

## Maintenance

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to create insoluble precipitates, which can fill soil pores and decrease water infiltration and percolation.

These problems were intensified by the drought. Because of poor water quality from the course's deep wells, Stonebridge had been relying more on lake water over the years. But because of the extended drought, the course was forced to supplement the lake water with well water — with the danger that it would make greens and fairways more sodic and contain higher levels of bicarbonates. Jones knew the procedure could harm the soil structure by leaving little air space for roots, with little potential for rhizome development.

On top of everything, there

was heat stress. "It's tough enough to grow bentgrass here in the summer," Jones says. "The heat stress, with the salt-affected soil, was a recipe for disaster."

### The solution

Stonebridge could maintain healthy turf, even during the drought, thanks in part to pHairway, a water treatment manufactured by Brea, Calif.-based Unocal Agriproducts. Jones began a program to inject pHairway into irrigation water as it's applied to the course.

The water treatment is manufactured by reacting urea and sulfuric acid in a carefully controlled and patented process. The urea and sulfuric acid form an adduct that considerably reduces the acid's corrosivity, but with-

out changing its total acidity.

pHairway is highly oxidized and will oxidize other elements in soil. It will temporarily lower water and soil pH to bring elements like iron, zinc and manganese back into solution.

Stonebridge has injected about 3,000 gallons of pHairway fertilizer into its irrigation water each year since the late 1980s. During 1998, it used more than 4,000 gallons of the pHairway-injected water because of its greater reliance on well water.

### Outcome

"Our primary objective is to keep soil nutrients in solution so they remain available and to flush impurities through the soil profile," Jones says. "By lowering the pH of our water and, in turn

our soil, we solubilize the calcium naturally existing in the soil. That dislodges sodium ions so they can be leached out."

Use of the amendment also has Jones using less fertilizer. pHairway fertilizer contains a nitrogen constituent and also makes the applied fertilizer more available to the plant. "So we're getting a lot more efficiency from the fertilizer that we do apply," Jones says.

Finally, by lowering the soil pH, Jones says he's observing better soil percolation. The removal of sodium and bicarbonates from the soil profile allows improved water infiltration, which controls disease.

For Jones, the process was a successful way to beat the heat deep in the heart of Texas. ■

## The Company Line

### ■ PRODUCTS & SERVICES

#### ► Utility vehicle

The Jacobsen Hawk, from **Textron Turf Care And Specialty Products**, is a medium-sized utility vehicle designed to meet a range of golf course applications. The Hawk features a heavy-duty steel frame with reinforced front suspension, a rugged transaxle and rack-and-pinion steering. The Hawk is available in gas and electric models.

Textron also offers its FlashAttach System to cut reel changing time to seconds. It's designed for the Jacobsen Greens King V triplex greens-mower and the LF-128 and LF-3400 lightweight fairway mowers. With the system, an operator can quickly switch to a seven-blade reel for mowing tees after mowing greens with an 11-blade reel without using tools.

For more information, contact Textron Turf Care And Specialty Products at 888-922-TURF, [www.jacobsen.textron.com](http://www.jacobsen.textron.com) or

CIRCLE NO. 200



#### Deer repellent

**Soil Technologies Corp.** is distributing Deer-Off, a patented dual-deterrent system that will deter deer from eating plants and flowers on golf courses. The product, made from natural, biodegradable food products, leaves an odor and taste that deer find offensive. It contains no harmful chemicals. For more information, contact 800-221-7645, [www.fairfield.com/soiltech](http://www.fairfield.com/soiltech) or

CIRCLE NO. 201

#### Flower boxes

The Ultimate Flower Box from **Flower Framers** is an easy-care planter box that won't rot, chip or break, according to the company. It can be used as a permanent planting fixture or a portable display.

For more information, contact Flower Framers at 800-315-1805, [www.flowerframers.com](http://www.flowerframers.com) or

CIRCLE NO. 201

#### Software

**Questar Productions LLC** offers World Construction Set Version 4.5, software for computer simulations of golf course designs. It features Animated 3D Object and Terrain Texturing to create buildings, vehicles, roads and terrain features. Grass, rock, gravel, stone, brick, wood and other textures can also be created.

The software can help superintendents create guides or maps of their courses or help them visualize proposed changes or maintenance plans. For more information, contact Questar Productions LLC at 303-659-4028, [www.questarproductions.com](http://www.questarproductions.com) or

CIRCLE NO. 203



#### ▲ Moisture meter

**Dynamax Inc.** offers the TH20 Theta Moisture Meter, a new way to measure volumetric soil moisture content. It combines ease of use and accuracy with low cost to give growers access to precise soil moisture data, according to the company. The probe is reliable, even in saline soils, and its compact size means minimal soil disturbance. For more information, contact 281-564-5100, [www.dynamax.com](http://www.dynamax.com) or

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