No one in this industry is afraid to get their hands dirty. Digging in the dirt is just part of the job. And those who are averse to getting a little dirt behind their fingernails have surely found a new career by now.

When taking a core of turf, superintendents always take a long look at their root systems. The health of their turf is reflected in its roots. If the roots are weak, so is the turf. But strong roots? That means strong turf, ready for the punishing summer months and hoards of golfers.

Golfdom, in partnership with BASF Professional Turf and Ornamentals, is proud to once again bring readers the three-part Plant Health Series. In this issue we present Part Two of the series, with the final part coming next month. For Part One, visit www.golfdom.com and click on the April issue. Be sure to check out Golfdom TV while you’re there, and see our video interview with one of the superintendents profiled this month, Coal Creek’s Chris Bradford.

In this series, we’re asking superintendents what they’re seeing when they look at “the root of the matter.” As in, the roots of their turf. Do they like what they see? Or would they like to see stronger roots?

Summer is right around the corner. Here’s hoping your roots are ready.
Bigger Roots Combat Turf’s Challenges

As we discussed last month, golfers often judge a superintendent’s turfgrass management skills by what they see on the surface of the course — but superintendents know they’ve got to train, nurture and treat the health of underground root systems to keep blades playable.

Dr. Christina Wells, associate professor in the Department of Environmental Horticulture at Clemson University and plant physiologist, helps me explain what superintendents should consider when determining root management needs that improve plant health.

“In a situation where a lot of the nutrition is being provided for the plant, like on a golf course, it makes more sense to use sugars for energy to drive high rates of uptake,” said Dr. Wells. “There’s really no reason to grow more roots because it’s not necessary. The plant doesn’t need to explore to find nutrients when they are right there.”

Sugars, which are derived from photosynthesis, play a big role in root development. Below ground, they provide the carbon and energy for continued root growth, as well as powering the mechanisms of nutrient uptake.

Root systems are larger when the photosynthate supplies from the turfgrass leaves increase. The carbon is freed up to other areas of the plant, such as the roots. Properly balancing that carbon use is important to helping the plant fight disease, withstand stress, and recover faster if a stress event occurs.

Root health implications for the turf manager
There isn’t one answer to what a healthy root system looks like. It really depends on the turf manager’s point of view. Why should deeper roots mean a healthier plant? In fact, especially on a golf course, many practices by superintendents promote smaller root systems. Turf is watered and fertilized frequently, and mowed almost daily. With water and nutrients in abundance, and added stress to the plant, roots do not often grow deep.

“If your turf management goal is consistent, dark green turf with no dead or diseased patches — you can achieve that with a minimal root system,” said Dr. Wells. However, as we have seen in the past few summers the perfect growing conditions are becoming harder to find.

“Superintendents faced with restrictions on irrigation or the amount of nitrogen they can put on their turf should focus on promoting a bigger root system for a healthier plant,” she said. “It’s all about the constraints and turf management goals. A healthy root system is whichever one gets superintendents to their management goals.”

Understanding how turfgrass functions below the surface can help superintendents more effectively work through multiple agro-nomic options and select solutions that are essential to keeping turf healthy, and players and course management happy.

Research from BASF Professional Turf & Ornamentals indicates that Intrinsic brand fungicides (active ingredient: pyraclostrobin) can be a helpful tool for superintendents seeking to manage a broad spectrum of diseases and support plant health, including deep roots and stress tolerance.

Learn more about Intrinsic brand fungicides at www.Intrinsic-PlantHealth.com and other BASF Professional Turf & Ornamentals innovations at www.betterturf.basf.us.

Kathie Kalmowitz, Ph.D., is a Technical Specialist for BASF Professional Turf & Ornamentals.
Two supers discover better plant health right when they need it.

By Ken Moun

For tickets to see the Rolling Stones. The men’s room at halftime of a college football game. Any time there is a buffer involved.

These are all valid reasons to wait in line, and most people have probably spent some time in one of the above lines. There’s nothing glorious about waiting in line, but at times it is warranted.

Just ask Chris Bradford, superintendent at Coal Creek Golf Course in Louisville, Colo. He knows a worthwhile line when he sees one — like the line at the BASF booth at the 2011 GIS.

“Like pretty much everyone else in the business I have budget constraints, and I was more than willing to stand in line to get $1,500 worth of product. I got a sample of Insignia SC at the 2011 Golf Industry Show, along with a couple of dozen others,” Bradford says. “Any time you can get enough free fungicide to help the course’s bottom line a little bit, it’s worth a try.”

Seeing results

As recommended by BASF, Bradford applied Insignia SC to his greens about a week before he aerified them in 2011.

“The winter of 2010-2011 was relatively warm, which allowed us to have 4,000 rounds over the winter, adding a bit to the stress on the greens. So we used the Insignia SC in conjunction with spring aerification, because we were hoping to prevent anthracnose from coming in to the injured turf.”

After applying the fungicide, it wasn’t long before Bradford noticed the plant health effects. His greens, he said, “all greened up really quickly. And the aerification holes closed very
quickly. I saw a reaction to it in a few days.

“I know it was the Insignia SC because we applied it with a sprayer that has wind guards on it,” he continued. “And at the very end of the boom there was apparently a drip off the end of the shield. It left green trails in the greens that almost looked like we overlapped too much.”

The effect, Bradford said, lasted several weeks.

“If you can get the added benefit of plant health and it’s economical, the decision to use it is simple. If it allows you to stretch the application intervals, it can save money.”

When Bradford arrived at Coal Creek 12 years ago, the course was applying fungicide on a 14-day schedule just to stay ahead of disease — especially anthracnose. Since then, Bradford said, “by improving plant health I’ve been able to stretch those intervals to at least 21 days.”

**A healthier fairway**

When it’s hot and muggy, as it was in 2010, the 15th fairway at Janesville Country Club in Janesville, Wis. is the first to experience anthracnose and pythium blight, says Jeff Rottier, the course’s superintendent.

So Rottier sought to learn more about the promises of plant health.

“Our 15th fairway is in a hollow, so there’s less air movement, higher temperatures and higher humidity than elsewhere on the course,” he explained.

That meant the fairway was subjected to relentless heat

Continued on page 22

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He first worked as a dishwasher in a pizza place, working his way up to cook.

But working in a kitchen wasn’t for him. “I swore I’d never work inside again,” he said.

Bradford’s father knew board members from the local nine-hole, Heather Gardens Golf Club, and worked his connections on behalf of his son.

While at Heather Gardens, Bradford rose from laborer to assistant superintendent. “I was intrigued by how golf courses looked, and that piqued my interest in turf,” he said.

Bradford eventually moved on to an assistant position at Canterberry Golf Course (now Black Bear) in Parker, Colo. The management company he worked for then offered him the chance to become superintendent at Coal Creek. Twelve years later, he’s still there.

**FAMILY ATMOSPHERE**

Rottier’s path to golf course maintenance was different than Bradford’s.

“I was looking to get free golf. So I started mowing greens on weekends, at Bos Landon in Pella, Iowa,” he said. “I loved working on the course.”

Rottier started working more and more at the Phelps-designed course. By his third season he was full time, saying goodbye to his father’s hardware store.

The Bos Landon superintendent was a Michigan State

Continued on page 22
PLANT HEALTH: PART TWO

Continued from page 21

and humidity. With them came disease pressure, especially from anthracnose. Rottier gave the fairway proper attention. Nonetheless, it was damaged every year.

In June 2010, the fairway began to worsen. In early July, Rottier applied Insignia SC. Almost immediately, he says, the turf condition improved. There were virtually no losses on the 15th fairway despite consistently hot and humid weather, Rottier said. Also, fairways that typically fared better than the 15th suffered significant turf loss.

“Overall, we had about 30 to 40 percent loss,” Rottier said. “But the 15th fairway only had 1 to 2 percent loss. The only thing I did differently on that fairway was apply Insignia SC.”

Plant health benefits

BASF isn’t the only company in the plant health game. Bayer offers two fungicides, Interface and Reserve, with the EPA-approved plant health label. Syngenta, meanwhile, offers Daconil Action, which stimulates a plant’s

continued from page 21

University graduate, which prompted Rottier to enter the two-year turf program there.

Upon graduation, Rottier moved on to bigger things. When he saw an ad for an assistant superintendent job at Whistling Straits, he went for it — and got the job.

Rottier’s next stop was the much-heralded Erin Hills Golf Course, now tapped to host the 2017 U.S. Open. Rottier grew in the course and stayed for four years. From there, he moved to Janesville Country Club.

Asked about the change, he admitted that working at Erin Hills was a big deal. “Maybe too big,” he said. “I have a family with three young sons, and when we came to visit Janesville we loved it. It offers a great family atmosphere.”

COAL CREEK’S BIG PLAN

Bradford said like many courses, Coal Creek has suffered from deferred main-

tenance. That’s why he’s implementing a new master plan for the course.

The plan was assembled by Kevin Norby, principal with Herfort Norby Golf Course Architects. Norby said the master plan calls in part for rebuilding bunkers and controlling volunteer trees that have encroached on the playing corridors. Although the projects are necessary, neither will be easy.

Bunker renovations are always expensive, and many golfers feel emotionally attached to trees. Adding to the need for sensitivity, Norby said, is Coal Creek’s wooded environment. “In that part of Colorado, golf courses with tree-lined fairways are the exception,” he said. Nevertheless, the initial work will address some of those trees and set the stage for significant irrigation improvements.

Coal Creek meanders through the course. And in the course’s 22-year history, volunteer cottonwoods have grown adjacent to it, affecting
Bradford looks forward to the updates at Coal Creek. “The course is definitely aging,” he said.

But Bradford doesn’t have a GPS map of the irrigation heads, and the system is old enough that many brass heads still are in service. The first phase will replace old heads and include a detailed map of the system. The plan also includes a new booster pump.

The second phase entails improving areas of poor fairway drainage by re-grading and new subsurface drainage. Beyond that, Norby’s master plan involves completely rebuilding the bunkers with lower flashed faces, new drainage and new sand. Phelps’ original design featured complex bunkers with capes and bays. Norby said they’ll retain that look while reducing the amount of sand that needs to be maintained.

Finally, the irrigation system will be overhauled, requiring the installation of 2,200 new sprinkler heads, according to Norby.

Contributing editor Ken Moum lives in Topeka, Kan.