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"It's usually not recognized that for every injurious or parasitic microbe there are dozens of beneficial ones."

— Selman Waksman, "Father of Antibiotics,"

Nobel Laureate

Plant disease clinics are especially popular from now through early autumn. Stressful turfgrass conditions lead to numerous maladies, many of which are sent to plant disease clinics. One diagnosis that causes some confusion, at least to me, is the occurrence of ectotrophic root-infecting (ERI) fungi. These fungi are often associated with root-rotting diseases that produce patch-like symptoms.

Diseases associated with the term ERI include take-all patch, spring dead spot, summer patch, dead spot, necrotic ring spot and root decline of warm-season turfgrasses (bermudagrass decline). The pathogens of these diseases infect turfgrass roots through mycelia called ectotrophic runner hyphae. Ectotrophic refers to fungi that produce on the outside or external to the root, and runner hyphae is thickened hyphal strands. Originally, ectotrophic runner hyphae were associated with take-all patch caused by the pathogen *Gaeumannomyces graminis* var. *avenae*. Eventually, other pathogens that infected roots were identified and found to produce the *Gaeumannomyces* type runner hyphae.

The runner hyphae association with *Gaeumannomyces* has led to confusion among superintendents who think they have take-all patch. The problem with the ERI fungi is that they are difficult to identify. To culture these pathogens for positive species identification is arduous and time consuming. Most of us can't wait during the heat of summer for a conclusive positive identification that can take several weeks or months. Thus the association among

Clinics Make for Money Well Spent

BY KARL DANNEBERGER



NEW AND
EVER-INCREASING
TURF MALADIES
ARE BECOMING
MORE DIFFICULT
TO IDENTIFY

symptoms, the host and the sign of ectotrophic runner hyphae provide in most cases a pretty good diagnosis of the problem.

However, the presence of ERI runner hyphae might not be the sign of the real malady. For example, a creeping bentgrass turf that is suffering from pythium root-dysfunction may have runner hyphae present on the diseased root system during summer stress months. The actual diagnostic sign of pythium root-dysfunction — oospores — are present in the spring or fall on the root system. If you were to go on the presence of runner hyphae as the diagnostic key, at least in this case, you would be mistaken.

This is now a logical lead into the optimum time for targeting control measures toward these root-infecting diseases. The infection of roots by ERI fungi normally begins weeks or months before symptom expression. Once symptoms appear, control is often difficult. With the ERI-causing diseases, preventative measures should be targeted at or just prior to root infection.

Finally, as turfgrasses are maintained under increasing management and environmental stresses, new and ever-increasing turf maladies are becoming more difficult to identify. Plant disease clinics and laboratories are here to help you identify a problem or confirm your suspicions.

Use these clinics. It is money well spent.

Danneberger is Golfdom's science editor and a turfgrass professor at The Ohio State University.

Table 1: Turfgrass diseases associated with ectotrophic root-infecting fungi

Disease	Pathogen	Primary Hosts
Take-all patch	<i>Gaeumannomyces graminis</i> var. <i>avenae</i>	Creeping bentgrass
Root decline of warm-season turfgrasses	<i>Gaeumannomyces graminis</i> var. <i>graminis</i>	Bermudagrass, warm-season turf
Summer patch	<i>Magnaporthe poae</i>	Kentucky bluegrass, <i>Poa annua</i>
Necrotic ring spot	<i>Ophiosphaerella korrea</i>	Kentucky bluegrass, <i>Poa annua</i>
Dead spot	<i>Ophiosphaerella agrostis</i>	Creeping bentgrass
Spring dead spot	<i>Leptosphaeria narmari</i>	Bermudagrass



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Golfers will go to extremes to play a round on high quality turf. Syngenta helps ensure courses have that appeal with new Instrata™ fungicide. With three active ingredients and both contact and systemic modes of action, Instrata provides broad-spectrum disease control, including dollar spot, anthracnose, brown patch, and snow mold. Like Headway™, Instrata can be crucial to combating the threat of disease resistance.

At Syngenta, we understand why golfers might want to play in the best conditions, even when they themselves are not. Beautiful courses should be played any chance you get.



It was 2 p.m. on a hot August afternoon in the mid-Atlantic. The weather formula for the day was blazing sun + 10-mph breeze + low humidity = disaster waiting to happen.

My crew was preparing to leave for the day except for my faithful hand-water guy, and I had an important errand to run. I asked one of my other reliable guys if he could take a quick trip around the course to see if I needed to run a quick cool-down irrigation cycle on my ancient ryegrass/*Poa* tees before I left.

He answered with, "Sure." Then he proceeded to ask, "Do you want me to look at the fairways, too?"

It seemed as though time suddenly came to a screeching halt while I pondered his question. Not being a trained turf person, he obviously had no idea what I was up against in this situation. I was worried about the fate of a gazillion little grass plants and what degree of suffering they could withstand in my absence.

The questions were swirling around in my head:

- How hot is the grass right now?
- How much water is needed to keep it cool for the next couple of hours?
- How much water would be too much, inviting disease?
- How much play do we have right now?

But most importantly, I wondered how one can possibly go around and look at the tees for signs of heat stress and not look at the fairways while on your way to the next tee. What would you be looking at instead? Would you be driving the golf car with your eyes closed?

I took a deep breath as time resumed and simply said, "Oh yeah. That'd be great, thanks."

What I should have done is planned my day a little better so I could have just made that ride around the course myself. A superintendent's eyes need to see a golf course from many different aspects. But you have to guard against becoming complacent. Complacency has a way of dulling our vision. When you see the same thing every day, you tend to see it in the same way every day as well.

You need to look at things through the eyes of a turf manager, of course. But you also need to

Gaining a Fresh Perspective

BY JIM BLACK



IT JUST TAKES A
LITTLE IMAGINATION
TO EXAMINE YOUR
GOLF COURSE
THROUGH NEW EYES

see things from the perspective of the golfing customer, the head pro, the owner and board, all the way down to the maintenance crew employee.

My Aunt Ginny was a very accomplished artist. She had such amazing vision and could see art in everything. She worked in what seemed like hundreds of different media, but what I loved the most was the way she could see something old and "art it back to life."

She taught me once that the way to see the same-old thing in a new way is to look directly at it first, then squint your eyes just a little so that everything in your field of vision is a little blurry and out of focus. Within that blur is where you see balance (or not), color, depth and perspective.

Think about a place on your golf course that isn't quite what it could be — maybe a landing area or green or tee complex that always gives you some trouble. We all have that somewhere on our courses, don't we?

Go there and look hard at it, then give it the artist's eye for a minute or two. Amid this blurry vision, consider what you can do to this spot to make it better for the good of all — for golfers, for yourself and for the game. You'll be amazed what can materialize in your field of blurry vision.

You might see the need for a new bunker (or the need to remove one), the relocation of some teeing ground, or even the reshaping of a fairway to be more receptive to a certain shot.

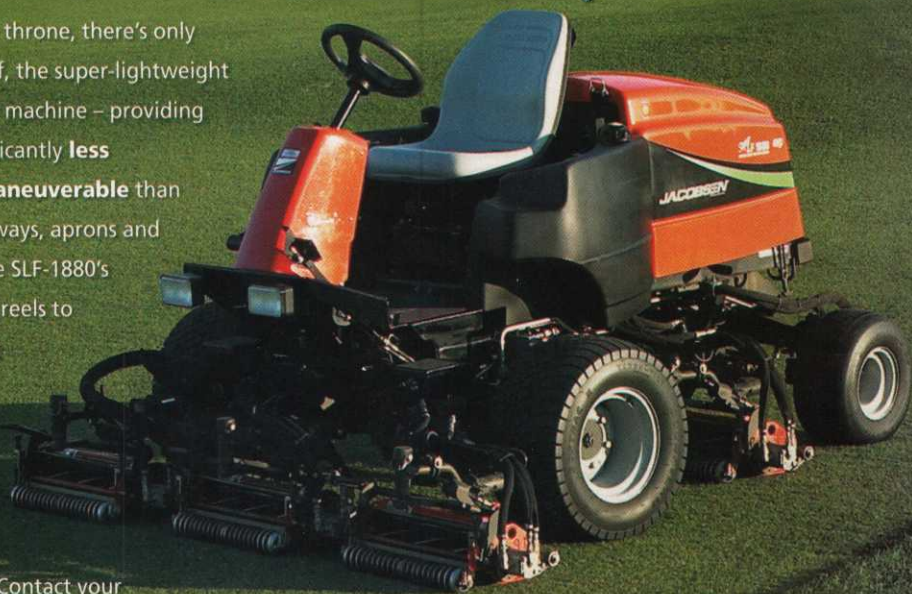
Whatever your specific situation, if you're looking for some positive change in the way your golf course is played, perceived or maintained, try observing it with the eyes of an artist. It might just be the next big step your course needs.

Thanks, Aunt Ginny.

Jim Black, a Maryland superintendent, is a contributing editor to Golfdom.

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When Performance Matters.™

Tidying Up the Tee Box

Companies offer myriad products to dress this course area for success



The way a tee box is dressed with accessories says a lot about the philosophy of a golf course, says Steve Copley, director of sales for Eagle One Golf Products in Anaheim, Calif.

That said, a golf course's budget may have much to do with the accessories found on its tee boxes, says Copley, who relates the following story about tee markers.

"I met a superintendent at a very low-priced public course in a depressed area of the country who had been painting rocks he pulled from the local creek," Copley says. "On the flip side, I have also been involved in the design of a cast-bronze tee marker in the shape of a horse and rider that ran almost \$150 per hitting location."

We asked Eagle One, Standard Golf Products and Par Aide to suggest products for sprucing up tee boxes.

Here are some of the products they're offering:

Standard Golf Products has available the Turfstone Tee Console, which the company says is functional and efficient and includes a 16-inch by 24-inch tee sign that's laser-engraved with a course's layout. Molded from composite materials that resist cracking, fading, staining and course chemicals, the signs are available in gray granite, terra-cotta or green granite turfstone. The console includes a black, 36-inch post and ground anchor.

Standard Golf also offers TurfStone Tee Markers, which the company says are an affordable way to bring the look and feel of granite to tees. The sturdy wall thickness and a composite construction of polymer and glass fibers add strength and durability to withstand the elements. With a two-spike anchor

system, the marker can be held firmly in place or positioned slightly above the ground to prevent grass damage.

Standard Golf also has available a new Microfiber Tee Towel that has seven times the absorbency and three times the wicking action of a standard cotton towel. Produced as an antimicrobial product, the Microfiber Tee Towel repels odors and stains and includes a handy grommet for easy attachment. The washable towel comes in a variety of ultra-violet-resistant colors that includes black, red, white and green and can be embroidered with clubs' logos.

Eagle One Golf Products offers cast-resin tee markers that look like real tree limbs but last much longer. The company also offers round "ball" tee markers, like a dimpled golf ball or a smooth-polished resin ball that has the density of a billiard ball.

Eagle One also supplies recycled plastic benches, which the company says require less maintenance than wooden benches. The company offers several products that go in the ground, which include trash cans that can't

Eagle One offers recycled plastic benches.



Standard Golf offers a tee console, tee markers and a tee towel.

Eagle One also offers tee signs and cast-resin tee markers that look like tree limbs but last longer.

be seen or tee markers that are at the same level or just below the grass line on the tee.

Eagle One also specializes in tee signs. A sign with an overview of a hole can speed up play if it's designed correctly to let golfers know about hidden bunkers or natural areas that are out of sight from the tee box, according to the company.

In addition, Eagle One offers divot mix/sand containers, water coolers and phone boxes.

Par Aide offers its popular ball washers, which have been around since 1955. The ball washers are used to signify the tee location for each hole. Par Aide's Dan Brown points out that the company's ball washers have been seen in countless television shows and films from "Caddyshack" to "The Sopranos."

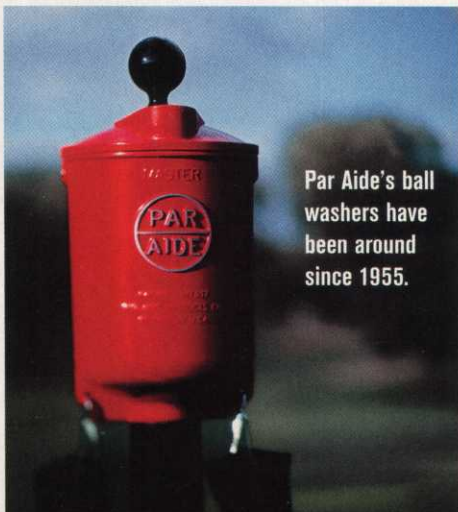
Par Aide also offers two new products, teak benches and the Core Buster Drag Mat. The teak benches provide a traditional and classic look and last for several years, according to Par Aide.

The Core Buster Drag Mat, while not an accessory for the tee, has much to do with sprucing up the turf on the tee. It is used to drag cores on tees and fairways after aeration.

Par Aide says the Core Buster, made from 20-inch by 20-inch interlocking polyethylene panels, will not tear or gouge turf. It also resists rust and is easier to transport and store than steel drag mats. ■



A teak bench is a natural choice for the tee.



Par Aide's ball washers have been around since 1955.



The Core Buster Drag Mat is used to drag cores on tees and fairways after aeration.

The Company Line

■ PRODUCTS & SERVICES

Electric Utility Vehicle ▶

Club Car says its new Carryall Turf 252 with IQ Plus was designed with the superintendent in mind. The growing popularity and capability of electric utility vehicles made adding the Turf 252 with the IQ Plus electric drive train a natural move, according to the company, which has been incorporating IQ Plus into its utility vehicle lineup for the past two model years. The technology allows superintendents to customize the vehicle's top speed and realize increased useful range and hill-climbing power over what electric vehicles traditionally have provided, the company says.



For more information, contact www.clubcar.com.

New Herbicide

FMC Professional Solutions says its new herbicide, Echelon, is approved for pre-emergence and early postemergence control of a variety of annual grasses, broadleaf weeds and annual sedges in golf courses, sports turf, residential and institutional lawns, sod farms and similar areas.

Echelon provides effective pre-emergence control of *Poa annua*, according to the company. It also provides postemergence control of goosegrass and key broadleaf weeds, such as dandelions, curly dock and buckhorn plantain. Echelon works quickly, with some targeted weeds showing visible results within days. Echelon is labeled for use on golf course fairways, roughs and non-playing surfaces.

For more information, contact www.fmcprosolutions.com.

Updated Product Aids Against Heat Stress

Floratine Products Group announced the launch of its newly updated ProteSyn. The improved ProteSyn offers Amino-Lok technology — a combination of specific, key amino acids that sequester nitrogen for slow linear release and promote the linkage process toward mature protein synthesis, according to the company.

Protesyn helps against heat stress by aiding and enhancing the completion of photosynthetic activity, which encourages healthy cell division, respiration and energy conservation. In addition, the carbon-rich compounds in ProteSyn contribute directly to plant energy reserves, mature protein production, complete amino acid resources, enhanced cell division and the appropriate carbon-to-nitrogen ratio, the company says.

For more information, contact www.floratine.com.

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For more information, contact www.ddmotorsystems.com.

Ad Index

Advertiser	Page No.	Advertiser	Page No.
Andersons	CV4	Scotts Company LLC	70
ASGCA	54	Sepro	44
BASF	9, 20-21, 33, 71	Syngenta	11, 19, 25, 36-37, 73
Cleary Chemical Corp.	CV2-1	Tas Industries	4
Club Car	14-15, 17	Toro	28-29
FarmSaver	5	Turfco	47
Irrigation Association	67	TURFGRASS TRENDS	
Jacobsen	75	Agrium Advanced Technologies	61
JEG Inc.	46	Bayer	63
Lebanon Turf	23, 49, CV3	John Deere and Co.	57
NMP Golf Construction	4		
Oregon Fine Fescue	7		
Oxford Gardens	42		
PBI/Gordon	43		
Rain Bird	35		

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Editorial Index

Company	Page No.	Company	Page No.
ASGCA	38	Northwood Golf Course	30
Arthur Hills/Steve Forrest and Associates	38	Ocean Links Golf Course	32
Augusta National	45	Oakmont Country Club	24, 42, 50, 53
Bayer	16	Par Aide	76
Brooksville Country Club	42	Petersham Country Club	26
Cedarwood Country Club	51	Remington Ranch	53
Chevy Chase Club	17	RISE	18
Cypress Point	49	Riviera Country Club	30
Deal Golf & Country Club	51	Rolling Rock Club	31
Deltona Hills	41	Quest Products	16
DuPont Professional Products	13	Sand Golf Club	38
Eagle One Golf Products	76	Sand Ridge Golf Club	51
Forrest Crossing Golf Course	17	Santa Rosa Country Club	30
Foxboro Country Club	30	Saucun Valley Country Club	51
Fox Chapel Golf Club	51	Sewickley Heights Golf Club	51
GlenRiddle Golf Club	51	Shinnecock Hills Country Club	31, 48
GCBAA	38	Southern Hills Country Club	46
GCSAA	18, 32	Standard Golf Products	76
Georgia Seed Development Commission	12	St. Clair Country Club	51
Harborside International	31	Syngenta	70
Indian Hills Golf Resort	40	The Country Club in Brookline	26
Marion Golf Course	30	The Dunes Club	30
Merion Golf Club	53	TifEagle Growers Association	12
Miami Beach Golf Club	41	USGA	16, 24, 50, 53
Michigan State University	70	U.S. Public Links	26
Muirfield Village Golf Club	53	Valent Professional Products	68
Myopia Hunt Club	31	Wadsworth Golf Construction	38
National Golf Foundation	16, 38	Weed Golf Course Design	41
Norfolk Golf Club	26	Wee Burn Country Club	51
		Winged Foot Golf Club	47
		Young/Rymer Design	49

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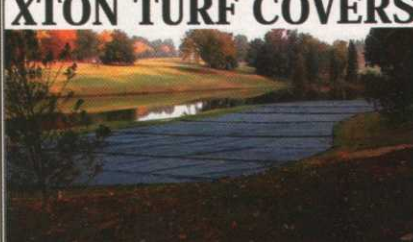
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enhance
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bomb pops

In Davenport, Iowa, in the late 1970s, kickball got interrupted but for two things — darkness and an electronic song. The former brought but grumbles, but the latter carried the promise of icy refreshments and sticky fingers.

The ice-cream truck back then drove about two miles an hour, roaming the street with its sirens, bringing behind it a trail of kids that would rival the Pied Piper. Variations on ice cream — drumsticks, sandwiches and sherbet in paper cones — were all fine and good, but nothing rivaled the three-color sugarfest that was the Bomb Pop. At an even buck, it seriously dented the allowance, but the frozen rocket with six fins that sported colors of the flag seemed somehow more substantial, maybe even more patriotic — through the eyes of third-graders — than something sprinkled with chopped nuts or wrapped in a flimsy chocolate wafer.

The freezer in the ice-cream truck must have been fueled by liquid nitrogen, as the pops were so frozen that one risked one's tongue on those first few licks. After the brain freeze that accompanies many frozen treats, and several wipes of the hands on the shorts, the game would resume, and everyone seemed to have a little more energy ... at least for a while.

Those memories of youth, and hearing the bleat of my local ice-cream truck

SOME FACETS OF SUMMER

NEVER REALLY CHANGE

IF YOU'RE A KID AT HEART

BY MARK LUCE

through the neighborhood — got me rather itching for a Bomb Pop. In addition, Blue Bunny, the manufacturer, now makes an insane number of spin-offs: the Bubble Yum Bomb Pop, Daffy Duck Taffy Bomb Pop, Jolly Rancher Bomb Pop and Watermelon Bomb Pop (with candy seeds). However, in checking out all these mutant varieties, I was struck by the fact that they all seemed upside down. Rather than a sleek rocket that tapers at the top, it's now seemingly upside down. However, the popsicle named Bomb Pop Jr. looks more like the one I used to eat. Vaguely troubled, I wondered if that wispy nostalgia of being a big enough kid to buy my own grown-up treat was somehow now tainted by the realization that I always bought the pint-sized version.

While my investigation into the origins of the Bomb Pop Jr. were fruitless, I was thrilled to discover the origin of my youthful obsession was in my current backyard. Back in 1955, James S. Merritt and D.S.



“Doc Abernathy” plied frozen wares down on Independence Avenue in Kansas City (about eight miles from my house) when they hit upon the Bomb Pop. Abernathy, come to find out, not only helped with the bomb pop, but was considered a visionary in the frozen treat field, coming up with such products as the Dole frozen juice bar, treats based on the Pink Panther, Ghostbusters and everyone’s favorite Renaissance artists/crime fighters Teenage Mutant Ninja Turtles. The TMNT pops featured gumball eyes, sure to stain your tongue a royal blue.

To bring this walk down Popsicle lane full-circle — last week I bought my first pinball machine, a dream I have had since I was about 5 years old. The machine that now plays in my basement? Teenage Mutant Ninja Turtles.

Bomb Pops and pinball — even after 30 years, the things I love haven’t really changed all that much.

Mark Luce lives in Kansas City, Mo., the home of a really bad baseball team.

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