

APPLICATOR'S LOG

Microbes Debut at Carolina Panthers' Field

By Carol Allison

Although the expansion Carolina Panthers have quickly gained respect from other NFL teams, they can't seem to leave their "mark" on the turf at recently completed Ericsson Stadium in Charlotte, North Carolina. The reason they're having a tough time making a lasting impression is that groundskeeper Spin Martin, an 18-year veteran in the turf industry, has adopted a management program designed to minimize the impact of physical stress on the turf and optimize plant recovery. The best part is that he's done it with an environmentally "friendly" approach.

Instrumental in the approach are formulations of beneficial root-colonizing microbes that facilitate plant growth. Upon application, the live microbes move rapidly into the rhizosphere and quickly establish a mutually beneficial relationship with plant roots by contributing to organic matter degradation and uptake of water and nutrients.

In many modern turf management programs, natural microbial activity is either eliminated or severely curtailed through certain fungicides, herbicides, pesticides and inorganic fertilizers. Plus, nutrient leaching has become a significant management challenge in many of the newly constructed stadiums across the United States.

"Sand is easier on a player's body," Martin says. "It's more forgiving than clay- or soil-based fields, and most of the newer stadiums will have playing surfaces with a sand base."

But maintaining vigorous green turf atop a sandy foundation is challenging. "Before we started using the biological program everything leached out of the soil after a rain or an irrigation," Martin says.

Indeed, it's not unusual for the Charlotte area to receive a 3- to 5-inch onslaught of precipitation in a matter of hours. Hurricanes in the nearby Atlantic Ocean add to the unsettled atmospheric conditions. When it does rain, sand only multiplies the problems for Martin.

"The percolation rate on a clay-based

playing field is minimal," Martin says, "perhaps less than 1/4 of an inch per hour. Clay-type soils tend to retain nutrients much longer than sandy soils. The rate of percolation through virgin sand is approximately 14 inches per hour. In an average situation with an established turf, the percolation rate drops to about 8 inches per hour, which is still considerably faster than a clay-type soil."

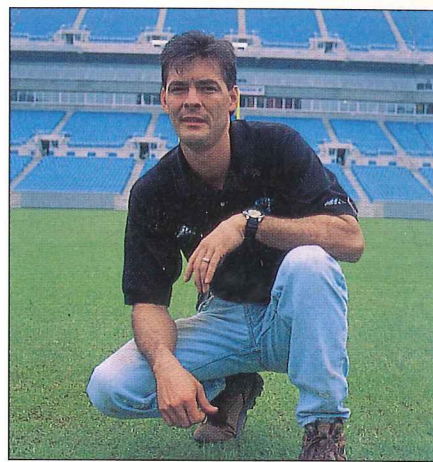
With rapid percolation rates, maintaining nutrients in a sand-based soil profile is a complex challenge — one that Martin has been able to meet and overcome with the help of microbial inoculation. The microbes perform a myriad of functions, including the attraction, capture and processing of water-soluble nutrients from fertilizer applications for various plant functions.

"We have a very intense turf management program that includes aggressive soil nutrient monitoring," Martin says. "We pull samples at least every two weeks to determine what nutrients are present and which ones we need to supplement. Since we've begun using the microbes, we've had much more efficient utilization of applied fertilizers — which has enabled us to reduce rates. We still fertilize on a weekly schedule because it keeps a more uniform supply of nutrients available, but we're definitely using lower rates — about half of what we normally had applied."

Visually, there have been advantages as well. "The turf stays greener longer," Martin says. "We see fewer divots. Structurally, the turf just seems to withstand the physical stress much better. Even when we have damage, it rebounds faster than it did before we started using the biological program."

In a relatively short playing season, Martin has managed to establish some very tough turf. Not even 70,000 worshippers at a Billy Graham crusade could totally trample what Martin has achieved.

"After that concert, which took place in the spring of '96, we decided to replace the turf that sat beneath the stage for seven days," he says. "We actually ran into a problem when we started



In a relatively short time, Spin Martin has established some very tough turf at Ericsson Stadium.

taking it out because the root system was so much deeper than we expected. The roots were down 14 inches into the rock bed of the drainage system, and so thick you couldn't drag a rake across them. That's a nice problem to have." □

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