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A healthy dose

Fertility programs address specific needs of turfgrass

By John Torsiello



Any superintendent worth his sodium nitrate knows soil testing is a vital ingredient in a successful fertility program.

“Soil testing is the best way to determine what types and how fertilizer should be applied to greens, fairways and tees,” says Clark Throssell, Ph.D., a turfgrass scientist and director of research for the GCSAA. “You certainly can overfertilize and underfertilize an area, although the latter is much more easy to overcome because you simply can add a little more fertilizer where needed.”

Soil and water tests are important to a sound fertilizer program. And superintendents shouldn’t hesitate to seek the help of a scientist or university researcher knowledgeable in the area, or they can become more educated themselves, says Bernd Leinauer, Ph.D., a turfgrass specialist and assistant professor at New Mexico State University.

Soil testing before fertility treatments also is a must to accurately determine the specific needs of turf in various areas of the country. A program and products that work in the Northeast might not be effective in the Southwest.

“For example, pH and micronutrient levels on golf courses in the Southwest are a big deal because if a fertilizer program isn’t accurate it can lead to micronutrient deficiencies,” Leinauer says. “On courses that are using treated effluent water, there’s a much higher salinity than what’s found in potable or drinking water. That can alter your approach to fertilization.”



At Ozaukee Country Club in Wisconsin, Colin Seaberg generally sticks to applying granular, nonbiological fertilizers in the spring and fall on and around aeration dates. Photos: Ozaukee Country Club

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TURFGRASS MANAGEMENT



Soil testing before fertility treatments is a must to accurately determine the specific needs of turf in various areas of the country.
Photo: Ozaukee Country Club

Even though fertilizer programs have changed considerably during the past few decades, the proven staples of superintendents' fertility arsenal has remained the same: various combinations of nitrogen, phosphorus, potassium, potash, sulfates and other chemicals. Organic materials have become more popular recently as the industry continues to move toward more ecofriendly turf management.

Some superintendents use water-insoluble fertilizers instead of water-soluble ones. Water insoluble, also called slow release, means fertilizer isn't immediately available for plant use and is converted over time into compounds for plant uptake. Water soluble, on the other hand, is already in plant uptake form. Slow-release treatments are popular because they have a lower salt index, a lower potential for burn, a lower potential for leaching into groundwater and a more gradual supply of nutrients to the plant from a single application.

Water-soluble sources have a higher salt index, a higher burn potential, a higher leaching potential that could lead to groundwater contamination, and a potential for an undesirable flush of growth as the plant uses the excess nutrient. The latter might lead to more frequent mowing and more money spent on manpower and equipment to deal with increased growth rates.

Increasingly, superintendents are pressured to produce optimum playing conditions, especially on greens where players expect smooth and fast as the norm, Throssell says.

"It's always a balancing act for superintendents when they care for their greens," he says. "The expectations of golfers have gone up and up, and the margin for error on putting surfaces, which have gotten faster and faster and lower and lower, has gotten smaller and smaller. They always walk a fine line when giving golfers the speed and smoothness they want and getting enough nutrients to the grass so it will grow, handle traffic and cope with possible diseases."

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TURFGRASS MANAGEMENT



At Ozaukee Country Club, Colin Seaberg pushes growth with adequate and timely fertilizer applications throughout the growing season. Photos: Ozaukee Country Club



DIFFERENT WAYS TO DO IT

Superintendents generally plot their fertilizer applications correlating to weather conditions and the overall condition of the turf, which can be affected by the amount of play (foot and cart traffic) fairways, greens and tees receive. Fertilizer makes up a considerable portion of every superintendent's budget and is vital to keeping a course green, lush and in peak playing condition.

"We have a \$150,000 line item for chemicals for the course, and fertilizer is a big part of that number," says Richard Swinhart, golf course superintendent at Old Ranch Country Club in Seal Beach, Calif.

"Generally, we soil test in the spring and fall to find out where the turf is and what it needs," Swinhart adds. "We use a lot of slow-release products. It's more expensive that way, but we believe it's effective and safe. We apply ammonia sulfate and calcium nitrate and some potassium nitrate during the fall, winter and spring. We do quite a bit of spoon-feeding of fertilizer to the greens. Bermudagrass doesn't take that much to keep it green, and you can do the tees every 40 days or so. We'll put about a quarter to a third of a pound out, and the treatments don't interrupt play at all."

Dean Gump, golf course superintendent at Pasatiempo Golf Club in Santa Cruz, Calif., takes soil samples of his fairways twice a year

and greens and tees three times a year, although he keeps a closer eye on tees and greens if the weather has been severe. Gump uses slow-release products on the fairways and spoon-feeds the tees and greens with an organic-based product.

"We have been using more organics as a base for our fertilizer program for a couple of years," he says. "Certainly weather plays an important part in our fertility program because the plant uses nutrients differently during the course of a year. We'll customize our fertilizer program to each specific season and set of weather circumstances. Soil tests are great tools to help you analyze your turf and put together a sound program."

Colin Seaberg, golf course superintendent at Ozaukee Country Club in Mequon, Wis., likes to keep his fertility program as basic and simple as possible.

"Other than some slow-release liquid products, I generally keep to strictly granular, non-biological products in the spring and fall in and around my aeration dates," he says. "I will spoon-feed the rest of the season (with the above mentioned products) alternating with sprayable ammonium sulfate at about a tenth of a pound of nitrogen per thousand square feet every other week."

Seaberg introduced a foliar nutrition program on his greens last year.

"This is a foliar program that contains generous amounts of sea-plant extract plus a micronutrient package," he says. "At first, I was apprehensive about using the product, but after homework and talking to some other area superintendents who've had experience using it, I initiated the program. In conjunction with this product I was able to reduce the nitrogen level to about 1.5 pounds per thousand square feet for the season without sacrificing color or putting quality."

Seaberg creates plant growth from the top with Primo and pushes growth with adequate and timely fertilizer applications throughout the growing season. He manipulates one or both to get the desired results, such as color, density and ball roll.

Soil tests are important to a fertility program, but human intuition also is a handy tool, says Peter Wendt, course manager at Kinloch Golf Club in Manakin Sabot, Va.

"We base our fertility off of soil tests and feel," he says. "You need to have a feel for when your plants need a little bump in fertility to right the ship."

FOLIAR FEEDING

Fertigation, delivering chemicals through an irrigation system, has become a popular method of applying fertilizer. It's quick and relatively easy, reduces man-hours needed to apply fertilizer by machine or hand, and is highly effective. At Old Ranch, the majority of the fertilizer is applied on the course though fertigation, Swinhart says.

Using liquid fertilizer on greens is better than granular fertilizer, says Mike Crawford, golf course superintendent at TPC Sugarloaf in Duluth, Ga.

"If you have a fertigation capacity, spoon feeding the fertilizer in this manner is a great way for the keep plant health and growth more even and steady."

Yet superintendents debate whether granular or liquid fertilizers are more effective.

"If you're going out to apply a fertilizer at a light rate, a liquid might be a better option," Seaberg says. "It's easier to handle, apply evenly and won't get that prill pick up either."

Spoon-feeding liquid fertility isn't new in the business, Wendt says.

"Switching to a solely liquid program for the summer months (May through October) helps us dial in small amounts of nutrients when we want them, where we want them," he says. "We

will foliar feed the greens, tees and fairways during this time of the year. Liquids enable us to spoon-feed one-tenth of a pound or less of nitrogen and other nutrients when the plant is under stress."

ENVIRONMENTAL CONCERN

Organic-based fertilizers have made inroads recently, although it's not clear whether organics can replace traditional fertilizers to any great degree. Nonetheless, superintendents keep an open mind.

"Organics are becoming popular as we continue to be more environmentally conscious," Crawford says.

"There's a strong green movement in our and other industries," Seaberg says. "For the most part, organics are ultrasafe and give dependable results."

Wendt believes organics can play a part in a fertility program and says building organics into a fertility program isn't only beneficial but sound environmental practice.

"Working to build sustainable soils through organic fertilizers will help build healthy turf for the long haul," he says.

Throssell believes pressure will continue to mount on golf courses to use more organics.

"Wisconsin and Minnesota – Great Lakes states – have taken steps to regulate the amount of phosphorus that can be applied to the land, and that affects golf courses," he says. "They're concerned about phosphorus getting into streams and lakes and promoting algae blooms and more aggressive growth of plants."

Because the last thing a superintendent wants is fertilizer leeching or running off into above ground or subterranean water sources, it's wise to monitor weather conditions carefully to avoid applying fertilizer before a heavy rain. A light rain helps chemicals reach their intended targets – plant roots – more efficiently. But heavy rain can flush fertilizer into nearby water sources and result in wasted time and money in the process.

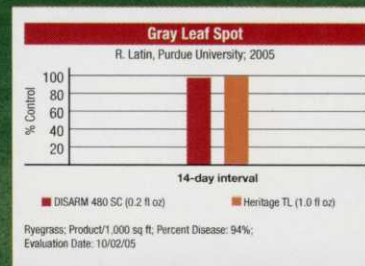
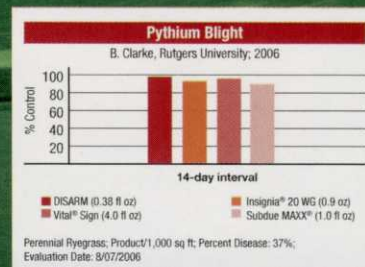
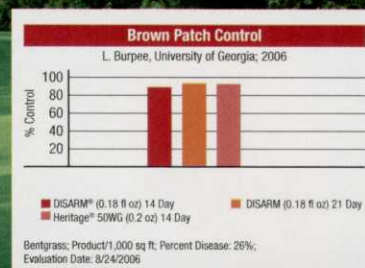
DISPERSIBLE GRANULE

Superintendents always are looking at university research and new products for an edge. Wendt is looking at a quickly dispersible granule, which is beneficial to avoid burn. Seaberg says the biggest thing to come along recently has been dispersible granular technology, as well as the long, continuous slow-release products. GCI

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