THE WORLD OF MAINTENANCE IN '98


There were the horrors, the struggles and the challenges that accompanied drought and then flood in the South Central states, the fire and then hurricanes in the Southeast, the torrential downpours from El Niño in the West, and the Ice Storm of the Century in the Northeast. Fairways and roads were washed away, clubhouses burned down, disasters of historic proportions.

Then, there were the thrills of discovering a control for poa annua and moss, and of building golf courses to serve as laboratories to study the effects of maintenance on the environment.

Golf course maintenance is a dynamic field, demanding that superintendents read up and pay attention to the many scientific advances. The next few pages share a glimpse of the top GCN stories from the year.

Notable Quotables

• "I'd like to get my hands on a 200-acre farm and see what kind of a golf course I could build. Something tells me it would be a little unorthodox." — Ed Michaud, superintendent at Sugarloaf Golf Club in Maine, who in the winter at Sugarloaf has built the No. 1 snowboarding resort park in North America, filled with "pipes," "table tops" and "pyramids."

• "I would parallel it [control for poa annua] with new drugs for killing cancer tumors. That's how important it is to me." — David Major, superintendent Del Mar CC in Rancho Santa Fe, Calif.

• "It was scary from the standpoint that I didn't think fire could travel that fast. You could not outrun it." — Michael Fabrizio, director of golf maintenance and construction for Matanuska and Palm Coast Resort in Daytona Beach

• "It sounds odd, but we would love a hurricane or tropical storm right now." — Bruce Berger, superintendent at Quarry Golf Club in San Antonio, Texas, not long before Texas was hit by a series of storms.

• "Our single biggest spring problem is keeping the golfers off the course until the frost thaws out." — Jerry Faubel, superintendent at Saginaw (Mich.) CC.

Biorationals: A tide of the future in turfgrass care

By MARK LESLIE

COLUMBUS, Ohio — You may not find the "neem tree" in your dictionary. Nor the words "biorationals" and "naturalies." But they will be playing increasingly important roles in golf course maintenance, according to Dr. Parwinder Grewal, an assistant professor of turfgrass entomology for the Ohio State University (OSU) Extension Service.

Speaking at the Ohio Turfgrass Foundation Conference here, Grewal said some biological controls have succeeded and some have not, but their ranks has increased tremendously in the last decade — a harbinger of the future.

Piecing together research from OSU, Cornell University and other colleges, Grewal updated the audience on research done on biologicals and biorationals. He defined biological control as the use of a living organism — such as earthworms or biological control agents — to manage a pest, disease or weed problem.

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Earthworm fixes...

By DR. DANIEL A. POTTER

Earthworms have been called the "in-testines of the earth" because of their importance in breaking down plant litter, recycling nutrients in golf course maintenance and topsoil. But on golf fairways, an abundance of earthworms can be too much of a good thing.

Generally, you'll have much healthier turfgrass where earthworms are abundant. Their burrowing reduces soil compaction and improves air and water infiltration. Earthworms enrich the soil with their fecal castings.

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New biologicals...

By MARK LESLIE

COLUMBUS, Ohio — Questions abound in the arena of turfgrass soil ecology and biology, but Dr. Michael Boehm pointed to a future where biological care plays an equal role in maintenance with chemical and cultural care. The turfgrass' genetic resistance to disease will be critical in the future, he said. The Ohio State University (OSU) assistant professor of plant pathology painted a picture in which current maintenance practices are dominated by chemicals, and where cultural practices and biologicals are the trend.

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... Sunlight assessment

By MARK LESLIE

PROVIDENCE, R.I. — Sunlight assessment and digital imaging — two new technologies that are pulling golf superintendents into the computer age — will also help them deal with the difficult task of course renovations, according to a spokesman for the U.S. Golf Association Green Section.

"Frankly, most of the people here have the equipment and capabilities to operate this technology," Dave Oatis, director of the Northeast Region, told the New England Superintendents' Conference.

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Earthworm fix

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Conservation of earthworms is important in lawns and other turf sites where thatch is a concern. However, on golf courses, mud mounds abound where earthworms have pushed up castings through close-mowed grass. Golf cars and mower tires compact these mounds, smothering patches of grass. Golfers’ drives may stop short on worm-softened fairways, and golf balls may be muddied where they land.

Mower blades are dulled, and mowers return to the maintenance complex caked with mud. Strictly speaking, U.S. turf managers cannot apply pesticides for earthworm control because no chemicals are labeled for such use. However, several products will kill a portion of the earthworms as a non-target effect when they are applied for control of insects or diseases listed on their labels. According to our research, the insecticides bendiocarb (Turcam), carbatr (Sevin), ethoprop (Mocap), or fenoxap (Crusade) are toxic to earthworms. Any of these products, applied at rates labeled for grub control and watered in (1/2 to 1 inch of irrigation), generally will give an 85- to 95-percent reduction of earthworms.

The fungicide thiophanatemethyl (Cleary’s 3336) provided similar suppression. The impact is greatest if the application occurs when the soil is moist and the earthworms are active near the surface. One application often will reduce casting activity for 2 months or longer, not from residual toxicity, but because the earthworms are slow to reproduce or recolonize treated areas.

Most earthworm species are intolerant of acidic soils. Application of aluminum sulfate or sulfur to lower the soil pH to 5.8 or less may reduce their population.

Biologicals

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and genetic resistance dwarf biological controls.

"We want to get all spheres relatively the same size to give turfgrass managers the ultimate and largest arsenal to combat turfgrass diseases," Boehm told an audience at the Ohio Turfgrass Foundation Show and Conference here.

"Our goal," he said, "is the integrated management of diseases—to push the responsible use of biorational, environmentally friendly and environmentally sound chemistry—whether it's synthetic or from a natural origin—and to better understand and increase the use of biologicals."

Composts add nutrients and micro-organisms to soil that have been shown to control or counter pathogens, he said. The focus of research at OSU and other universities is understanding how and why diseases are suppressed.

"We know that if you increase the nitrogen level on turf, you can suppress dollar spot nearly 60 percent," Boehm said. "But there are still lots of issues. Is the nitrogen in the form we are applying it directly toxic to the pathogen? Or is the nitrogen giving the plant the ability to outgrow the pathogen? Or is the nitrogen somehow changing the physiology of the host, thereby making it less susceptible?"

"Those are all very valid questions that we'd like to address."

From a plant pathologist’s perspective, he said, mechanisms of biocontrol are:

• competition between the biological control agent, or the organism that is suppressing the pathogen for space or nutrients;
• antibiotic production, since the biological control agent produces antibiotics that are toxic to the pathogen;
• hyperparasitism, wherein the biocontrol agent uses the pathogen as a food base or energy source; and
• induced resistance—"an area," Boehm said, "we don't understand very well, but the presence of these beneficial organisms brings about a physiological, or biochemical change in the plant that renders the plant resistant."

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