

# INNOVATIVE LEADERS



**BUFFALO DUNES** assistant superintendent Mitch Chalkley is photographed after hand seeding fine fescue along a bunker edge at Buffalo Dunes.

# PRESERVING THE GREENS

**Golf courses worldwide are implementing sustainable practices to improve turfgrass vitality.**

**BY CHRIS LEWIS**

**F**irst impressions are critical. For golf courses, favorable first impressions have the potential to convert first-time visitors into members or regular, long-term customers. Ultimately, the success of a golf course relies on one element: the vitality of its turfgrass.

Numerous advances in recent years have helped golf courses maintain high-quality turf at affordable prices. The effort has been led by many who continue to experiment, teach and put new methods into practice.

Five golf courses at the forefront of turf and other sustainability efforts offer insights.

## **SAVING WATER**

Buffalo Dunes, a municipal course in Garden City, Kansas, began a six-year course improvement plan in 2020.

Superintendent Clay Payne said the plan is focused on enhancing the overall appearance of its turfgrass, improv-



ing guest experiences and ensuring that natural resources are properly utilized.

More than 20 public service department employees have worked with more than 100 golfing and non-golfing community volunteers, each of whom have helped lay sod on the course's greens. Members of the local high school's golf and wrestling teams have also pitched in.

"This is no longer a golf course project," Payne said. "It's a full-blown community project and something we all take a lot of pride in."

Environmental sustainability has been a main focus, as Buffalo Dunes is located in a semi-arid climate where water is a precious resource.

The plan is to reduce the total amount of irrigated turf, leading to water savings that will continue well into the future.

A new bentgrass variety, which is more drought tolerant than the previous turf, is being used. It requires less fungicide and fertilizer, while still providing a superior playing surface, Payne said.

So far, 14 new greens and 17 new tee boxes have been created. More than seven acres of previously irrigated turf have been converted to non-irrigated native turf.

Meanwhile, 42 bunkers have been renovated.

"We're also utilizing fine fescues around our bunker edges," Payne said. "While it's still aesthetically pleasing for the golfers, it requires minimal maintenance, adding to our operation's overall efficiency."

## MINIMIZING ALGAE BLOOMS

Since 2009, Fairview Country Club in Greenwich, Connecticut, has implemented several sustainability initiatives.

The area where Fairview Country Club is located does not have a sewer system. Because of this, big installations like the club must have their own water treatment plants.

The club's course has five ponds which serve as the only water source for its irrigation system. Treated effluent is discharged



**FAIRVIEW COUNTRY CLUB'S** third hole, where black pond dye aids in reducing algae blooms while also enhancing reflections on the surface.

into four of the ponds, some of which are small and shallow, leading to algae blooms and aquatic plant pests.

In the past, outside contractors treated the ponds with algaecides or herbicides every two weeks — a practice that Jim Pavonetti, director of golf course and grounds, strived to change.

"I saw our pond management as being low hanging to do better environmentally," he said. "I knew we could reduce the amount of chemicals being applied to our ponds by implementing several sustainable best management practices."

So he began adding black pond dye to the ponds every Friday. While safe for amphibians and fish, the dye blocks certain ultraviolet rays that algae need to bloom.

Pavonetti and his team also created buffers of vegetation along every pond as the rough's height was increased along "in-play" borders.

"The vegetative buffers filter nutrients that could be flowing in runoff during heavy rain and stop them before entering the ponds, resulting in a decline in algae blooms and the need for regular chemical

applications," Pavonetti said.

While installing a new irrigation system in 2011, Pavonetti oversaw the addition of pond aerators, which blow air into



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**JIM PAVONETTI, DIRECTOR OF GOLF COURSE & GROUNDS, FAIRVIEW COUNTRY CLUB**





**MOUNTAIN SHADOWS RESORT** has been able to maintain its turf aesthetics despite using less water and fewer fertilizers than it previously did.

the ponds to ensure water moves continuously. Since then, algae blooms have decreased even more, as has duckweed, which can cover ponds and trap gasses beneath the surface.

To enhance the health of the ponds and the course's turfgrass, Pavonetti and his crew have placed barley straw bales inside bait cages. The cages sink into the water, so the straw is not visible to golfers. The cages are placed in the ponds in areas where water enters from drainpipes and spillways. The water flows through the cages and helps disperse beneficial bacteria throughout the ponds.

"Irrigation water quality is now better, as the course has healthier soils that require less flushing and calcium applications in order to mitigate its previously high bicarbonates," he said.

### SHORTER CAN BE BETTER

Forrest Richardson, president of Forrest Richardson Golf Course Architects, has overseen a variety of critical turf projects, including one at Mountain Shadows Resort in Paradise Valley, Arizona.

Starting in 2014, he reduced the amount of turf on the resort's Short Course considerably: from 34 acres to 13.5 acres. As a result, the par-56 course became a par-54. Each of the 18 holes is now a par-3.

"With a par-3 course, the emphasis is on the tee and green complexes," said Tom McCahan, director of golf and club operations. "Plenty of turf is given around the greens for errant shots, but the expanse between the tee and green is left open, with little maintenance or watering."

This means the course can maintain its turf aesthetics while requiring less water, fewer chemicals and less fertilizer than it

did in the past. Its condition is similar to any high-end golf course in the Scottsdale area, making it desirable enough to become the first-ever par-3 course to charge more than \$100 for greens fees.

In addition to its pristine condition and Tifway 419 (a hybrid Bermudagrass) greens, the course has a remarkable Camelback Mountain view.

"Golfers have seen the value, as more and more resort guests are including the course in their golf plans and even golfing when they didn't originally intend to," McCahan said.

### PLATINUM PASPALUM REDUCING POTABLE WATER USAGE

Baylands Golf Links in Palo Alto, California, recently replaced its turf with Platinum Paspalum turfgrass, becoming the Bay Area's first course to use such turf.



To see if they could maintain the course's 60-plus acres of fairways, rough and tee boxes using nearly 100% treated effluent water, Richardson and several maintenance professionals began testing various plots with Platinum Paspalum turfgrass in 2013.

The initial goal was to water the course using no more than 20% potable water.

The success of the test plots led to using Platinum Paspalum throughout the course. Three years later, Richardson and his team had finished the entire replanting process.

"We proved we could use a far greater ratio of treated effluent water than Palo Alto Muni (the course that was on the property previously) had ever used," Richardson said. "And the rate of water required would be considerably less



**BAYLANDS GOLF LINKS** uses Platinum Paspalum throughout its tee boxes, fairways and rough, leading to fast and firm conditions, much like those found across the British Isles.

PHOTO BY DAVE SANSON



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**SENTOSA GOLF CLUB'S** two courses (The Serapong and The Tanjong) use a single-head control irrigation system, which have reduced its water needs by up to 40% in recent years.

## CALL FOR ENTRIES!



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than Palo Alto Muni's older varieties of Bermudagrass and perennial ryegrass demanded."

Aside from reducing the use of potable water by replacing old turfgrass with Platinum Paspalum, Baylands Golf Links will have considerably less invasive kikuyu-grass than in the past. Kikuyugrass was once a constant problem, but now it's been almost entirely eliminated from the property by maintaining better turf.

The course has one pump station with two distribution lines, one for treated effluent and one for potable water. A valve controls the mixture, so employees can use a blend of effluent and potable water when desired.

Richardson says the Platinum Paspalum creates an environment similar to the links courses of the British Isles. "During colder months, it plays almost exactly like a course you'd find in

Scotland in June and July," he said. "And in the summer, the Platinum Paspalum has bright green, consistent and even surfaces, leading to two playing experiences for golfers every year."

### CARBON NEUTRALITY IN SINGAPORE

Last year, Sentosa Golf Club in Singapore became the world's first carbon neutral golf club.

The road to this milestone was quite long. The journey began more than a decade ago, said Andy Johnston, general manager, director of agronomy and resident golf course architect.

Johnston and his team have implemented a variety of carbon mitigation initiatives in recent years.

In 2015, Sentosa became the first club in Asia to start using carbon products in its agronomy program.

"Through carbon products, the club



has also decreased its pesticide and nematicide consumption by 80%,” he said.

In another climate-friendly move, the club has invested in lithium battery-powered mowers and vehicles. It is also the first club in Asia to purchase RTK sprayers, which has led to using 30% less product than with typical sprayers.

“The club wants to show that its grasses, trees and overall property are already removing more carbon than it inputs as it continues its carbon neutral journey,” Johnston said.

To improve sustainability and enhance the natural beauty of its two courses — The Serapong and The Tanjong — the club uses reservoir lakes. Rainwater collected in the lakes is used for irrigation water, Johnston said, eliminating

the need for any wells or for purchasing water for irrigation.

Since both courses use a single-head control irrigation system, the club’s water needs have declined by up to 40%. In addition, the irrigation system also uses roughly 40% less energy than other irrigation systems.

The club also has food and horticultural waste digesters, allowing waste to be used as fertilizer on the golf courses.

“Hopefully Sentosa Golf Club inspires other clubs to understand the impact they can have when it comes to reversing the effects of climate change,” Johnston said. “If each of the world’s 39,000-plus golf clubs lowers its carbon footprint, the planet will be a healthier place for future generations.”



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**ANDY JOHNSTON, GENERAL MANAGER,  
SENTOSA GOLF CLUB**

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