

OARS

Organic Acid Removal System – The Original

The Proof Is In The LEACHATE!

The removal
of organic acids
from soil particles
alleviates
localized dry
spots and water
repellency in the
soil profile
reducing stress
on turf.

LEACHATE
Containing Dissolved
Organic Acids After
Using OARS

LEACHATE
After Using
All Other
Surfactants



We look at
soil & water quality
from a different
perspective.

Yours.



AQUAPLEX amino

Manage Salt Stress

- Contains 16 essential amino acids plus soluble calcium
- Amino acids provide immediately available nutrients to support plant recovery and growth in high EC conditions
- Improves ability to absorb water by balancing the plant's osmotic potential
- Increases turf's ability to survive and maintain growth in high EC growing environments

For more information, contact
your Aquatrols distributor today.



www.aquatrols.com



At Shadow Creek, the soils are very different due to so much earth moving.

At Shadow Creek, the soils are very different due to so much earth moving. The site was originally flat and now has some 80 feet of elevation change. That along with the remodel has resulted in a very diverse soil profile depending where you are on the golf course.

From a superintendent's perspective, what is the easiest way to save water? What is the hardest? The easiest way is to promote most drought tolerant turf grasses. You need to be diligent on your scheduling and use weather and all other information available to make the irrigation system as efficient as possible. You need to have buy-in from your staff to do a lot of hand watering. Also, keeping things lean and not watering hot spots with irrigation but by hand watering is essential.

Do you consider yourself an efficient irrigator? How are you efficient? Yes, all measures are taken when scheduling irrigation to ensure the most efficient watering window. In Las Vegas there are frequently strong winds and I manage the water window to avoid irrigation in high winds as nothing gets accomplished from a watering standpoint when it is windy. We try to water when the winds are calm but don't have that much flexibility in the summer due to water window constraints.

Is your water quality a concern? The water quality at Shadow Creek is excellent when compared to other golf courses in the Las

Vegas area. However, the accumulation of sodium is always an issue in a climate that receives only 1 to 4 inches of annual rainfall and the salinity has to be managed.

Are you under pressure to save water?

In this economic climate I think every golf course is looking for innovative ways to save money while producing a quality product and Shadow Creek is no exception. Water is an area where I can reduce cost and improve conditions at the same time. Also management would like to see additional water savings due to the economics. One way to do that is to eliminate or reduce the amount of area we over seed which could save up to 20 percent, but it is a tough sell.

Have you been able to decrease water use at Shadow Creek, if so how?

So far I have reduced water use by 15 percent. The majority of the water reduction has been accomplished by changing the crop coefficients on a monthly basis. Rather than keeping the crop ET at a constant, it changes based on the variety of turf that is growing (ryegrass or Bermuda) and where.

An increase in hand watering has also saved significant amounts of water while producing a more uniform turf. I have stressed the importance of hand watering to our section workers and have allotted them more time to hand water. GCI

Brian Vinchesi writes GCI's irrigation column.

How to be a pioneer as well as entirely practical.

7500
E-CUT Hybrid



Reel speed stays consistent to maintain ideal frequency of clip.



Electric reel motors require no routine service.

Get ahead of the curve with hybrid fairway technology.
Only from John Deere Golf.



JOHN DEERE
GOLF

With the 7500 E-Cut Hybrid, you get a fairway mower that combines cutting edge technology and common sense. Hydraulic leaks in the reel circuit are a thing of the past. You can maintain it just like a regular mower. And you'll appreciate the lower decibels as well as saving on fuel.

There's never been a better time to put hybrid fairway technology to work for you. Demo a 7500E on your course or visit us at JohnDeere.com/Golf.



OFFICIAL
GOLF COURSE
EQUIPMENT
SUPPLIER



How you're using water

Superintendents explain how they're utilizing water resources and their prevailing attitudes toward water consumption.

In conjunction with GCI, Trone Brand Energy conducted research to gain an appreciation for the differing attitudes and behaviors resulting from the variety of recent drought levels.

As Figure 1 shows, only 37 percent of the respondents reported not having to deal with any drought conditions at all and 14 percent noted they had experienced a severe drought in the last year. Despite these problems, most courses continue to operate at their own volition. Among those experiencing severe drought conditions less than half (42 percent) have had an outside authority intercede and put restrictions on their water consumption. And, most of those who had restrictions enforced felt the limitations were minor despite the fact that more than half (54 percent) reported

their water use would be 20 to 50 percent higher if consumption was not controlled.

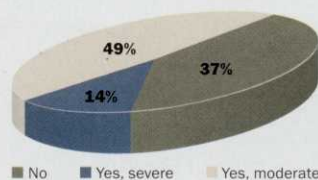
Consumption levels, cost and budget impact did not vary substantially based on the weather conditions experienced. As expected, expenditure levels were driven primarily by the number of holes maintained. As a percentage of the course's non-capital goods operating budget water remained remarkably consistent across the sample. For the overall sample the budget impact was 5 percent. That was also the case for those experiencing no or moderate drought conditions. Among those with severe drought conditions the number increased marginally to 6 percent.

The application of water by course part was also consistent regardless of the level of drought conditions experienced. Overall, courses are putting 21 percent of their water on greens 16 percent on tee boxes, a little over a third (35 percent) on the fairways, 15 percent on the rough and 14 percent elsewhere. The only disparity of note that surfaced was that those experiencing severe drought condi-

Figure 1: Drought impact

Has your area been affected by drought in the last year?

% of respondents



tions are putting slightly more water on the rough (18 percent) and slightly less on the fairways (33 percent). This phenomenon may be the result of the need for a minimum amount of water being necessary to keep from losing the rough completely.

Lakes/ponds (39 percent) and wells (30 percent) are the most common sources of water followed by municipalities (17 percent) and rivers and streams (14 percent). Among those experiencing severe drought conditions the municipality number jumps to 29 percent. This disparity is likely the result of an increased desire or requirement to use effluent or reclaimed water which is, in fact, much higher among those being short changed by Mother Nature. Overall, 13 percent of

Key observations

- The majority of superintendents believe an environmental obligation to conserve and/or recognize the risk of outside intervention (77 percent top three box agreement) if they don't conserve water.
- There is no silver bullet – success is a function of doing a lot of things right. As a result, most courses are continually striving to save.
- Some popular and productive saving practices have other positive financial implications. More natural areas require less water and fewer chemicals as well as less fertilizer and maintenance.
- Other productive savings practices (hand watering, wetting agents) have an adverse impact on the budget.
- Irrigation enhancements, which are an opportunity for some, have clearly been impacted by the financial downturn.
- Many don't feel they have the tools or trained staff they need to be effective.
- There isn't a lot of concern about water testing (effluent or reclaimed and ground water testing)
- Major outside influences are less than supportive. For example, management doesn't get it; players are demanding; "fast and firm" doesn't have great traction; lush continues to be the desired state by many.

Figure 2: Reduce Annual Consumption

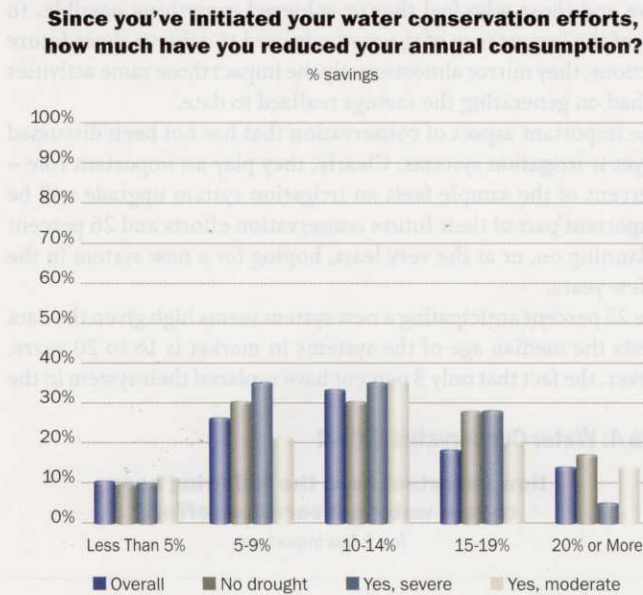
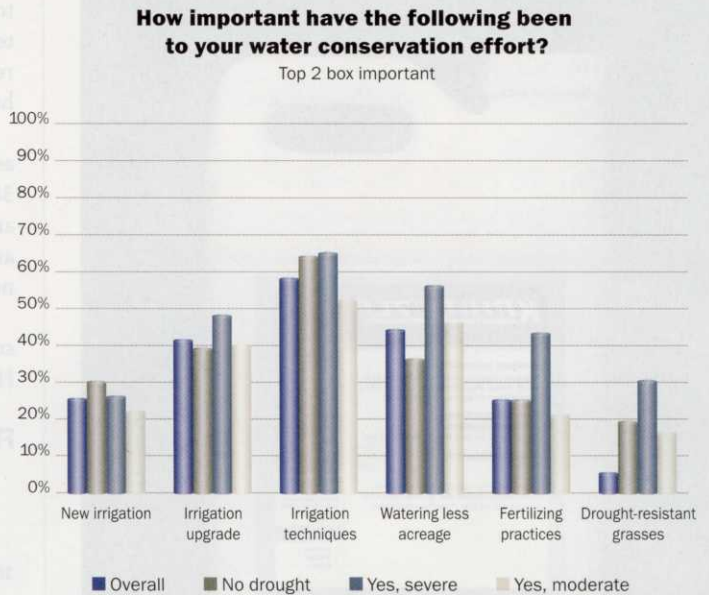


Figure 3: Water Conservation Effort



the water being used is effluent and 11 percent is reclaimed. Those numbers more than double to 26 percent and 25 percent for the courses being hardest hit by the drought. In keeping with the earlier findings few courses are having restrictions placed on their consumption by outside agencies. Only a third using effluent or reclaimed water are required to do so.

An interesting side note is that only half (51 percent)

of courses using effluent or reclaimed water are bothering to test it and the same limited number (51 percent) are using additives. Among those treating the water wetting agents (78 percent) are by far the most popular followed by gypsum (35 percent), acids (31 percent) and all other (24 percent).

Ninety-plus percent have taken some measures to reduce consumption. And, it is consistent across all the groups analyzed. The overall sample was at 91 percent with those experiencing no drought at 90 percent, moderate drought conditions at 91 percent and severe drought at 88 percent. Given the consistency of these numbers there are forces at work other than the simple availability of water. As noted, water has significant cost implications and that is likely a motivation.

To support the concept that the economic impact is a significant motivation for water conservation efforts, it is noteworthy that half of the courses have initiated their activities since the economic downturn of 2008. It is also worth pointing out that among those in the

areas most heavily impacted by the drought 43 percent of the courses began their reductions prior to 2005 as opposed to 26 percent of the overall sample having started that long ago.

As Figure 2 shows, the savings generated varies substantially but, in most cases it's significant with 60 percent or more of the sample realizing annual reductions in excess of 10 percent. Accomplishing those savings, however, is a big effort. There is no "silver bullet." As Figure 3 shows, supers are implementing numerous and varied changes to achieve the results. Of note is how much more aggressive those in the heavily drought stricken areas have been than their those elsewhere. Equally noteworthy is that while water conservation brings with it a cost savings many of the steps being taken to reduce consumption (upgrades, wetting agents, hand-watering) have their own adverse cost implications.

Across the sample the most important (top 2 box) activities in their conservation efforts have been the implementation of new irrigation techniques (48 percent), addition of wet-

ting agents (48 percent) and hand watering (48 percent). These same activities have been most critical for those achieving reductions in excess of 10 percent annually. The notable difference between the overall respondent base and those achieving the highest levels of savings (>15 percent) is the importance of a maintaining a drier course which jumps from 40 percent to 70 percent.

Another significant conservation technique is the watering of less acreage which 37 percent of the sample indicated had top 2 box importance. Far and away the increase of natural areas (73 percent) was the most popular way to reduce the acreage irrigated followed by not watering the rough (34 percent) and narrowing of fairways (21 percent).

Despite the extensive conservation efforts put in place to date, the industry is far from finished. 83 percent of courses have goals to further reduce their water consumption over the next three years. And many of those goals are significant. Forty percent are planning to save 10 percent or more with ten percent striving for reductions

Implications

- There is an industry-wide obligation to create new conservation opportunities.
- There is a need for more education: superintendents/staff; management on the benefits; and players on the need
- How big a role should water quality versus water consumption play?
- An improving economy bodes well for the irrigation companies.
- There appears to be pent up demand but, how are they positioning themselves today for tomorrow's sale?

THE CLEAR CHOICE



KPHITE[®] 7LP SYSTEMIC FUNGICIDE BACTERICIDE

KPHITE 7LP Systemic Fungicide Bactericide is proven effective against pythium, dollar spot, brown patch and fungal diseases. KPHITE is EPA labeled, pH neutral and is uniquely formulated to increase plant health and vigor.



TO FIND A DISTRIBUTOR
OR LEARN MORE
WWW.PLANTFOODSYSTEMS.COM
800.343.7775

the WATER issue

in excess of 20 percent. Among the 17 percent planning no reduction there is undoubtedly a mix of those who have no particular motivation to save and those who feel they've achieved everything possible. In terms of the importance of the methods used to achieve those future reductions, they mirror almost exactly the impact those same activities have had on generating the savings realized to date.

One important aspect of conservation that has not been discussed as of yet is irrigation systems. Clearly, they play an important role – 38 percent of the sample feels an irrigation system upgrade will be an important part of their future conservation efforts and 26 percent are planning on, or at the very least, hoping for a new system in the next few years.

The 25 percent anticipating a new system seems high given the data suggests the median age of the systems in market is 16 to 20 years. However, the fact that only 3 percent have replaced their system in the

Figure 4: Water Conservation Effort

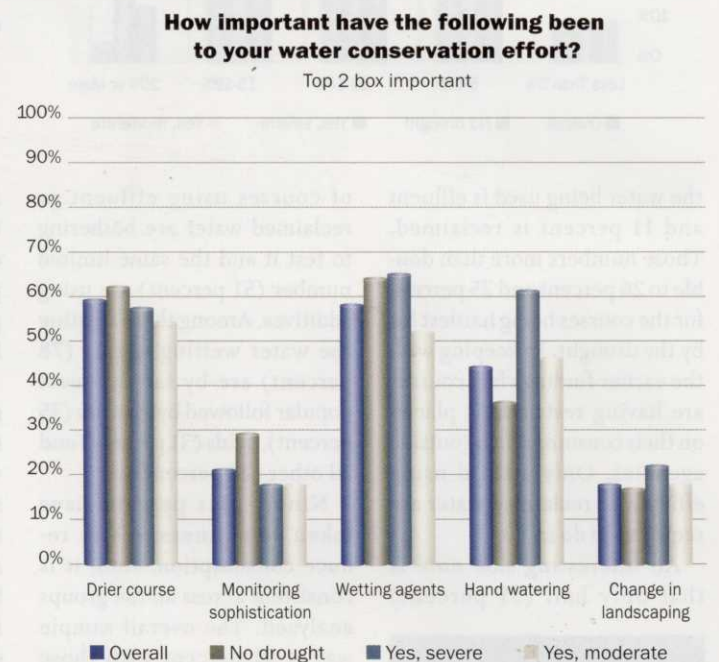
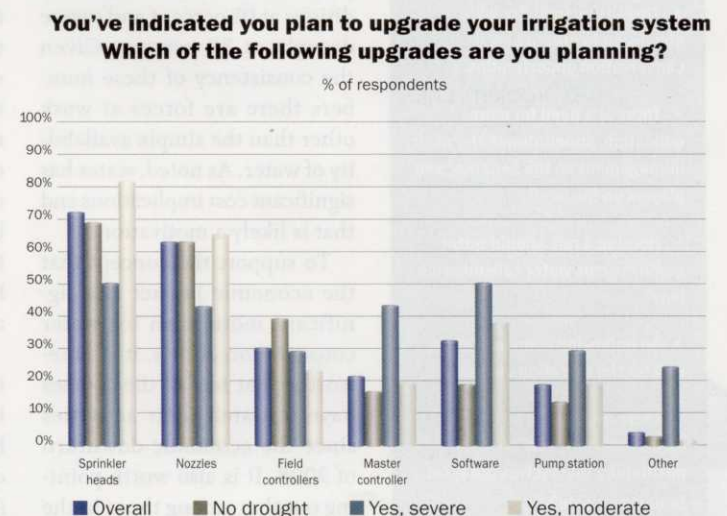


Figure 5: Water Conservation Effort



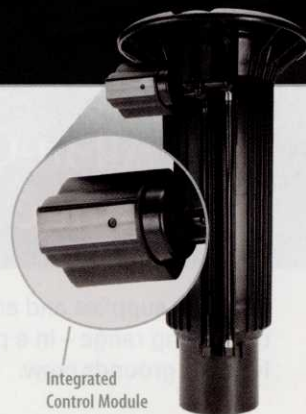
See how smarter field control can save time,
water and wire at www.rainbird.com/ICS

Simplifying irrigation with smarter technology.

That's intelligent.



The Rain Bird® IC System™— the only control system with intelligence built right into the rotor or valve. No satellites, no decoders, no problem. Enjoy easy, straightforward, precision irrigation control and intelligent diagnostics with the IC System™. This innovative technology is also better for the environment, using up to 90% less copper wire than other systems. Graduating to a higher degree of control. Now that's The Intelligent Use of Water.™



RAIN BIRD®

last three years and only 7 percent replaced in the three years prior would suggest the economic downturn has had a significant impact and the market is experiencing significant demand. This phenomenon is true of major irrigation system upgrades where more than half of courses have not had one in the past decade and 38 percent are anticipating one in the next few years.

As Figure 4 shows, of those planning an upgrade, the more sophisticated components will be most popular with those experiencing severe drought conditions.

In addition to the behavioral information, one of the study's goal was to understand superintendents' attitudes about water, as well as the attitudes of those who influence them.

Clearly, supers understand the dilemma.

Over half (54 percent) top 2 box agreed they have an environmental obligation to conserve water. They are also very pragmatic with 62 percent recognizing there is a significant possibility of outside intervention if the industry does not act responsibly. With that said, less than half (48 percent) agreed they were well versed in conservation techniques and only a third felt there employees were trained to save water. Most disappointingly, only 14 percent indicated they are using the most sophisticated water management techniques. This number is tempered somewhat by the fact that 34 percent feel hampered by antiquated systems.

And throughout it all, the super remains the man in the middle. On the one side they are dealing with management that still doesn't appreciate the issue. Only 38 percent were in top two box agreement that management understands the environmental impact of water use and even fewer (36 percent) feel management understands the financial impact. The other side is comprised of players who will always want a lush, green course (46 percent top 2 box) and for whom the concept of a faster, firmer course has not taken hold (only 31 percent top 2 box agreement). **GCI**

Methodology and notes

The median age of the respondents was 45 and they have an average of 11 years in their position. The courses were geographically dispersed and represented an appropriate mix of private, semi-private and daily fee facilities. As expected the majority (73 percent) were 18-hole layouts.

The study was fielded in May 2012 to the GCI circulation database. 192 responses were collected yielding a 95 percent confidence level with a margin of error of +/-7.04 points. The survey was programmed in Perseus and the analysis was conducted using SAS software. The reference to "top 2 box" is based on a six-point Likert scale. Trone Brand Energy prefers this to the more common five-point scale in that it eliminates the default neutral position (box 3 in a five-point scale) and adds meaning to the findings by not including those indicating marginal agreement (box 4 in the six-point scale).



The All-in-One Club Cleaning and Range Storage Solution

Offer the supplies and amenities that your members need on the driving range – in a portable package that makes life easier for your grounds crew.

- ✓ Portable Platform
- ✓ Mess-Free Club & Grip Cleaners
- ✓ Ample Storage
- ✓ Durable and Customizable

See it in action...



Order Today: (800) 706-1336 | www.rangecart.com



Dedicated to fighting evils,
StressGard[™] Formulation Technology never rests.

Protect your course with the most powerful technology out there. When it comes to overall plant health, Bayer fungicides with *StressGard*[™] Formulation Technology give you control when it matters most. We've developed these products to work at a cellular level, strengthening turf and fighting against evil stressors like heat, drought and traffic so you'll have the strongest, healthiest turf and happy golfers. To learn more, visit BackedByBayer.com/StressGard.

Tartan[®] | Chipco Triton[®] Flo | Interface[®] | Chipco[®] Signature[™] | Reserve[®]

Our five quality fungicides with StressGard Formulation Technology are proven to have preventive and curative properties against disease.



Bayer CropScience LP, Environmental Science Division, 2 TW Alexander Drive, Research Triangle Park, NC 27709. 1-800-331-2867. www.BackedByBayer.com. Bayer, the Bayer cross, Chipco, Chipco Triton, Interface, Reserve, and Tartan are registered trademarks of Bayer. *StressGard* and Signature are trademarks of Bayer. Not all products are registered in all states. Always read and follow label instructions carefully. © 2012 Bayer CropScience LP.



Brian Vinchesi, the 2009 EPA WaterSense Irrigation Partner of the Year, is president of Irrigation Consulting Inc., a golf course irrigation design and consulting firm headquartered in Pepperell, Mass., that designs irrigation systems throughout the world. He can be reached at bvinchesi@irrigationconsulting.com or 978/433-8972.

IT'S ALL ABOUT WATER

Every one in the golf industry is talking about water – superintendents, managers, builders, designers and even architects. Go to a golf conference and there is usually a talk or a panel on water. But golf is not alone, everyone is talking about water.

This tells us that water is important, and there is money to be made in water. What also tells us is that large water users, like golf courses, will come under increasing scrutiny in the future.

In the general public the discussion is for the most part taken in the context of potable (drinking) water and since a small percentage of golf courses use municipal water, many superintendents don't give it much thought. But water is water and new standards and codes are defining potable water in a much broader context than in the past.

Potable water these days refers to drinking water (municipal), groundwater (wells) and surface water (ponds, lakes, streams and rivers). So unless your course is using effluent water, then water needs to be gaining a lot of your attention.

Here is but one example. The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) have developed a standard – ASHRAE 189.1: Standard for the Design of High-Performance Green Buildings. Section 6.4.1 of the standard states:

“For golf courses and driving ranges, only municipally reclaimed water and/or alternate on-site sources of water shall be used to irrigate the landscape.”

It's a bit scary that a commercial building standard is dictating golf course water use.

New entities have entered the water

discussion, and in some cases they are framing revised and new regulations regarding water resources, water use, allotment and quality. Without a doubt, his will affect your ability to irrigate in the future.

Many of these new codes in the landscape sector dictate the irrigation system performance; requiring minimum DU's, assigning crop coefficients and limiting precipitation rates.

“Most, golf course superintendents are good stewards of water, but few do a good job of promoting it.”

So what can a superintendent do about it? Most, golf course superintendents are good stewards of water, but few do a good job of promoting it. That will need to change in the future.

So where do you start?

As I have stated before, know how much water you use. If you are not measuring your water use, start. Actual use versus estimated use is easier to defend.

Your central control database is not a good indicator. The flow meter on your pump system is.

If you have a variety of sources of water; wells, lakes, ponds, rivers or streams, meter those, too.

If you don't know how much water you use, then how do you manage it let alone prove you need it.

Also know your water quality – what's good about it and what isn't. If your water sources flows through your golf course, then test the water quality at the in point and the out point.

Many golf courses improve, not degrade, the quality of the water flowing through them, does your?

Have a written and detailed water conversation plan in place, much like your integrated pest management (IPM) plan. This plan should indicate what you have done to save water and the steps you will take when there is a drought.

As the saying goes, “knowledge is power,” so know everything about your water source. And at the very minimum, educate yourself about your water quantity and quality.

Remember, the science and numbers provide true, factual information about what's happen at your facility. Estimating and guess work are hard to back up and convince people of their validity.

Keep in mind that the opposition's “numbers” are most likely guesses and estimates, too. However, they will carry the same weight – if not more – than yours depending on who is presenting them.

Familiarize yourself with the water issues in your market and your region as all water issues are local. Get involved in the local discussion and be prepared to prove what a good steward of water you and your facility are.

Remember, GCSAA has materials and resources that can help you with dealing with the local media on water issues.

Water window is important to comprehend when operating an irrigation system. This is something I've addressed in past columns. Knowing your water window helps you understand the relationship between your irrigation system and pump station, which makes you a more efficient irrigator. **GCI**