

At North Shore CC in Glenview, Ill., superintendent Dan Dinelli strives to have a management plan that's affordable, sustainable and responsible.



PLANT PROGRESS

From fungicides to water management tools, plant health has never been better.

BY BETH GERACI

When Mike Caranci, superintendent at Candlewood Country Club in Whittier, Calif., was starting out in the golf course maintenance business, plant health wasn't on the radar.

It was the 1970s. Superintendents were using large amounts of fertilizer, DDT and other chemicals regularly on the job without a

second thought.

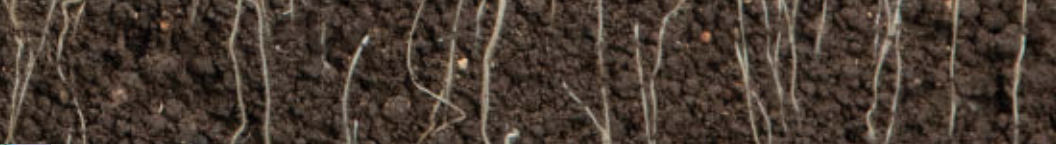
"I used to use Metasystox as termite control," Caranci recalls. "I would spray it like nothing, no mask or anything. When I was eating lunch, I could taste the smell on my mustache."

That wouldn't fly in today's golf course maintenance world — one of far more sophisticated science, mounting federal regulations and increased environmental awareness.

Huge strides have been

made in plant health since the concept firmly took hold in the mid-1980s. Today, plant health is at the center of the superintendent's universe, and superintendents never have had healthier turf nor more tools at their disposal.

"Plant health is probably the most important facet of the business," says Tom Kaplun, superintendent at North Hempstead Country Club in Port Washington, N.Y. "If I see the plant health



label on the product, I will certainly look up the product, and I want to see the actual research on the product before I use it. You make one mistake in the use of a chemical and it can result in dead grass. You have to use your best judgment, and that comes with doing your homework.”

Dan Dinelli, CGCS, superintendent at North Shore Country Club outside Chicago, says plant health actually has been a concern since

the turn of the 20th Century. “It was always a concern, but obviously as time goes on there’s more science behind what we do. The industry has responded to give us the tools we need to better ourselves.”

Those tools include everything from better genetics and cultivars to finer grasses and improved products. All of them have led to healthier turf, and thus, better playing conditions. And for superintendents, that’s the ideal combination.

Healthier plants also mean a healthier environment, says Dinelli. “They talk about how plants give off oxygen. That only happens when a plant is healthy,” he says. “When a plant’s stressed, all those other functions stop. And when those stop, the environment doesn’t benefit. Sustainable playing surfaces and environmental benefits are a very important part of plant health. It’s a fact. It’s not even a stretch.”

When Caranci, a fourth

generation superintendent, was growing up, “the best superintendent was the guy who had the greenest greens,” he recalls. “That changed with the advent of the Stimpmeter.

“It changed the entire method of the nutrition of the greens,” Caranci continues. “Now we spoon feed our greens. We put down about .2 pounds of nitrogen per week — a very low dose.”

Safer chemicals

Tom Lively, CGCS, Director of Golf Course Operations at TPC San Antonio,



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MIKE CARANCI, superintendent, Candlewood Country Club, Whittier, Calif.

has worked in the business for 30 years. “I have worked with many different products, some of which have been taken off the market since I started,” he says. “Everyone has become much more aware of environmental concerns.”

Chemicals in 2012 are much more site-specific than the broad-spectrum chemicals of the past.

And just as toxicity is lower, so are fertilizer rates. “I use the same fertilizer program my father did but with less amounts,” Caranci says. “Growing up, more fertilizer was considered better. The trend was to get a lush green. But now we know the plant can only absorb so

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At Crystal Springs Golf Course, superintendent Tim Powers takes an organic approach to turf management.



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much fertilizer. The rest goes into stormwater runoff. Now we just give the plant what it needs for one week.”

In the past, superintendents often made a granular application in the spring, another in the early summer, and another in the fall, timed with prime root growth, Kaplun says. “Typically now, 90 percent of the fertilization is done through a sprayer and you put down a very small amount from 7- to 14-day intervals,” he says. “There’s a pretty big difference.”

Tim Powers, CGCS, superintendent at Crystal Springs Golf Course, Burlingame, Calif., launched his golf course maintenance career in 1979. It was a summer job he never left. Back then, he was using a fertilizer that was said to contain trace metals. Today, he uses a safer product

that “greens up very quickly and helps with the rooting,” he says. “I’d say that’s the biggest advance in plant health — root development. Guys would never get roots 6 to 7 inches down in fairways back in the ‘80s.”

Improved water management

With western states stricken by drought, for supers like Lively and Caranci, water management is more crucial than ever. And thanks to the rise of smart controllers and portable soil moisture sensors, today’s superintendents can identify site-specific needs and survey entire greens in just a few minutes. Refined sprinkler heads, too, spread more uniform blankets of water today than in the past.

“My father remembered when the first quick coupling valves came out,” Caranci

says. “It had a valve in the ground that you turn on manually. And you had 200 or 300 of those on a golf course. It took all night long to do a golf course. When he saw [my modern sprinkler system], he said, ‘My God, man!’”

Being in San Antonio, Lively’s biggest challenge is water management. “Because of the severe droughts we’ve had, water is such a critical commodity that golf courses are going to be scrutinized more and more,” he says. “I think there’ll be a big swing to companies trying to create better wetting agents and a push for products that provide a more uniform water holding capacity.”

Today’s wetting agents can be very effective, says Dr. James Murphy of the Rutgers University Department of Plant Biology and Pathology. But “it still comes down to

whether you’re a good manager of water. It’s important that the water is distributed as evenly across the surface as possible.

“Wetting agents have got to be used in combination with good irrigation practices,” he continues. “Because water has a tendency to become patchy on the turf, and when you start getting very patchy it starts introducing inconsistent playing conditions.”

Fungicides

“Fungicides have advanced, advanced, advanced,” says Kaplun. “Fungicide rotation is very important because of the resistance that develops. You have to rotate them, and I think that’s becoming the trend.”

Fungicide resistance is a huge problem, Dinelli agrees, and the market needs fungicides with new chemistries



At TPC San Antonio in San Antonio, Texas, effective water management is crucial to healthy course conditions.

and modes of action. “There are some fungicides I can’t use anymore because the disease-causing organisms are resistant,” he laments. “So you try to minimize the use of them and encourage overall plant health. Sometimes disease pressure is reduced just by having a healthier plant. We try to have an integrated approach. You almost have to these days.”

In the '70s, '80s and '90s, superintendents didn't have the luxury of rotating fungicides, because there were only two or three to choose from, Caranci says.

“You had fewer choices back in the day, but you didn't know the difference,” adds Crystal Springs' Powers. Superintendents have a wider fungicide selection today, he says, and fungicides are much more environmentally friendly than they used to be.

Many fungicides that have been on the market for years are improving, agrees Lively. They also can be applied at lower rates and contain better active ingredients, he says.

On top of that, says Keith Kruger, superintendent at The Acoaxet Club in Westport, Mass., dual-product fungi-

cides and insecticides have been helpful because they save superintendents from having to mix containers.

“The label rates are a little bit lower, too,” he says, enabling superintendents to put more applications out while still staying within legal boundaries for maximum use.

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DAN DINELLI, CGCS, superintendent, North Shore Country Club in Chicago's northern suburbs

Cultural practices

Kruger has worked as a superintendent for 13 years. When he arrived at Acoaxet eight years ago, the shadier greens had a significant anthracnose problem and the club was aerifying once a year. “It didn't seem like the greens were being prepared for the stress

of the season,” he says. “*Poa* wasn't growing. We rectified it with a very intensive aerification program.”

Unfortunately, says Powers, aerifying is a “necessary evil” for superintendents. But aerifiers also have made great strides since the 1980s, he says.

“The new aerifiers are much better than what we used to have,” he says. “They were just much slower, smaller, much less efficient.” New aerifiers brought better drainage, he says, and “with topdressing programs, it helps reduce moisture, which reduces disease pressure, which reduces your inputs of fungicide.”

Dr. Murphy is a former assistant golf course superintendent who's worked at Rutgers for 20 years. When it comes to changes in cultural practices on the golf course, the first thing that comes to his mind is the evolution of mowing heights.

“When I started out, if you were mowing at 3/16th of an inch that was considered low,” Murphy says. “Today, people often mow at an eighth of an inch.”

Murphy's Rutgers team has studied mowing frequency, and based on the

team's findings, Murphy encourages superintendents to mow more often, and at higher mowing heights.

“We found you can actually raise the height of cut but mow more often so the quality of cut is better,” he says. “When you mow too low, you're cutting off too much of the leaf tissue. So the ability of the plant to do photosynthesis is hindered. The biggest effect is that you don't have enough leaves to capture enough sunlight.”

Hopes for the future

There's no denying that plant health has come a long way since the 1970s and 1980s. But there's more work to be done. Kruger would like to see more trials performed overall, and more field tests geared toward seaside areas like his.

Lively, meanwhile, hopes to see continued advancement in water management systems. And Dinelli says he would love to be able to technically and scientifically assess plant hormones.

Whatever tomorrow brings, the bottom line then will be the same as it is today — finding the perfect balance between healthy turf and pristine playing conditions.

“Creating healthy turf requires a combination of many things. It's a combination of the cultural practices and a sound chemical, fertilizer and water management program,” says Kaplun. “They're all very intertwined. The goal is really to provide the best conditions for golfers and at the same time have the healthiest plant possible.” ■