powell says Lynx's user interface almost invites a superintendent to want to explore ways to tweak a golf course's irrigation system, and to obtain greater water and irrigation efficiency by targeting specific areas of the facility.

"One of the greatest benefits is that you can create programs in a fraction of the time it takes other systems to create," Powell says. "It's very powerful in that regard. I honestly don't see any disadvantages at this point. We are setting up ours to use permanently."

Asked whether he would recommend course superintendents and general managers consider investing in a Lynx system, Powell says, "Absolutely. As a matter of fact, I have already done just that."

When Darren Davis, director of golf operations at Olde Florida Golf Club in Naples, Fla., and his staff were planning for renovations on the course's existing irrigation system they went to work, doing their homework on finding what they felt was the best irrigation control system on the market. They became sold on Lynx after close examination and analysis.


Lynx's user interface allows a superintendent to tweak a golf course's irrigation system, and to obtain greater water and irrigation efficiency.

"This summer, 18 years after the original installation, we embarked on a significant irrigation renovation and upgrade to the course," Davis says. "In 1992, I made the decision to install a Rain Bird hydraulically actuated system at Olde Florida. At the time we used the Maxi control system, which we eventually upgraded with the Cirrus software system. In 1992, a significant factor in my choice to go with a Rain Bird system was my familiarity and preference for the Rain Bird software. I was comfortable that both the Rain Bird and Toro products would perform, but Rain Bird was selected because I felt the control software was significantly less complex. It is extremely easy to learn and operate."

Despite being quite pleased with the overall operation of the Rain Bird system, Davis decided to make a switch.

"With the development of the Lynx software, Toro has designed a product that I am extremely comfortable will provide the ease of use of my Rain Bird system," he says. "I am fortunate to have an excellent Toro distributor in my area that provides exceptional service. But prior to Toro developing the Lynx system, to be honest, I was leaning towards renovating the golf course with Toro irrigation heads and utilizing the Rain Bird control system. However, the Lynx software made the decision to go with a complete Toro system an easy one."

He adds, "Some of my peers that have been using existing Toro software and have seen the Lynx software have told me that the new (Lynx) system allows them to do all of the things that they were able to do with their previous Toro systems, but with more ease. For me, having been a Rain Bird user for so many years, the Lynx system will provide a very smooth transition to the Toro system for myself and my staff." SI

John Torsiello is a freelance writer based in Torrington, Conn.

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SENSING MOISTURE

As legislative pressure to limit water usage increases, soil moisture sensing systems are becoming the go-to tools for smart water practices. By John Torsiello

When you are living on the edge you'd better know just how close you are to that edge.

It is estimated that more than 15,000 golf courses in the United States demand about 2.7 million gallons of water a day. Faced with increasingly stringent water usage regulations, superintendents are looking for ways to fine tune their irrigation systems to squeeze every last drop out of daily water budgets. Those superintendents that don't face rigid water-usage guidelines nonetheless know water is a precious and costly commodity that they are wise to conserve.

A small number of golf courses in the U.S., by some estimates around 100, have installed soil moisture sensing devices, basically small electronic probes that are placed into the soil in various locations around a course that provide valuable end-user data to help determine when and when not to water turfgrass. Several companies in the marketplace sell subterranean wireless sensors that monitor moisture, temperature and salinity in the soil and feed data back to a software network a superintendent can access remotely via a laptop, a handheld device or a desktop computer.

Bladen

Of course, there are many traditional computerized irrigation systems available to superintendents. Some are used to control pumps and traditional multi-head zone systems, and others are capable of controlling each irrigation head individually. Superintendents monitor various areas of the course for signs of drought and make adjustments to the heads in areas that may be too dry or too wet. However, it requires quite a bit of time to visually scout the course and then make adjustments.

Most courses will use sensors in the long term, says Bruce Williams, director of business development (West) for Valley Crest Golf Course Maintenance headquartered in Calabasas, Calif. "Water is a precious resource and any tools that better help us manage it and provide healthier and more playable turf will be critical to the future of the game," he says. "I have no doubt that one can better manage water and provide more consistent playing conditions with moisture sensors."

Lee Bladen, superintendent at Old Palm Golf Club in Palm Beach Gardens, Fla., has UGMO on three