

“We save about \$7,500 or more a year just in mowing costs,” he says. “And that’s just in man hours; that doesn’t count fuel costs or depreciation.”

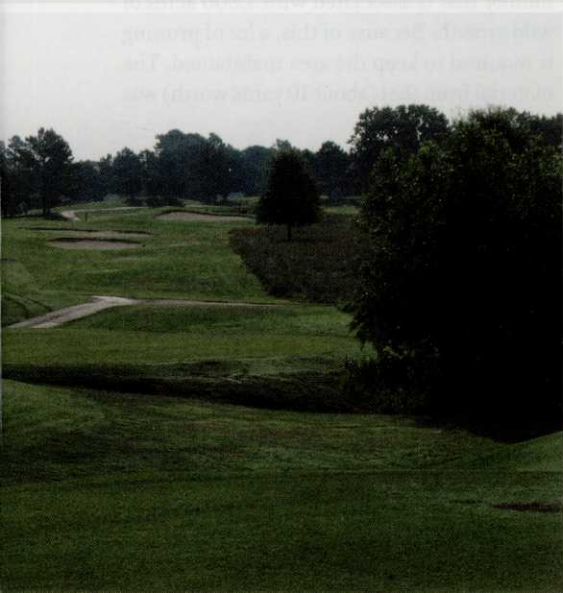
– Jim Thomas, CGCS,
TPC Southwind

a severe penalty if someone is trying to cut the corner. It makes that risk/reward shot cutting the corner have more risk – and more reward,” Thomas explains.

“There are a lot of options you can use to create natural areas,” Thomas says. “I don’t know if you can really call fine fescue a native species, but I really like it fine fescue. We’ve tried tall fescue and it gets clumpy and it has coarse blades. Fine fescue has a uniform look, a finer leaf texture and I like the contrast and color it produces.”

Thomas is quick to give others credit where credit is due. “You have to give Jeff Plotts, the original superintendent, a lot more credit than me,” he says. “They really did a great job with the original design. For the most part, it was out of way and out of play. And the areas brought into play were very well done.” **GCI**

Helen M. Stone is a freelance writer based on the West Coast and a frequent GCI contributor.



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By Katie Tuttle

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Instead of spending thousands on both removing dead brush and purchasing pine straw, The Club at Mediterra combines the two?

Imagine walking out to play a round of golf. You take your first swing...and your ball lands in the pine straw mulch. As you walk through it and try not to slip, you wonder to yourself why anyone would landscape with something that could be such a hazard to golfers.

The Club at Mediterra in Naples, Fla. has the solution. Frank Heery, the director of agronomy, has helped implement a program at the club that eliminates the need for pine straw mulch on the course. The best part? The program also has a large, positive environmental impact.

Pine straw is expensive, especially since it only has a six month residual. With Mediterra being about 40 acres, Heery guesses they were putting down upwards of \$200,000 a year.

"[I said] there's got to be a way to cut this cost," Heery says.

Mediterra is located near a housing community that is associated with 1,800 acres of wild growth. Because of this, a lot of pruning is required to keep the area maintained. The material from that (about 10 yards worth) was then hauled off-site.

One day, a man by the name of Robert Oleski stopped by the course. He had just started a new company, called Green Club Recycling. According to their website, the company "offers on-site horticulture shredding which may be used for landscape mulch or compost material." Oleski showed Heery a sample of the shredded product.

"It looks identical to pine straw," Heery says. "It would be safer for the golfer, and from a shot standpoint it works out better because it holds the ball up a little bit better."

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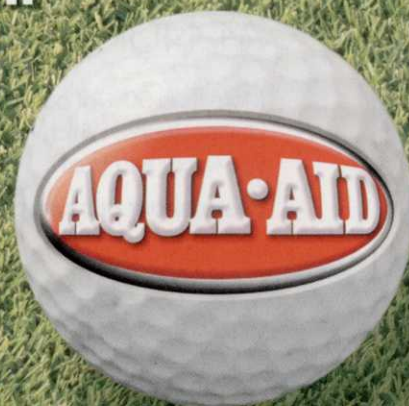
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THE SUSTAINABILITY ISSUE: COURSE

It's also less expensive. Mediterra has eliminated the cost of purchasing pine straw, and the previous cost of hauling the unused material off-site is roughly the same as the current cost to shred it. "We're saving \$100,000 a year," Heery says.

Mediterra has taken it a step further, now doing the same with a soil shredder. Any material that

is grass based and has soil, such as material from the beds, sodwork and grass clipping, are put into a bin and then shredded down to become composted soil. This summer they will use a manure spreader to topdress the rough.

"It should save us some fertilizer applications," Heery says. "We're fortifying the soil with composted material."

One problem Mediterra has run into so far is keeping the shredded material stockpiled. The material is kept in a 30-yard bin and Heery calls the company when the bin is full. Depending on thickness, the shredded material can cover half to a full acre.

Heery is hopeful that there will be a way to convince the community association landscapers to dump their material in the course's bin as well.

"You would be making a tremendous environmental impact because you'd be saving everything that comes off of the grounds and recycling it," he says.

Another problem is that currently, the course still needs to spray herbicides. Heery says they



Any material that is grass based and has soil with it is shredded down to become composted soil.

have a couple of ideas of how to fix that, but for now they still send guys around with sprayers.

"The next phase is to say, 'Alright, how do you get even more environmental and not have to get out and spray weeds,'" Heery says. **GCI**

Katie Tuttle is GCI's assistant editor.



The shredded material is stored in a 30-yard bin.

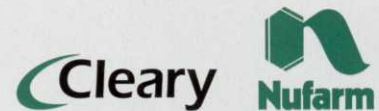


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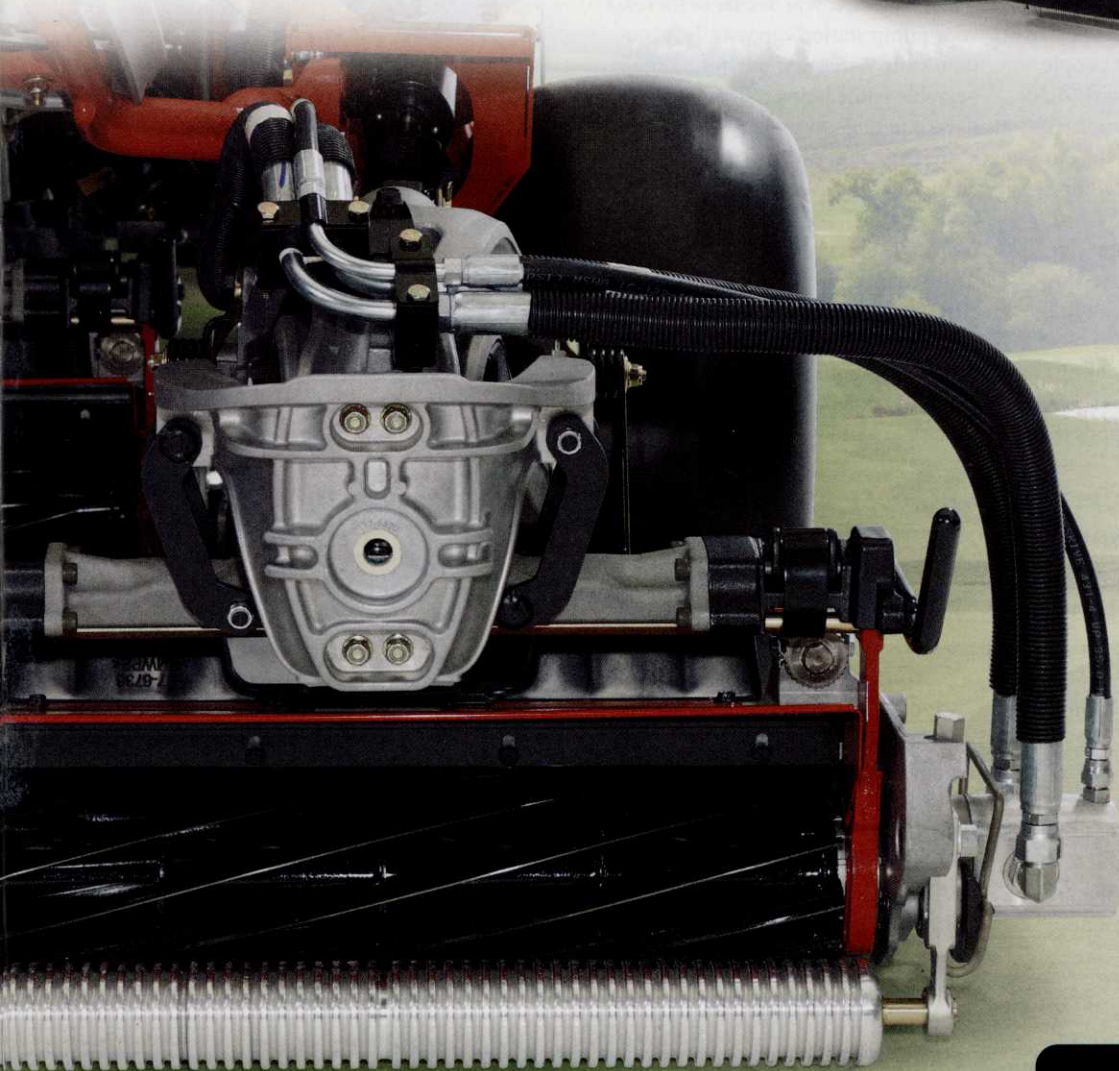
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Brian Vinchesi, the 2009 EPA WaterSense Irrigation Partner of the Year, is president of Irrigation Consulting Inc., a golf course irrigation design and consulting firm headquartered in Pepperell, Mass., that designs irrigation systems throughout the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

SUSTAINABLE IRRIGATION: DIFFERENT SOAKS FOR DIFFERENT FOLKS

Many people, especially in the regulatory arena, would consider “sustainable irrigation” to be an oxymoron.

Basically they believe irrigation in no way can be considered sustainable because it uses water irresponsibly. So, is sustainable irrigation on a golf course actually possible? And if so, what does it look like?

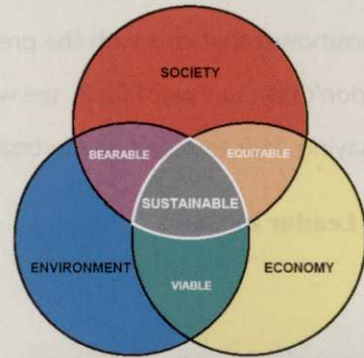
Sustainability is one of this decade’s big buzz words and it has different meanings to different people. If you were to Google the word “sustainability” you would find approximately 115 million results. There are many different definitions, but one of the more recognized definitions – and the one I prefer – is “developments that meet the needs of the present without compromising the ability of future generations to meet their own needs.” With this definition you can pretty much replace the word “development” with other applicable

Sustainability has three aspects to it; economy, environment and social. These all overlap (see the inset image) to show how each affects the other, whether it be variable, bearable or equitable. When practicing sustainability, weigh how your decisions will impact society, the environment and your economics and will the results be bearable, equitable and viable.

For instance, you decide to increase your pump station capacity. Is it economically viable and environmentally bearable while being efficient enough to be equitable to society?

In irrigation, this mostly comes down to water use (everything seems to these days), but it also involves proper equipment selection, proper maintenance, proper installation and efficient use of energy. Some sustainable irrigation practices are simple and very straight forward and you should be practicing them already.

Here are a few examples:



- Check your central control databases so that they are accurate. Theoretical water use from the database and actual water use from the pump station should be within 10% of each other.

- Using the station, area and global adjusts to fine tune each individual sprinkler’s needs.

- Investing in preventive maintenance for your pump system on a regular basis so it is as energy efficient as possible.

- Keeping sprinklers level and set to grade to maximize uniformity.

- Eliminating nutrient migration through proper watering.

Other sustainable irrigation practices require time, planning, thinking and money. A few to think about:

- Investing in technology that helps you use less resources, such as hardware and software that integrates the pump system and irrigation systems or a tablet or smart phone to more precisely fine tune your irrigation scheduling.

For instance, you decide to increase your pump station capacity. Is it **economically viable** and **environmentally bearable** while being efficient enough to be equitable to society?

words such as: operations, actions, procedures, or practices.

For my purposes and this column’s, I will define it as irrigation practices that meet the needs of the present without compromising the ability of future generations to meet their own needs. Basically, don’t do something today that will screw up somebody or something tomorrow.

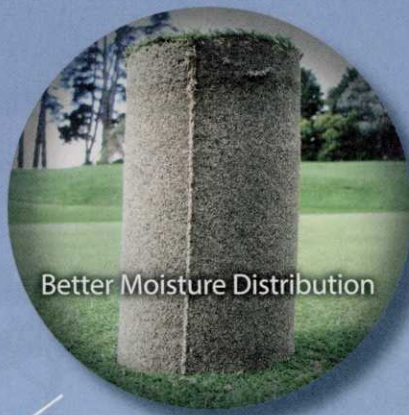
- Properly matching the sprinkler model and nozzle with the required pressure and the proper spacing.

- Adjusting irrigation schedules daily to use only the amount of water necessary.

- Using some sort of ET or soil moisture measurement device as a tool to help you in determining the amount of water to apply.

(IRRIGATION continues on page 108)

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A large, light-colored photograph of several purple lupine flowers on green stems, arranged in a row across the top half of the page. The flowers are in various stages of bloom.

Texas PRIDE

by Rob Thomas

The City of Arlington employed comprehensive, sustainable resource-management principles when designing, building, and then managing Tierra Verde Golf Club.



Operating a golf course and remaining environmentally conscious can go hand in hand. In fact, it's a message city officials from Arlington, Texas, with assistance from Audubon International, have been consistently communicating to its community.

With three courses already under the city Parks and Recreation Department umbrella – the nine-hole Meadowbrook Park built in the 1920s, Lake Arlington built in the 60s and Chester W. Ditto built in the 80s – Arlington decided in the 90s that a fourth course would be an asset, but Mother Nature mustn't be harmed. The result... Tierra Verde Golf Club became the first golf course in Texas and the first municipal course in the world to be certified as an Audubon Signature Sanctuary.

The Audubon International Signature Program is an environmental education and conservation assistance program created to help landowners and managers follow comprehensive, sustainable resource management principles when designing, building, and then managing new developments.

The city brought on Audubon International and the Texas Parks and Wildlife Department to offer guidance on sustainable design, says superintendent Mark Claburn. The firm of Graham and Panks International – comprised of former PGA Tour player David Graham, designer Gary Panks and lead architect Gary Ste-

The course design provided a more mature-looking course and the native areas allow the golfer to remove themselves from the "Metroplex feel" of many courses in the Arlington market.

“The initial desire was to preserve the environment,” Claburn says. “We only utilize about 100 acres of the 260-acre plot, with wildlife corridors throughout the course.”

– Mark Claburn, Tierra Verde Golf Club



phenson – teamed with the group and drew up plans to make that happen.

Audubon International Signature and Classic Program Director Nancy Richardson worked closely with city officials and course architects to ensure Tierra Verde was designed to maximize and preserve native areas – such as a wooded creek corridor and existing plum thicket – and minimize managed areas.

“I spent a day with officials from the City of Arlington before construction began, as well as with the golf course architect, Gary Stephenson, working on making sure that any drainage from the golf course was being filtered through buffers to clean up the runoff,” Richardson says. “This was a time-consuming process trying to protect water quality without impacting the artistic design of the course. In the end, we were able to ensure that all runoff was filtered and water quality on the property was protected and even improved over time.”

LOCATION, LOCATION, LOCATION. Though blessed with excellent features and terrain, this land almost wasn’t chosen to host the course, Claburn says. Because of its distance from the heart of the city and major freeways, the former ranch, which was used by many as a hunting ground, almost became an industrial park.

“There was a lot of pressure to put the site elsewhere, but ultimately the current site was the best location for the course with the topography and a majority of the land being undisturbed,” he says.

Adjacent to Tierra Verde is the Martin Luther King Sports Center. With baseball and softball fields, and a nature trail, this gives the entire complex almost 360 acres of combined green space.

“The initial desire was to preserve the environment,” Claburn says. “We only utilize

about 100 acres of the 260-acre plot, with wildlife corridors throughout the course.”

FINANCIAL BENEFITS. The environmental focus has had financial benefits for the course, and the golfing public, as well.

“The design has allowed us to remain competitive during this economic downturn,” Claburn says. “We haven’t had a significant price increase because we were designed to be efficient and sustainable.

“We save money on labor, fuel, fertilizer and water due to the design, [too]” he adds.

Richardson can understand why some may balk at consulting Audubon International during the design process, but encourages them to investigate by talking with program members about the financial benefits.

“Through the Signature Program, we work with the developers of land,” she says.

“Developers go through a long process in getting approvals for their project, so I believe in many cases they see Audubon International as another hand on their project wanting them to do more than they are already required to do by government agencies or the local community. But this program helps design a facility that will save in maintenance and operational costs down the road.

“I’m not sure why a golf course owner/operator would not want to save money on operational costs,” she adds. “Audubon International programs can definitely help them to do that.”

COMMUNITY. Golfers and wildlife aren’t the only ones benefitting from Tierra Verde. The community also enjoys the fruits of this labor.

“We tour about 200 people from the community a year through the facility and inform them about our practices and how they can



Audubon International worked closely with city officials and course architects to ensure Tierra Verde was designed to maximize and preserve native areas.



The second hole at Tierra Verde Golf Club.

incorporate those into their location,” Claburn says. “Additionally, the golf division is an enterprise fund within the city. We don’t receive tax payer dollars. We are funded by the patrons – including paying for facility operations, land, design and construction. So we provide the city with a sustainable asset that provides entertainment, green space and improves land value surrounding it.”

Designing a course with increased attention on the environment can come at a price, however. While some funding was provided by the other courses – a portion of each greens fee goes toward paying for Tierra Verde – the majority was paid by borrowing through a bond program. Claburn says the course will retire its initial debt in 2017.

“Because of the extensive native areas on the course, construction costs were a little more... and construction took a few extra months due to the routing,” Claburn says. “There were some additional costs in building construction, as well.”

The return on investment is already being enjoyed, though.

“The geothermal heat and air, as well as other design features, saves about 80 percent on electricity over

a building with a similar footprint,” Claburn says of the clubhouse. “It utilizes the constant temperature deep in the soil to act as a free ‘heat pump/sump.’ There are 50 wells that go down 200 feet under the practice holes that take the 130-degree coolant water from the air conditioner system and runs it through HDPE pipes and circulates it through the underground wells like a radiator. This lowers our cost of air conditioning during those 100-degree summer days.

“The course design provided a more mature-looking course and the native areas really allow the golfer to remove themselves from the ‘Metroplex feel’ of many courses here,” he adds. “It feels like you are in the countryside.”

CHALLENGES. As expected, this process hasn’t been without stern tests to overcome.

“A large challenge we face is approximately 20 auto salvage yards that feed into our water shed,” Claburn says, which may explain why some preferred the industrial park to a golf course. “We added additional buffer areas and wetlands for the course to act as a biofilter for the increased pollution.”



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