

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

Yours.

AQUAPLEX Ca 

AQUAPLEX amino 

BLAST 
INJECTABLE

BLAST 
SPRAYABLE

CALTRISAL ST 

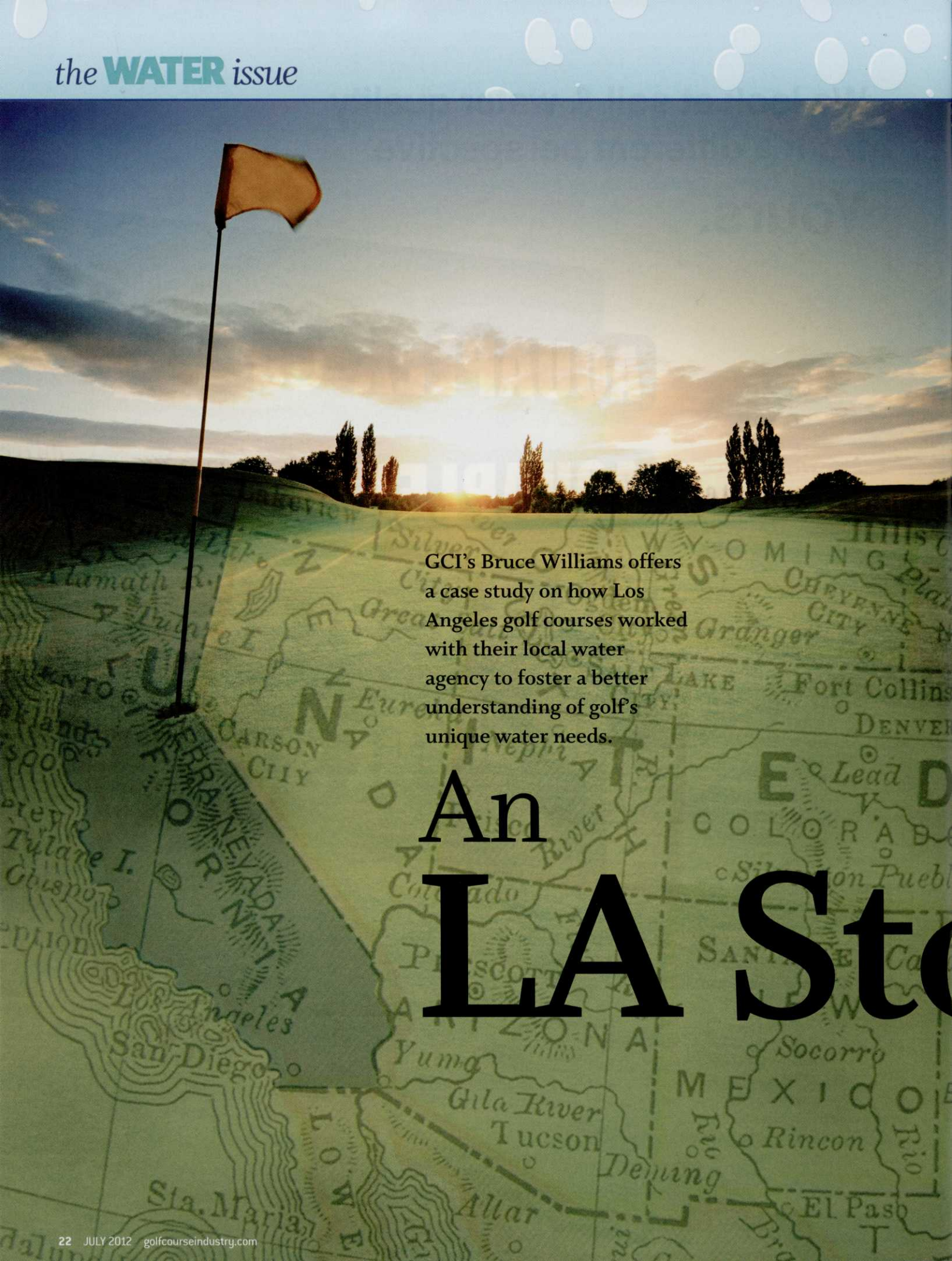
Your course is like no other –
especially when it comes to soil
and water quality issues.

That's why we've designed a
comprehensive line of products to
help you manage your unique soil-
and water-related challenges. From
salt stress to carbonate buildup,
we'll help you evaluate your turf's
needs and build a program that is
both effective and affordable.

Contact your Aquatrols distributor
for more information.

www.aquatrols.com

 **Aquatrols®**

A photograph of a golf course green at sunset. A flagstick with a yellow flag is positioned on the left. The background shows a sunset sky with silhouettes of trees. A semi-transparent map of the United States is overlaid on the bottom half of the image, with a red pin marking the Los Angeles area. The map shows state boundaries and names like California, Nevada, Arizona, and Texas, as well as major cities and rivers.

GCI's Bruce Williams offers a case study on how Los Angeles golf courses worked with their local water agency to foster a better understanding of golf's unique water needs.

An LA Story

Dry

All across the United States water shortages are applying pressure on golf courses to conserve more water than ever before. Recent droughts in Texas, Georgia and other states have made headlines, while other states like Arizona, Nevada, New Mexico and California have dealt with these issues for years.

In 2009, successive drought years jeopardized Los Angeles' water supply. LA receives its water from the Sacramento Delta and also from the Colorado River via a lengthy set of aqueducts. Much of that water is stored in reservoirs near LA because usage is higher during the summer months due to reduced rainfall and increasing temperatures.

Snowpack in the Sierras is a major source of water that enters the delta. Much of Southern California is dependent on a solid snow season to provide the melting off that feeds the rivers. Up until 2012 we have experienced successive below normal snow years, which resulted in lower-than-normal reservoirs are much and it would take several years of

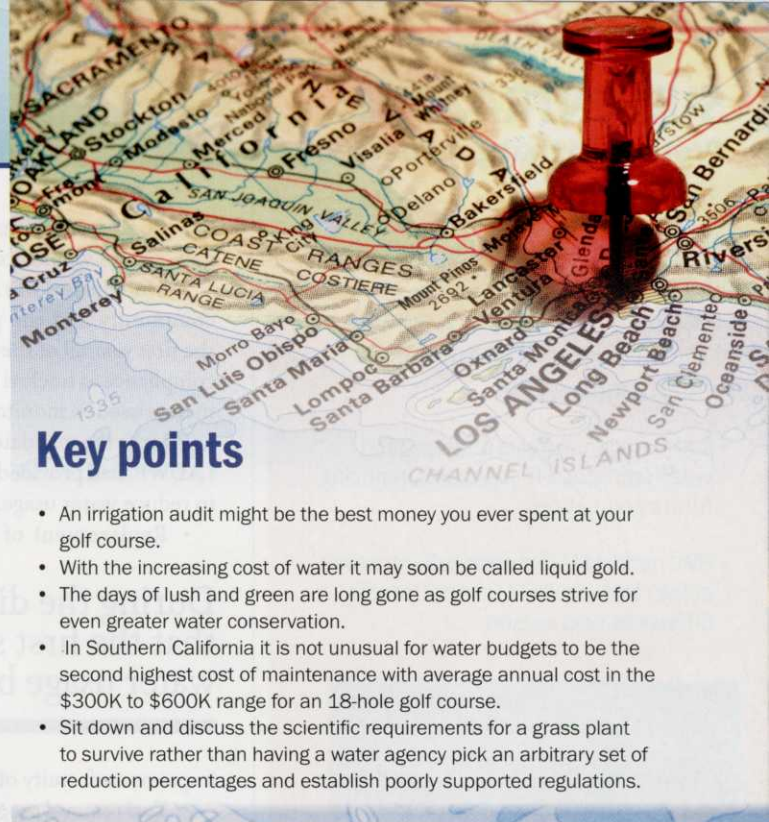
above average precipitation to get out of the drought situation.

Water is such a precious commodity the city council passed an Emergency Water Conservation Ordinance in June 2009 mandating immediate compliance with an onerous set of irrigation regulations that would have had a dismal impact on golf courses. The original set of regulations allowed for irrigation only on Mondays and Thursdays and no irrigation between 9 a.m. and 4 p.m. Those regulations were for all turf irrigation including, lawns, parks, sports fields and, of course, golf courses.

Originally the request was for a 15 percent reduction in water usage for each golf course facility but the regulations did not allow for well-trained and highly educated golf course superintendents to manage their water. The new stipulations could have potentially led to mismanagement of a precious resource. There became a need to develop a group of golf course water users – who had water provided to them by the Los Angeles Department of Water and Power (LADWP) – to engage in a process of education and understanding.

DEVELOPING PARTNERSHIP. LA's golf community organized and approached the LADWP with the idea of having a set of meetings that would evolve into the "Golf Industry Water Conservation Task Force." The purpose of the group was to:

Through tracking of water usage and staff member education, the most satisfying moment was when golf course representatives were told that golf courses were some of the most efficient of all the outdoor irrigation users.



Key points

- An irrigation audit might be the best money you ever spent at your golf course.
- With the increasing cost of water it may soon be called liquid gold.
- The days of lush and green are long gone as golf courses strive for even greater water conservation.
- In Southern California it is not unusual for water budgets to be the second highest cost of maintenance with average annual cost in the \$300K to \$600K range for an 18-hole golf course.
- Sit down and discuss the scientific requirements for a grass plant to survive rather than having a water agency pick an arbitrary set of reduction percentages and establish poorly supported regulations.

- Open a dialogue regarding water usage and conservation

- Discuss methodology for golf courses to best manage irrigation
- Be involved in the formation of any new regulations via recommendations by the task force to LADWP

- Have ongoing meetings to chart the progress of the conservation efforts

- Educate the LADWP as to the Better Management Practices for golf course irrigation

- Educate golf course representatives on the requirements of the LADWP and its sister agencies

- Provide annual educational workshops to educate superintendents on new programs and methods for water conservation.

This task force has been working well for over 3 years now and the outcomes would not have been possible without all the powers sitting at the same table. I imagine this group will still be

working on water issues with mutually agreeable outcomes for many years to come.

Through tracking of water usage and staff member education, the most satisfying moment was when golf course representatives were told that golf courses were some of the most efficient of all the outdoor irrigation users.

OPTIONS FOR WATER CONSERVATION. During the dialogue for water conservation it was felt that the first step would be to reduce golf irrigation water usage by 15 percent. The governor of California had developed a plan that was referred to as 20 by 2020 and included a 20 percent reduction in water usage by the year 2020. The restrictions as to days of irrigation and timing of irrigation were not suitable to the golf community so an offer was made to reduce the irrigation water by 20 percent immediately and not wait until 2020

SULFENTRAZONE: Protection that goes deep.

FMC Professional Solutions proudly offers a variety of herbicides containing an optimized amount of the proprietary active ingredient sulfentrazone.

- Sulfentrazone affects underground weed reproductive structures, reducing future populations
- FMC herbicides featuring sulfentrazone deliver fast results PLUS a noticeable difference next season



The photo above shows an area of green *kyllinga* just after a fall treatment with *Dismiss*.



This photo shows the same area the following spring. While the green *kyllinga* has reestablished most everywhere else, the area treated with *Dismiss* is lush and green.



FMC

FMC Professional Solutions

1-800-321-1FMC • fmcprosolutions.com

Always read and follow label directions. FMC, Blindside, Dismiss, Echelon and Solitare are trademarks of FMC Corporation. ©2012 FMC Corporation. All rights reserved.

the **WATER** issue

but lift all restrictions as to how individual golf courses would accomplish this.

A win-win deal was struck for both the golf community and the people of LA. Within the first year all of the 35 golf course were in compliance as tracked by the LADWP and the meters used to monitor water usage.

Prior to the mandates the city, through the LADWP, had provided a variety of incentives to reduce water usage. Among those were:

- Replacement of irrigation nozzles to

tion via savings on fertilizer, mowing and weed control.

Turf reduction requires a plan designed by a qualified golf course architect and the golf course superintendent. Simply ceasing to irrigate does not work and the turf will need to be cut and removed. Once the turf is removed it is often replaced by decomposed granite, pine straw or bark mulch. This requires installation costs but those are normally offset by the rebate. Upkeep will be required as well.

During the dialogue for water conservation it was felt that the first step would be to reduce golf irrigation water usage by 15 percent.

improve uniformity of distribution

- Turf removal program that would reward properties taking acreage out of irrigation
- Rebates for approved control systems
- Adjusted water rates for golf courses following a set of requirements including the use of weather stations and computerized control systems to best apply water to the turf

Water can wear things out after many years of usage. Most nozzles, on the irrigation heads, are made of either plastic or brass and subject to wear. When those orifices wear out the volume, trajectory and uniformity of the irrigation water can be dramatically affected. I have seen irrigation audits that resulted in only about 60 percent efficiency of systems. By changing the nozzles an increase of up to 25 percent can be expected. From personal experience I utilized a rebate program that allowed our golf courses to receive all new nozzles and all we had to do was supply the labor to install them. This is a great program that the LADWP has had in place for a number of years. It does require some paperwork but it is well worth the effort.

Steve Sinclair, CGCS, Woodland Hills Country Club, is one of several superintendents who opted to remove turf as a part of his conservation program. Don Johnson, superintendent at Porter Ranch GC, also undertook a major improvement project involving turf removal. The premise of meeting a 20 percent reduction in irrigation water becomes much simpler when you have 10-20 percent less turf to water. These projects are not simply undertaken and they are not inexpensive. However, with a rebate of \$1 per square foot, it does make such projects doable for many properties. You not only have the reduction in irrigation costs but sustained cost reduc-

Xeriscaping is often added with the use of drought tolerant plants and the installation of subsurface emitters for drip irrigation.

Several golf courses have opted to install new irrigation systems. A typical irrigation system should last 20 years in Southern California. Newer systems are much more efficient than those designed several decades ago. Variable speed pumps save on energy costs and also keep optimal pressure in the lines. Although new irrigation systems can cost between \$1 million and \$2 million if you calculate the cost per year it is less than the cost of water that many courses would pay in a 4-year to 8-year period.

IMPORTANCE OF WORKING TOGETHER. With the LA area receiving an average of less than 12 inches of rainfall per year it is easy to understand that golf course turf would not exist without irrigation. Water is a precious resource and it is also a huge line item in most golf course budgets.

The golf course industry was very proactive in working with the local water agency to develop a sound strategy to turn a problem into a solution. That takes teamwork. Without both parties coming to the table it would not have happened.

Drought is a serious trend in California. Even with an above-normal snow pack and above-average rainfall I doubt we will see any improvement for the rest of this decade and beyond. Treaties concerning water were originated back in the 1950's. At that time California was in a growth boom and transporting water to places like LA and San Diego made that possible. At the same time, Northern California and Las Vegas grew, and both of those locations were supplying water.



GET FASTER SEDGE RESULTS

STOP FUTURE POPULATIONS

Nothing puts you in control of sedges like Dismiss® herbicides.

Professionals across the country who selected Dismiss® herbicides for their sedge control last year have been amazed by the fast visible results they achieved. But they're also experiencing an exciting and unexpected difference this season: a significant reduction in new sedge populations.

That's because Dismiss fights yellow nutsedge, green kyllinga and purple nutsedge underground, impacting the weeds' reproductive structures to help reduce future generations of sedges from appearing. With Dismiss, you're getting the industry's fastest visible results PLUS a noticeable reduction of sedges next season, saving you time and money.



To find out which Dismiss formulation is right for your turf, visit www.fmcprosolutions.com or contact your FMC Market Specialist or local FMC Distributor.



Scan this tag with the Microsoft Tag Reader app on your smartphone to view an exciting video on Dismiss herbicides.

Need the mobile app? Get it free at <http://gettag.mobi>



FMC

FMC Professional Solutions

1-800-321-1FMC • fmcprosolutions.com


Dismiss
TURF HERBICIDE


Dismiss CA
HERBICIDE


Dismiss
South
HERBICIDE

There is a lot of pressure to reduce water transport to Southern California as Las Vegas and the Sacramento Delta want to keep their water and also the many agricultural farms that feed the nation along the aqueducts. Debates over endangered species and reduced fish populations have added fuel to the fire.

One thing you can count on is that potable water is a finite commodity and we are not making any more. The availability is less and often the quality is marginal at best. Yet the cost continues to rise as golf course superintendents walk the tight rope with their daily decisions for irrigation management.

MIRRORING LA'S GOLF COURSE WATER PLAN

Several other nearby water agencies have taken notice of the collaborative efforts of LADWP and the Golf Industry Water Conservation Task Force. As regulations are being developed we have heard from many other water agencies and also golf course superintendents. As the old saying goes "it may not be necessary to reinvent the wheel."

Ironically, a few other regions are experiencing new water regulations that you would think had adequate supplies. Florida has quite a few water management districts and they monitor any and all usage for golf irrigation. A few years ago there was a severe drought up through Georgia. The Georgia Golf Course Superintendents rose to the occasion and worked with agencies to develop better management practices still utilized.

Even cities like Chicago are starting to question who has rights to Lake Michigan water. Many collar cities that border other cities on Lake Michigan utilize that water for irrigation. As lake water levels go down plenty of eyebrows raise in Michigan and Wisconsin as to who has those water rights.

THE FUTURE. No matter how we look at it there will be less water to irrigate with, so we must manage it well. By working with local water agencies it is possible to develop positive outcomes that satisfy everyone. We must continue to be strong stewards of the environment and our resources. GCI

Bruce R. Williams, CGCS, is principal for both Bruce Williams Golf Consulting and Executive Golf Search. He is a frequent GCI contributor.



SUPERthrive
The Original Vitamin-Hormone solution

Many golf courses apply **SUPERthrive**® on Mondays to revive weekend-stressed turf

SUPERthrive
1940 WORLD'S FAIR Gold Medal
The Original Vitamin-Hormone solution

SUPERthrive® ~ 12610 Saticoy St. South, North Hollywood, CA 91605 ~ 800.441.8482

Visit www.SUPERthrive.com for our free trial offer

See the All-New Super 600 in Action at wiedenmannusa.com!

Leading by example



SUPER 500
Verticut and pulverize in one pass



TERRA SPIKE XF
Fastest on the market



TERRA SPIKE GXI-6
Perfect for tees and greens



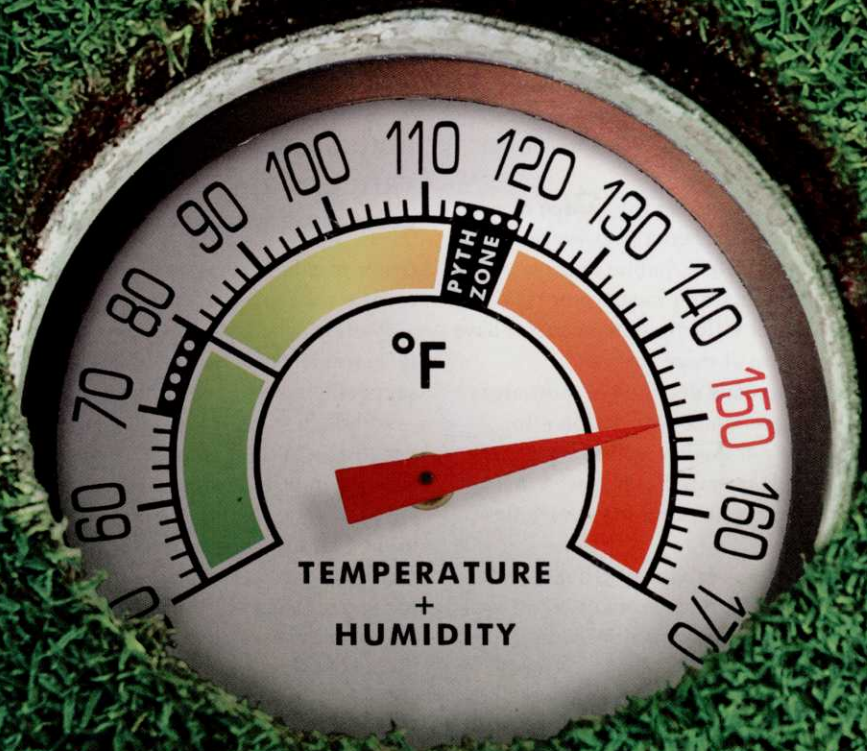
912-790-3004 PHONE 866-790-3004 TOLL FREE

www.wiedenmannusa.com WEB



In the **Pythium Zone?**

Trust in **Terrazole**[®]



ohp Partners
with
solutions

- Curative and Preventative
- New Liquid Formulation
- Effective on resistant strains

Terrazole[®]
Turf and Ornamental Fungicide



Henry DeLozier, a principal in the Global Golf Advisors consultancy. DeLozier joined Global Golf Advisors in 2008 after nine years as the vice president of golf of Pulte Homes. He is a past president of the National Golf Course Owners Association's board of directors and serves on the PGA of America's Employers Advisory Council.

WHEN THE WELL RUNS DRY

Seventeenth century English church leader, author and historian Thomas Fuller warned his fellow countrymen about the value and power of water. "We never know the worth of water till the well is dry," Fuller observed.

Looking at the water economy nearly 400 years later, one can conclude that little has changed.

For golf course owners, operators and superintendents, the accessibility, quality and price of water has become critical to success.

"After location, access to water is one of the foundation elements in community master planning," says Jim Wyffels, the golf course superintendent at Fyre Lake Golf Club in Sherrard, Ill. Wyffels, who helped develop 27 courses across the U.S. during his years at Pulte Homes, has seen local permitting authorities use access to water as a tool to control entitlements and housing density.

Courses generally receive water from three means: their own water sources – where they own the rights and distribution system, public or private municipal water providers, and wastewater treatment plants that deliver effluent. Some courses have access to a combination of these sources.

Water quality has steadily declined in most areas as pH levels – hydrogen ion concentration – increase. Golf course water quality, which is progressively increasing in pH overall, has followed this trend and is adding to the stress of many varieties of turf.

The overuse and/or over mixing of effluent water indicate a compounding and unfavorable trend for golf courses. It's an issue many facilities around the country struggle to address.

As water access becomes more difficult and its quality steadily declines, its cost is increasing. Significant increases in cost have become among the most pressing economic issue in the golf business.

What will happen to the price and availability of water for golf course irrigation in the next five to ten years? Matt Payne of WestWater Research in Boise, Idaho, isn't optimistic.

"Water prices will increase significantly, and availability will decline," Payne says. "Particularly for golf courses that are customers of municipal water providers.

"Effluent prices are also rising as diverse uses of the supply become more socially acceptable," he adds.

Courses that receive service from wastewater treatment plants and municipal water providers could see water rates double in five to 10 years, Payne predicts, adding that supply interruptions may become more frequent as droughts and community growth place a greater strain on supply.

"Golf courses developing their own sources by acquiring water rights will see prices increase of 25 percent or more in the near future," Payne says. "While reliable water rights may attract premium market prices, developing water supply indepen-

"Golf course water quality, which is progressively increasing in pH overall, has followed this trend and is adding to the stress of many varieties of turf."

dence may be less expensive than continuing to receive water service from municipal providers."

Wyffels, who notes that the golf industry already is "extremely efficient and diligent" in its water use, says golf courses must continue to be good stewards.

Although water accessibility, quality and price are not totally in their control, Payne advises courses to take preemptive action to help ensure their futures.

"View water as an asset, not a cost," Payne says of understanding this resource. "Understand how water rights markets are developing in your area, and recognize that water rights are generally appreciating in value. Also, invest in your own rights/entitlements to achieve supply independence."

Payne also suggests developing supply redundancy into a facility's water management strategy.

"Many golf courses in the Phoenix area, for example, receive effluent under long-term supply contracts with surrounding municipalities," he says.

"However, several of these Phoenix-area courses also maintain ownership of portfolios of ground-water rights that provide supplemental and backup supplies in case effluent deliveries are interrupted," he adds.

The proverbial well may not be dry yet, but as golf struggles with accessibility, quality and cost challenges, the golf course industry certainly has developed an appreciation for the wisdom of Thomas Fuller. **GCI**

WHY IS LYNX[®] THE EASIEST IRRIGATION CONTROL SYSTEM IN THE INDUSTRY?

Simple. You helped design it. The Toro[®] Lynx[®] Control System delivers Precision[™] Irrigation easier and more intuitively than ever before. But don't take our word for it. See what superintendents are saying at toro.com/leaderboard.

The Leader in Golf.

Simplified decision making with Dynamic Drilldown.

With NSN[®] Connect, Lynx is with you when and where you want.

Integrated Turf Guard[®] soil sensor helps you save water.

Flexible and editable map simplifies irrigation control.



Lynx[®] Control System
toro.com/leaderboard

©2012 The Toro Company. All rights reserved.



Count on it.



High and **DRY**

Golf course superintendents no doubt will agree that this year has been one to remember so far in terms of its weather conditions. They might even go so far as to file it under “weird” – a very mild winter that almost transitioned directly into summer with no spring.

Some superintendents might dismiss the meteorological abnormalities as freakish and not likely to ever happen again, but the smart ones are no doubt documenting the bizarre temperatures and noting the various tweaks to their maintenance programs that produced the optimal results.

One of the things superintendents had to do this year that went against the norm is turn on their irrigation systems earlier than usual. Now, it could have a huge impact on their budgets, especially if they use city water.

“I had guys who started filling their

“I had guys who started filling their ponds with city water in April who usually wouldn’t do that till August.”

— *Brian Vinchesi*

A crippling drought is helping superintendents discover if their irrigation systems are up to snuff. But it’s also putting pressure on their budgets as they’re starting to feel the effects of having had to turn their systems on earlier this year. *By Jason Stahl*

ponds with city water in April who usually wouldn’t do that till August,” says irrigation consultant Brian Vinchesi. “Even if you’re not paying for your water, your electric bill will go up. Depending where you’re located, it won’t be that bad, but it’s still going to go up.”

Bradley Anderson of Bittersweet Golf Club in Gurnee, Ill., is one superintendent who is feeling the pain of a depleted water supply. His irrigation reservoir, which holds six million gallons and is fed exclusively by run-off, began running out of water in mid-June, and his crews started transferring water from the ponds on the golf course to the reservoir. They shut the irrigation system off during the day, then hook up a pump and reverse the flow of water backwards through the system to the reservoir.

“Eventually, we may need to buy water from the village, but if we can hold out until the rain replenishes our supply, the water

savings will be applied to better use,” says Anderson. “You hate to have to pay for water. I would rather apply that money to topdressing and other projects.” The rain, however, has been hard to come by with, according to Anderson, only two inches in the 60 days prior to June 20.

Another challenge Anderson is facing is that his irrigation system is antiquated. The solenoids and gear drives are failing, and every day, he runs as many heads as he can ahead of play to identify which ones are broken.

“On any given day, we’re fixing 10 to 12 sprinklers,” he says.

Anderson is currently taking quotes from several consultants on a new system but admits that spending \$1 million on such a system right now is not feasible.

“Yes, we’re wasting man hours taking care of things but we’re still spending less money than you would on a new system – and in this