SUPERINTENDENTS NEED TO PREPARE TODAY FOR TOMORROW'S WATER RESTRICTIONS

WATER WISE

[PART THREE]

CONTENTS

ABOUT THIS SERIES

Welcome to the third year of "Water Wise," our special series sponsored by Rain Bird and Aquatrols. As it was in the past two years, our goal in this three-part series, which runs through December, is to examine the fresh-water crisis while educating golf course superintendents and other industry personnel on several fronts of irrigation.

Part three of the series, on the following pages, looks at future government regulation of water use. What can superintendents expect in the next 10 years from regulators in regard to their water use? This segment also includes results of our second-annual Water Wise survey.

Part one of the series, titled "Supers Under Scrutiny," ran in October and examined what's behind the increased scrutiny of water use on golf courses and what golf course superintendents can do to quell the emotions of the scrutinizers.

Part two of the series, which ran in November, analyzed how superintendents can be "green," as in environmental, and still provide golfers with green and healthy golf courses. Veteran superintendent Christopher S. Gray Sr. offered superintendents tips on how to sustain healthy turfgrass without using too much water. Also, Anthony Pioppi reported on professional golf organizations and their firm and fast approach.

Alternative Water Will be the Way

BY MICHAEL ROBERTS

As the world hovers on the verge of a water crisis, we all need to examine how much water we use in our daily lives and for what purposes. Golf course irrigation has undergone a great deal of scrutiny for this very reason.

In an effort to reduce potable water use, government agencies at federal, state and local levels have responded by developing new regulations and use standards. On a state level, California has taken by far the most progressive stance, mandating a 20-percent reduction in potable water use statewide by the year 2020. However, while researching our most recent white paper, Water Conservation and the Green Industry, we found that most water regulation is handled locally. A 2005 survey of U.S. cities with populations of 30,000 or more determined that 82 percent had formal water-conservation plans in place.

IT APPEARS THAT ADDITIONAL WATER-USE REGULATIONS ARE IMMINENT

It appears that additional water-use regulations and restrictions are imminent, particularly at a municipal level. While on average the United States still charges less for a gallon of water than nearly every other developed country, it's also very likely the price of potable water supplied by local agencies will rise over the next 10 years.

So, how can golf course superintendents maintain their courses while facing increased regulation and higher water prices? As more golf courses, sports fields and commercial sites are discovering, using harvested or effluent water for irrigation may be the answer.

Marvel Golf Club in Benton, Ky., is just one example of a course that's proactively using alternative water sources. Under golf course superintendent Christopher S. Gray's direction, the club collects wastewater from houses in a nearby subdivision and rainwater during storm events and uses it to irrigate its golf course. In addition to conserving water, Marvel Golf Club saves countless dollars in energy costs by not having to pump water from its ponds for irrigation purposes.

While using gray water for golf course irrigation could potentially save untold gallons of potable water, it comes with its own challenges. While some courses like Marvel Golf Club harvest their own water for irrigation, other courses may not have the opportunity or resources to do so. Courses that purchase effluent water from a local treatment plant must take into account that water's higher salinity and how it may affect their turf. Regardless of these considerations, using alternative water sources for golf course irrigation is not just a trend that will quickly disappear.

At Rain Bird, we're dedicated to producing rotors, control systems, pump stations, valves and accessories that use water wisely. Every new product or service we develop is assessed for its contribution to The Intelligent Use of Water™. We continue to make it easier than ever before to incorporate smart, water-saving practices into any irrigation system.

It's likely the world's water concerns will continue, making the efficient use of reclaimed water across the globe not a choice, but a necessity. Rain Bird is dedicated to providing golf course irrigation products and systems that make the most of every drop of water — regardless of its source. ■

Roberts is director of Rain Bird's Golf Division.

RAIN BIRD

Ideas Inspired by **Bob Moore**

BY DEMIE MOORE

"The future is always beginning now."
—Mark Strand

The above quote is an appropriate one for the final installment of the 2010 *Golfdom* Water Wise series, which focuses on future water regulations as well as some current water management practices on golf courses.

It's also a suitable quote for the man to whom I'd like to pay tribute in this column — my father, Robert A. Moore (Bob) — who invented soil surfactants and founded Aquatrols. He left this world on Nov. 4. One way or another my father was always interested in what could be done today that would impact tomorrow – a sort of applied version of recognizing that the future is always beginning now.

My father always espoused the idea that if you didn't like the way things were going, you should get involved somehow and try to make things better.

He had little time for sitting around and complaining. In many ways, this same philosophy can be applied to the issues facing water use on golf courses, including looking for how we can, individually or as part of our associations, become active in water discussions that will affect our future.

Who are the organizations and individuals who will be deciding your water regulations? What can you do at your course, directly and with your association, to get to know these organizations and individuals and work with them to shape the future?

Even if your association is using a government advocate, your direct involvement will help. There's no guarantee of the outcome, but there's a better chance of better regulations if the industry is constructively involved.

Dad was also a great believer in the idea that there were always ways through or around challenges – you just have to be willing to keep looking for options and give them a try. Actually, that's how soil surfactants and Aquatrols started. In discussing how to get rid of a puddle — Dad turned the focus from trying to "change the soil" to the idea of "changing the water" — and he knew that could be done with surfactants*.

Without a doubt, superintendents rank high as examples of this find-another-way mindset. However, is it applied as much as it could be in the realms of helping regulators find alternative ways to achieve goals compatible with good golf course management?

What are the challenges and objectives regarding water use in your area today? What's on the horizon? What's being thought about? And, if it isn't good for golf, what mutually beneficial alternatives can you offer that are give and take on both sides? Who else can the industry build alliances with to be heard? We need to work together to find and offer alternative approaches.

Finally, and clearly related to the previous two points, my dad came to realize over the years how important it was to get an idea of how other people looked at things. Even if you think they're off base, you need to get some idea of other people's perspectives in order to develop ways for getting them to see your ideas.

These are some ideas that Dad passed on to us that have served us well in life and at Aquatrols. On behalf of Aquatrols, we hope these thoughts will encourage you in what you're already doing, and inspire you toward what yet needs to be done — for the future is indeed always beginning now.

Thanks for the advice, Dad! ■

** We now know it's both the soil and the water that need managing, but the idea started with changing water.*

Moore is an Aquatrols director involved with corporate relations, education and training.

Aquatrols

WaterTight

SUPERINTENDENTS NEED TO PREPARE TODAY FOR TOMORROW'S WATER RESTRICTIONS

COMING TO AMERICA in 2020 — increased population, increased industry and increased drought.

Of course, these three increases also mean more intense scrutiny of freshwater use, and golf courses will be in the hot spotlight. If golf course superintendents aren't bracing now for increased regulation of irrigation in 10 years, they had better start.

How bad could regulations get? That's difficult to say, considering it depends on a number of factors, including geography. But one thing is certain — human consumption will always come first in any part of the country if the reservoir is really running low.

"When water is scarce, people are going to get water into their homes long before the golf industry and other segments of the green industry get water," says Grady Miller, Ph.D., turfgrass professor from North Carolina State University.

But even if fresh water isn't scarce, Miller says it's inevitable it will be more regulated in the future, including for golf courses.

"In North Carolina, we'll have state legislation in the next 10 years that will control the water at some level," Miller says. "What that level will be is hard to say right now."

Golf courses that use municipal water will be at the mercy of local ordinances, Miller says. If there's a drought, municipalities have the right to shut off the water on golf courses. It's a different scenario when compared to courses that draw water from on-site ponds or lakes, which are under state jurisdiction, Miller adds.

Miller believes any regulation will be state by state, not by the federal government. With geography playing a major role in water availability, golf courses

could face different dilemmas at different times.

Consider California, where late last year the state introduced a mandatory 20-percent reduction of freshwater use by 2020. Yes, all golf courses must comply.

But Jim Husting, certified superintendent of the Woodbridge Golf & Country Club in Woodbridge, Calif., wonders how the state will enforce such a measure.

"There are too many laws on the books, and there's nobody to enforce them," Husting says.

In time, Husting expects everybody in California will have to report everything about their water use, which is already occurring with surface water. But someone will have to keep track of all that information, put it in a database and operate that database, which will take time, Husting points out.

More than 3,000 miles away on an island in the Atlantic Ocean, Jeff Carlson, superintendent of the Vineyard Golf Club on Martha's Vineyard, is used to dealing with water regulations. The island of Martha's Vineyard is designated as a "sole source aquifer," which protects drinking water supplies in areas with few or no alternative sources to the ground-water resource. Hence, Carlson is restricted in how much water he can use daily.

"In order to irrigate the golf course and in order not to have a shortfall of water, we built a retention pond, which a lot of courses do," Carlson says.

The New England area receives about 44 inches of rain annually. Between the water Carlson can draw from the aquifer and the course's retention pond, you'd think the course would get enough water. And it does, but there are additional regulations with which Carlson must comply.

Regulators realize the Vineyard Golf Club won't deplete the aquifer, but they also don't want the golf course to impact area surface water, such as salt marshes, by pumping too much water for irrigation.

Carlson has no problem with the regulations.

"Regulating water use is kind of a good thing," he says. "Because then you end up with golf courses that are dryer."

Carlson realizes the freshwater situation is worse in the West than in the Northeast. But he expects more regulation in 10 years, especially in parts of New England where there's more runoff.

"I think we'll see a gradual reduction here in using potable water for irrigation," he adds.

Mark Esoda, the certified superintendent of the Atlanta (Ga.) Country Club, points out that more regulation could make freshwater more expensive. Courses could end up paying more for measuring devices, such as meters, as well as additional fees.

"We spend a lot of money for water management," Esoda says.

In Florida, more golf courses are using effluent water because they realize freshwater regulations will only get tougher in time. Joe Hubbard, the director of golf course maintenance for the Broken Sound Club in Boca Raton, Fla., estimates that about 10 percent of golf courses were irrigating with effluent in 2000. That percentage has climbed to 50 percent in 2010, and Hubbard expects the number will soar to 80 percent in 2020.

The state government is in charge of potable water in Florida. Miller suspects other states will take Florida's lead, "because it allows those states to control water and regulate it."

Miller says there's a good reason for superintendents to become more proactive with the issue.

"If you don't become more proactive in what you do with water, the state will come in and mandate what you do," he says.

Dave Phipps, certified superintendent of Stone Creek Golf Club in Oregon City, Ore., expects golf courses will be watched more closely for their water use, but he doesn't expect any draconian regulations come 2020.

"As an industry we're going to be so on top of this," he says. "But it needs to be more than just golf courses; it needs to be the entire green industry. We need to prepare today for tomorrow's legislation."

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PHOTOILLUSTRATION BY: CARRIE PARKHILL; SOURCE PHOTOS BY: ISTOCK INTERNATIONAL INC.

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Taking charge

According to a *Golfdom* survey of nearly 500 superintendents last year, superintendents are concerned about increased scrutiny of their freshwater use as well as decreased availability of fresh water with which to irrigate. When *Golfdom* asked superintendents, "What is your biggest concern regarding the water you use for golf course irrigation?" 37 percent of superintendents said "increased scrutiny of its use," and 29 percent answered "decreasing availability."

Some superintendents believe the two answers go hand in hand. They believe increased scrutiny of their use by environmental groups and politicians will contribute to a decreasing availability of water with which they can irrigate their courses.

Proactive superintendents, realizing they'll face tougher water restrictions in the future, agree they need to act now to get out in front of this issue.

Perhaps nobody in the industry has been more proactive in dealing with this matter than the Atlanta Country Club's Esoda, who spearheaded an effort by the Georgia Golf Course Superintendents Association to enact best management practices for irrigation, a move that benefited the golf industry's image statewide. It wasn't an easy task and it took several years to accomplish, but 246 of the 256 Georgia GCSA member properties stepped up to participate in surveys that documented their water use and irrigation-reduction practices.

Participating golf courses disclosed how they effectively used irrigation systems, new grass varieties, wetting agents and plant growth regulators to use less water. They also documented their usage patterns and areas where they decreased irrigation during a 2007 drought, including how they discontinued the practice of overseeding to save water resources.

The Georgia GCSA partnered with the Georgia Environmental Protection Division (GEPD) in the project, and their relationship has blossomed into one of respect.

"[The GEPD] has realized we were not the water abuser they thought we were," Esoda says.

The relationship is so good between golf and government in Georgia that regulators are looking out for golf courses. In June, the Georgia Water Stewardship Act went into effect, allowing for daily outdoor watering for purposes of planting, growing, managing or maintaining ground cover, trees, shrubs or other plants only between the hours of 4 p.m. and 10 a.m. by anyone whose water is supplied by a water system permitted by the Environmental Protection Division. Irrigation by golf courses is exempted from the act, however.

"We were exempt because they know we're responsible water users," Esoda says.

Esoda can't speak for all superintendents around the country, but he knows of some who are getting out in front of the water issue, much like the Georgia superintendents did. He mentioned a group of superintendents in Austin, Texas, who are working toward BMPs for irrigation.

Esoda expects tougher regulations around the country in the next 20 years. He's asked if superintendents are taking the issue seriously enough.

Esoda thinks for a moment and answers the question this way. He explains that 20 percent of people act as volunteers for one cause or another. The other 80 percent sit back and let the 20 percent do the work. Esoda's fear is that only 20 percent of superintendents are being proactive.

Esoda believes most superintendents are taking the water crisis seriously, but they need to act. "They need to take it one step further," he adds.

Phipps believes superintendents can become leaders in teaching others how to become more responsible with water use. But superintendents and their golf courses have to upgrade their own images as water users first.

"We have to let people know what we're doing and how we're doing it," Phipps says.

Carlson agrees.

▶ Dave Phipps, certified superintendent of Stone Creek Golf Club in Oregon City, Ore., expects golf courses will be watched more closely for their water use, but he doesn't expect any draconian regulations come 2020.

▶ Joe Hubbard, director of golf course maintenance for the Broken Sound Club in Boca Raton, Fla., expects 80 percent of Florida golf courses to be irrigating with effluent water by 2020.

PHOTO (TOP) BY: FRANK DIMARCO

"We need to position ourselves to lead the way," he says. "We're in a position where we can do that. We have the knowledge base, the interest and the skill set to be out in front of this."

In time, Carlson would like to see golf courses evaluated for their playability in accordance with how little water they use, not how much.

"But golfers' perceptions have to change, too," Carlson says. "And golfers have a real hard time with anything that's not green."

Says Husting, "I see golf courses maybe not looking as pristine as they used to partly because of water restrictions. But is the golfing public ready to accept less than pristine conditions?"

The effluent factor

Is irrigating with effluent water the answer to increased regulation? Yes and no.

In the case of Broken Sound and other Florida golf courses, effluent makes great sense.

"More and more environmental groups are blocking (Southern Florida) municipalities from dumping wastewater into the ocean on the reefs," Hubbard says.

As a result, more golf courses are working out agreements with municipalities to irrigate with effluent.

For years, the city of Boca Raton dumped about 6 million gallons of treated wastewater into the ocean.

> **"When water is scarce, PEOPLE ARE GOING TO GET WATER INTO THEIR HOMES long before the golf industry and other segments of the green industry get water"** — **Grady Miller**, Ph.D., turfgrass professor from North Carolina State University

Miller points out the concept of going organic on golf courses is getting more attention in the golf course maintenance industry as part of the overall green movement. He wonders if a strict irrigation concept could also gain a foothold as part of that movement. Could the day come when a golf course promotes that it only irrigates 10 acres of greens and tees in an effort to be the best conservationist golf course in town?

Thanks to an agreement between the city and Broken Sound, much of that water — about 1.6 million gallons a day — is now directed to the club's two golf courses for irrigation. Boca Raton paid $13 million to build the infrastructure to get the water to Broken Sound, which pays about $300,000 in utilities to get the water. Now, Broken Sound always has water for irrigation — even during water restrictions.

"We couldn't ask for a better partner than the city of Boca Raton," Hubbard says. "And the water quality is just phenomenal."

While effluent could probably solve a lot of water woes, there are some issues, mainly its availability. Husting calls effluent a "viable alternative," but the infrastructure must be in place to get the water from point A to point B.

That said, it would cost a lot of money for Woodbridge to irrigate with effluent because the infrastructure is not in place.

"Millions of dollars would have to be spent to get a pipe here," Husting says. "And somebody has to pay for it. Do you think a country club is going to survive that assessment? Probably not."

The problem in North Carolina and other less-populated areas is producing enough effluent water to use on golf courses, Miller says. Poor quality effluent is also an issue.

"There's some reluctance to even want to use it," Miller adds.

The color green

To deal with increased regulations, Miller expects more golf courses will be designed and renovated to irrigate with less water, which is already happening. In 2020, there will also be more drought-tolerant turfgrass varieties, more efficient irrigation equipment and more water wise-minded superintendents.

And what about golfers? Well, it may be that they will be forced to change their demands for lush and emerald-colored green turf. Hard and fast fairways may become popular after all.

But Esoda probably speaks for many superintendents (and golfers) when he says he doesn't want to hear anybody else say that "brown is the new green" when it comes to golf course turfgrass. The statement was uttered by United States Golf Association president Jim Hyler earlier this year.

"Grass is supposed to be green," Esoda says. "But you shouldn't over-water it." ■

Survey Says

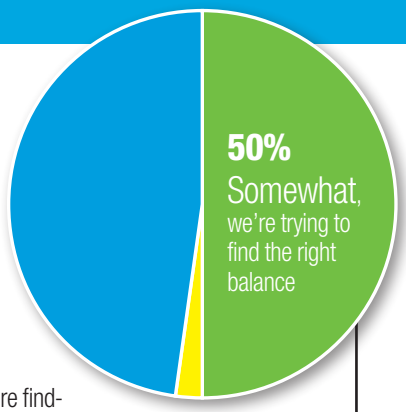
SUPERINTENDENTS ARE GETTING THE MESSAGE ABOUT IRRIGATING EFFICIENTLY, BUT WHAT ABOUT GOLFERS?

GOLF COURSE SUPERINTENDENTS continue to get the message loud and clear that they need to be more efficient irrigators. But golfers? Not so much.

According to *Golfdom*'s 2010 Water Wise Survey, 61 percent of superintendents answered "very important" when asked: "Where does a sound water management program, including an effort to conserve water, rank on your priority list when it comes to golf course management?" Another 38 percent answered "somewhat important." Only 1 percent answered "not important." The findings are similar to the answers we received in last year's survey.

However, superintendents paint a less-caring picture of golfers regarding irrigation management. Only 12 percent of superintendents answered, "They think it's very important," when asked: "How do your golfers feel about water conservation on the golf course?" That's down from 16 percent a year

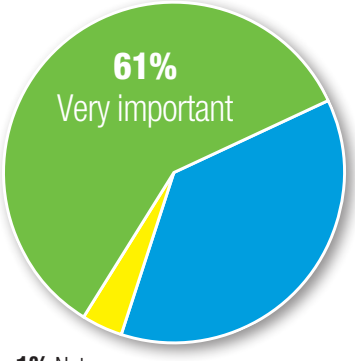
Are you doing all you can to manage water as efficiently as possible? (383 responses)



48% Yes, we're finding ways to reduce overall water use, even if it causes occasional stress on the turf

2% No, we're watering away to attain as green and lush turf as possible

Where does a sound water management program, including an effort to conserve water, rank on your priority list when it comes to golf course management? (384 responses)



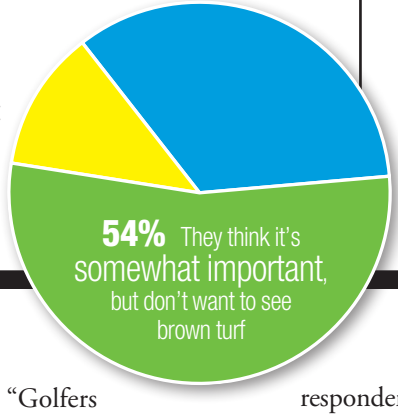
1% Not important

38% Somewhat important

How do your golfers feel about water conservation on the golf course? (383 responses)

34% They don't care

12% They think it's very important



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ago. Thirty-four percent of respondents said, "Golfers don't care." Fifty-four percent said, "They think it's somewhat important, but don't want to see brown turf."

Of course, as superintendents know, it's vital to get more golfers to care about water conservation on the golf course, considering the pressures on superintendents to use less water.

Our survey results also reveal that 98 percent of superintendents are trying to manage water the best they can. In the survey, we asked them: Are you doing all you can to manage water as efficiently as possible? Forty-eight percent answered, "Yes, we're finding ways to reduce overall water use, even if it causes occasional stress on the turf." Fifty percent said, "Somewhat, we're trying to find the right balance." Only 2 percent answered, "No, we're watering away to attain as green and lush turf as possible."

Regarding the final answer, that number is down from 3 percent who gave that answer to the same question a year ago. In 2006, we asked the same question, and 10 percent of respondents said they were "watering away."

Superintendents might want to consider an irrigation audit to help them become better water managers. According to the survey, only 22 percent of superintendents had an irrigation audit performed on their courses in the past two years. Of that 22 percent, we asked: Do you feel the audit was beneficial? Seventy-eight percent answered, "Yes, we've improved our irrigation efficiency on the course because of it." The remaining superintendents answered, "No, because we didn't implement the right corrective actions after the audit was completed."

Most superintendents say they're willing to pay more for highly advanced irrigation equipment that will save them money on water and maintenance costs in the long run. But there's a catch. Fifty percent said they are willing to pay, just not now "because of budget constraints." Only 18 percent said advanced equipment isn't needed because "we have the right technology now, and it's at the right cost." ■

PHOTO AND ILLUSTRATION BY: ISTOCK INTERNATIONAL INC.

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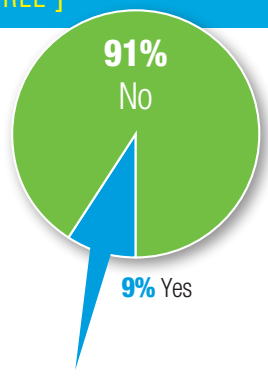
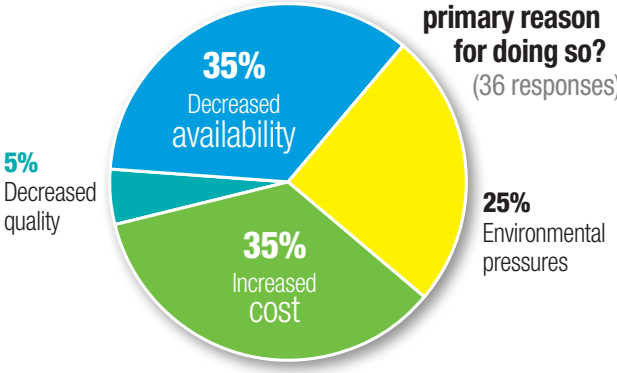
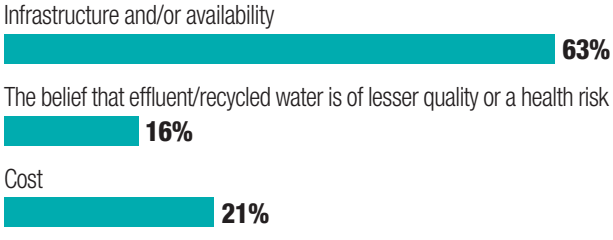
Do you anticipate changing your source of water over the next three to five years? (382 responses)



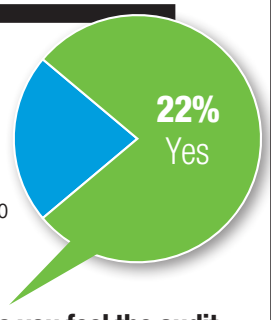
What is the primary reason for doing so? (36 responses)



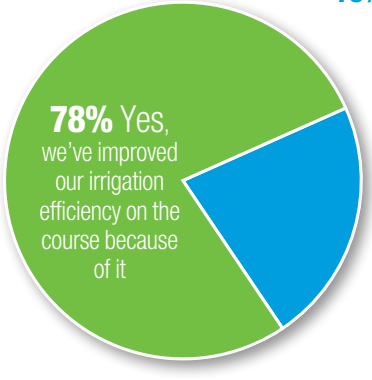
What do you believe could hinder more widespread use of effluent/recycled water? (382 responses)



Have you done an irrigation audit on your course in the past two years? (383 responses)

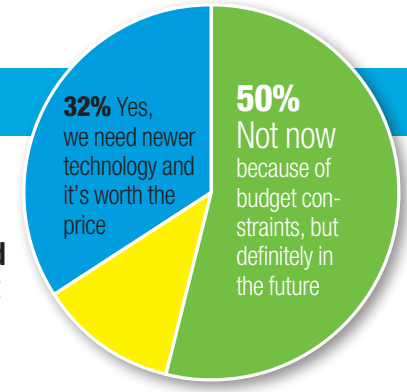


Do you feel the audit was beneficial? (83 responses)



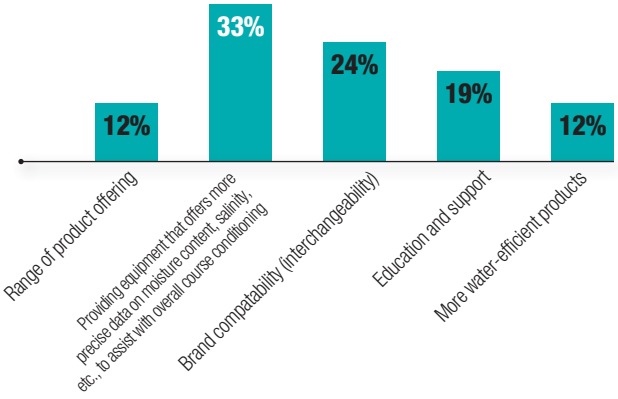
22% No, because we didn't implement the right corrective actions after the audit was conducted

Are you willing to pay more for highly advanced irrigation equipment that will save you money on water and maintenance costs in the long run? (383 responses)

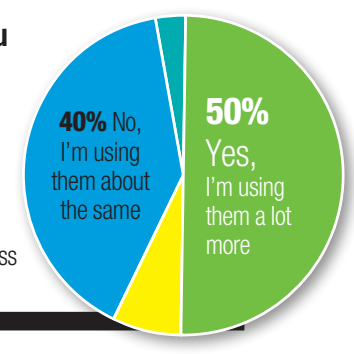


18% No, I believe we have the right technology now and it's at the right cost

What area would you most like to see irrigation equipment companies improve on? (380 responses)



Are you using soil wetting agents differently than you were five years ago? (383 responses)



7% I'm actually using them less

What improvements would you like to see from soil surfactant companies with regard to their products? (383 responses)