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pressed with the company and its products, and he was convinced that Floratine should be involved in the Riviera green restoration.

So he called Bill Byrnes, Floratine's president, and asked him to assess Riviera's greens to see if his products could help. Byrnes says targeted treatment of damaged turf requires more than just an over-the-phone description of the problem.

"Prescription without diagnosis is malpractice, and that applies to turf companies as well as to doctors," Byrnes says. "Despite what we're all striving for, there's no silver bullet. You have to get down on the ground to find out precisely what the grass needs before you start suggesting chemical solutions."

Ramina took soil and plant-tissue samples and had them analyzed by an independent laboratory. The results weren't good.

"A residual thatch layer prevented nutrients from getting through to the soil, and the greens weren't feeding as well as they needed," Byrnes says. "Good grass was hard to grow under those conditions."

The test results showed that the turf lacked sufficient potassium, phosphorus and nitrogen and calcium.

The solution

Byrne's first recommendation was to use a foliar biostimulant called Astron, which provides grass with immediate nutritional needs. It also contains slow-release nutrients that penetrate plant

leaves to feed them over a longer period of time.

"We're looking for long-term solutions, not just quick fixes," Byrnes says. "You want to feed the turf immediately, but you also want to provide for it over time."

Ramina also used Floratine's Knife product, a fortified iron supplement for quick, long-lasting greening of all grasses; and CalpHlex, a calcium supplement for nutrient balancing, salt reduction and pH management.

Ramina saw improvement within 24 hours of the first foliar application and soil conditions improved almost immediately.

Riviera's maintenance crew also began an aggressive aeration program that broke up the thatch layer. Ramina also noticed the turf recovered from injury more quickly.

But the true test of the program was how the pros reacted to the greens.

"The players had nothing but good things to say about the greens at the Nissan Open in February — a complete reversal since the 1995 PGA Championship, when everyone complained about the greens," Ramina says.

Ramina and Byrnes continue to work together to keep the greens in top condition.

"We know that not everyone has the budget that Paul (Ramina) has, so we're willing to work with all superintendents to find a plan that will fit within their budgets," Byrnes says. ■

Tips:

Maintaining Ponds

How often do you see ponds on golf courses that appear to contain more algae than water and emit the unpleasant aroma of a sewage treatment plant? The cause of algae is most likely from an overabundance of nutrients in the water. Elevated nutrient levels often result from chemicals, fertilizers, salts, oils, sediment and other compounds that travel in storm water and runoff and empty into ponds.

While such sickly ponds aren't the picturesque settings outlined in original architectural drawings, they can be rejuvenated with a little investigating, some initial labor and a touch of Mother Nature.

Here's what you can do:

- Reduce the amount of nutrients getting into the storm water and runoff by buffering fertilizer use in areas that may run off into the pond.

- Take some tips from Mother Nature. Did you ever notice how most natural ponds have plants like cattails, iris, reeds and rushes along their shorelines? These plants not only look appealing, but they have functional values.

The storm water and runoff entering a pond has to travel through the plants' barriers before mixing into the pond. The plants slow the water, thus reducing shoreline erosion commonly seen with a grass-edged retention pond. Less erosion results in less sediment and debris clouding up the water.

The plants also reduce nutrient levels. The plants use excess nutrients as a food source, eliminating a good portion of nutrients that would otherwise cause algae blooms.

- Work with nature, not against it. Chemicals, while providing a quick fix to the problem, may not be the long-term answer.

The addition of bacteria and enzymes to a pond to maintain water quality and clarity is an ecologically sound alternative to chemicals. The bacteria and enzymes feed on decomposing matter such as leaves, seeds, fish and animal waste and consume large amounts of nutrients.

- It's important to provide oxygenated water throughout depths of the pond for beneficial bacteria and enzymes to survive. Waterfalls, streams and fountains do provide good oxygenation, but they only effectively aerate the top four feet of a water body. Ponds six feet and deeper require supplemental aeration systems to maintain good water quality.

Aeration disks are a popular method of providing aeration to deeper portions of a pond. A disk is placed on the bottom of a pond, and a small air compressor housed along the shoreline pumps air through weighted poly tubing to the disk. The disk then disperses tiny bubbles of air into the water. The bubbles of air cause the water in the deeper portions to rise to the surface and exchange oxygenated water from the surface to the deeper portions of the pond.

Aeration systems help provide adequate oxygen levels in deeper water so the beneficial bacteria and enzymes can reduce the debris and improve water quality.

Editor's note: This article was written by Dave Kelly, technical manager for Batavia, Ill.-based Aquascape Designs. For more information, call 800-306-6227