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HOW TO READ YOUR COURSE.



# Weapons of War

A new system prepares superintendents to battle disease outbreaks, but scientists seek further scrutiny

By Frank H. Andorka Jr., Associate Editor

**T**he e-mail chilled Douglass Larson to the bone. His Skybit weather service warned him that conditions in July were ripe for a gray leaf spot (GLS) outbreak — the same disease that wiped out fairways and tees in the mid-Atlantic as recently as 1998.

Based on the information, Larson, superintendent at Manufacturers Golf & CC in Fort Washington, Pa., mobilized his crew members to scour the course for signs of the disease. They found the telltale spots and immediately sprayed a fungicide to prevent spreading. Larson reports that the *blitzkrieg* succeeded and the course lost little turf.

“We’ve never seen the disease earlier than September, so the warning took me by surprise,” Larson says. “But it’s a good thing we received it. If we hadn’t, we could have been in serious trouble.”

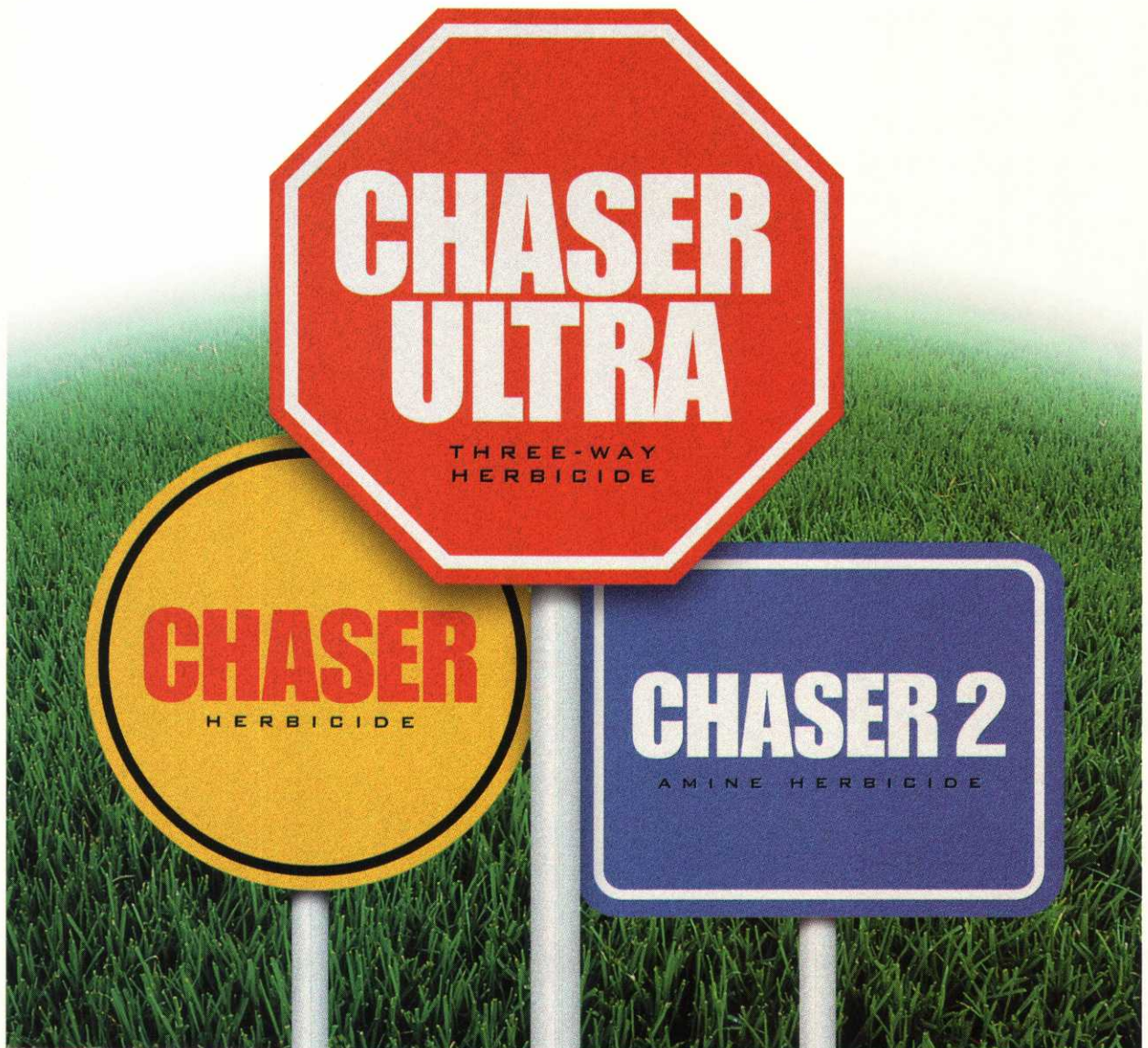
Despite others’ skepticism, Larson and other East Coast superintendents are singing the praises of Skybit’s computerized weather service. Boalsburg, Pa.-based Skybit ([www.skybit.com](http://www.skybit.com)) started 10 years ago as an information technology company that delivered customized weather and disease forecasts to the agricultural and energy industries. In 1994, the company moved into the turfgrass industry. Skybit gathers weather information from the National Weather Service

*Continued on page 45*





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## Weapons of War

*Continued from page 42*

(NWS) and other remote sites, such as Penn State University's weather station, to provide detailed weather reports for courses, based on their latitude and longitude.

After observing natural disease behavior in the field, researchers develop models based on the factors that they can reproduce in a laboratory, such as evapotranspiration rates, temperature and precipitation. Scientists then create formulas that mirror the way diseases behave. To make its predictions, Skybit developed its own models and feeds raw data into a computer, which then produces alerts.

In 1994, the company was looking for courses willing to test its system, and Dennis Watkins, superintendent at Lords Valley CC in Newfoundland, Pa., agreed to try it.

Prior to subscribing to Skybit, Watkins gathered his weather information from the evening news, which was notoriously inaccurate. A salesman convinced him to try the service, touting its disease modeling as another weapon in the battle to keep Watkins' course in tip-top shape. Watkins was skeptical, but still signed up.

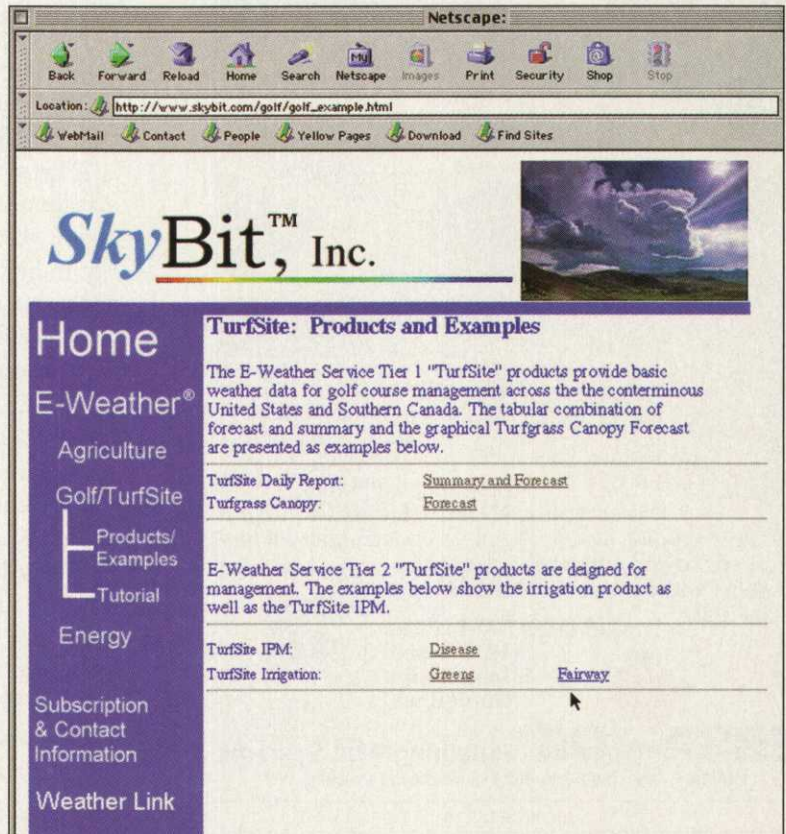
"I was at a loss to explain the accuracy of its reports," Watkins says. "I spent a year trying to pick the process apart — then I gave up."

The system costs \$75 per month without disease modeling and \$150 per month with

**Dennis Watkins, superintendent at Lords Valley CC in Newfoundland, Pa., was stunned by the accuracy of Skybit's reports. He spent a year trying to pick them apart and then gave up.**



it. Watkins says most subscribers use the disease modeling service during the height of the golf season, but remove it during the off-season. For each individual course, Skybit currently tracks five diseases — anthracnose, brown patch, pythium blight, summer patch and GLS — and delivers superintendents the information by fax or e-mail.



Watkins worked with Skybit to develop the GLS model, which has been winning the service accolades this year. Watkins says Skybit can break the country down into one-kilometer squares, which are analyzed for weather patterns. Skybit also created a 30-year weather database that allows it to compare weather conditions today with those in the past. That's what makes its disease predictions relevant.

"It can compare conditions from the last outbreak of a disease at your course with what conditions are today," Watkins says. "It's the historical database that makes the difference."

H. Jim Loke, superintendent at Bent Creek GC in Lititz, Pa., says the service also helped him deal with an outbreak of pythium blight a few years ago. A heavy rain had flooded his course, and the level of silt that covered his golf course, along with the water, created the perfect conditions for pythium.

"[Skybit] was right on with that prediction," Loke says. "I wouldn't rely on it as the only source of information, but I've found that its temperatures are accurate within a couple of degrees — and that's almost impossible to do where my course is."

While the system may have nailed a GLS

*Continued on page 46*

▲ **Skybit's weather service won accolades this year for its prediction of a GLS outbreak on the East Coast, but scientists caution against using it as the only source for disease information.**



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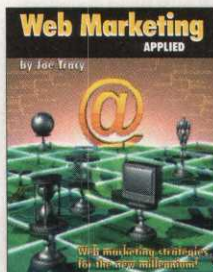
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## Weapons of War

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outbreak this year, some plant pathologists remain skeptical, and caution superintendents against putting all their faith in Skybit forecasts to fight disease.

"Skybit is a good complementary product to other pest management strategies, but it doesn't replace looking for the disease yourself," says Paul Vincelli, professor of plant pathology at the University of Kentucky in Lexington, Ky. "We don't have any data to prove that it will work over an extended period of time."

"It's great that superintendents are getting a heads-up, but there's a lot we don't know about some of these diseases," says Gail Schumann, plant pathologist at the University of Massachusetts in Amherst, Mass. "We're going to take a wait-and-see attitude toward the service, but the fact that someone is trying to do it is encouraging."

Schumann says she was getting calls from superintendents throughout New England saying they were warned about GLS by Skybit, but examination of turf samples from the courses showed no evidence of the disease.

"I've heard that for other parts of the country that [Skybit's] prediction was deadly accurate," Schumann says. "But it never got as far north as [Skybit predicted] it was going to get."

What gives some academic observers pause is the proprietary nature of Skybit's predictive models. Schumann and Vincelli want to see the models undergo scientific scrutiny. Schumann says that no matter how accurate Skybit's models, they will never replace good scouting by maintenance crews.

"Don't think of this as a black box that will give you all the information you need," Schumann says. "You're still going to have to test its predictions yourself and make sure they're accurate."

"You can count weeds, you can count grubs, but there's no way to do that with diseases," she adds. "Predictive models are the closest you can get, and it's exciting that there are people working to take some of the guesswork out of disease prevention."

Watkins understands the skepticism — he was once a skeptic himself. But Watkins says the company will let anyone test its formulas, and Vincelli says he is working with Skybit to develop a study at the University of Kentucky, although details are still being worked out.

"I'm treating [Skybit's] models the same way I would if one of my colleagues had put forth a theory," Vincelli says. "I just want to test them under controlled, laboratory conditions."

The service currently has 100 subscribers mainly in the East, but Watkins says it plans to expand the service around the country. Skybit is working on models for bermudagrass and other Southern grasses and expects to sign deals with cooperating university sites within the next few years.

"Right now, we're perfectly situated for the East, but we're not satisfied with that," Watkins says. "We'd really like to make it a nationwide service." ■

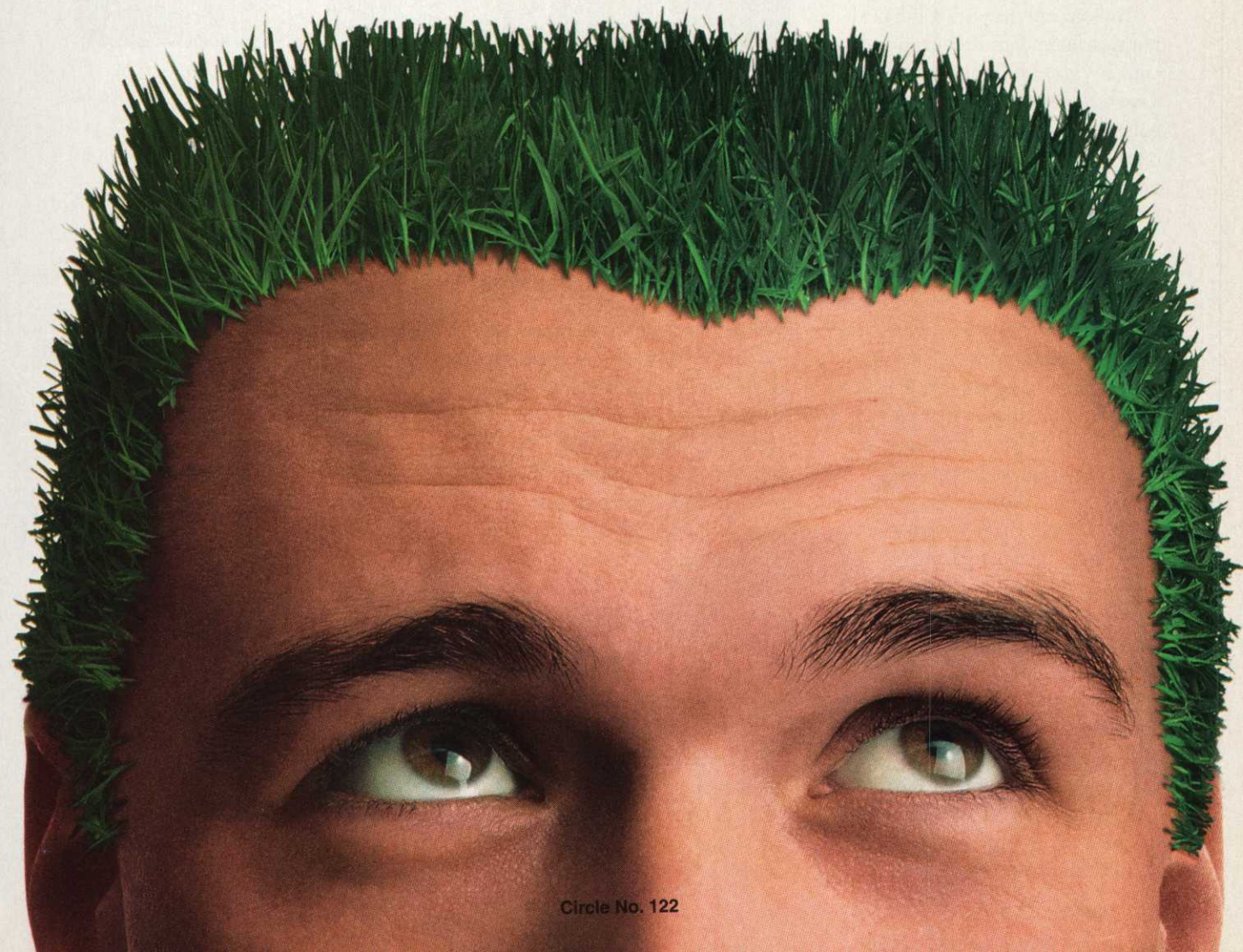


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## Aeration Isn't Half Bad at Cog Hill

BY LARRY AYLWARD, EDITOR

**G**olfers complain about aeration, and superintendents gripe about golfers who complain about aeration. Golfers will never understand why superintendents must aerify, and superintendents will never understand why golfers can't understand why they must aerify.

Who would have thought that aeration would become golf maintenance's version of the Hatfields and McCoys? But at least one superintendent has brought harmony to a volatile situation.

You can call the plan half-baked, but superintendent Ken Lapp and his crew at Cog Hill CC in Lemont, Ill., have had great success in quelling golfers' complaints by aerating only one-half of a green at a time. "I'm not saying this is the ideal way to aerate, but it works for us," Lapp says.

The philosophy behind Lapp's approach makes sense and is good for business. Cog Hill features four courses with 90 greens (72 holes, five alternate holes, eight putting and chipping greens, and five target greens), so aeration is a major project. If Lapp and his crew aerate all of the greens at once, there will be plenty of irate golfers. But because they aerate each green partially, they're providing golfers with at least a half-decent putting surface.

Lapp and his crew begin aerifying the course's soil-based greens in the late summer, usually after Labor Day. They aerify one-half of a green, remove the cores, roll the entire green and then move the pin location to the unaerified side of the green.

When Lapp and his crew finish aerating one-half of each of the 90 greens, they return to their starting point about two weeks later and begin



MIKE KLEMM

**Even after aeration, golfers have smooth putts around the cups at Cog Hill CC. "[Our aeration] schedule keeps our clients happy," says superintendent Ken Lapp.**

aerating the other halves. "We then move the pins back to the original aerified sides," Lapp says.

Lapp admits that the halves of the greens that were aerified first haven't completely recovered by the time the crew begins aerating the other halves. But the key customer service component in the process is that Lapp and his crew are trying to meet golfers' demands for the best service. "They're putting across aerated turf, but we're giving them a smooth surface when they're around a cup," Lapp notes.

Lapp has been at Cog Hill for 27 years, and he says aeration complaints have fallen 80 percent since he and his crew began the schedule nearly 10 years ago. "It has been great for the course, businesswise," he says.

It's not a perfect procedure, Lapp says. The process throws a monkey wrench into the course's normal irrigation plan.

"When you open up a green, you have to water it heavier than normal," Lapp says. "But in this situation, we have

halves of greens that are not aerated and are getting more water than usual."

Lapp could send his crew out to hand water the aerated greens, but that would cost too much in time and money. Besides, the extra watering only makes the unaerated sides more soft, which isn't a major problem, Lapp notes.

Cog Hill's owner, Frank Jemsek, was the one who suggested to Lapp that the course could get a leg up on the competition in customer service if it implemented the half-green aeration strategy.

"I thought it was the craziest idea in the world," Lapp recalls. "I'm from the old school of aerating an entire green at one time."

But Lapp knows it's more important to have satisfied golfers. He doesn't know if the aeration schedule has led to new business, but he contends that it's leading to repeat business among existing customers. "This has worked well for us at Cog Hill," Lapp concludes. ■



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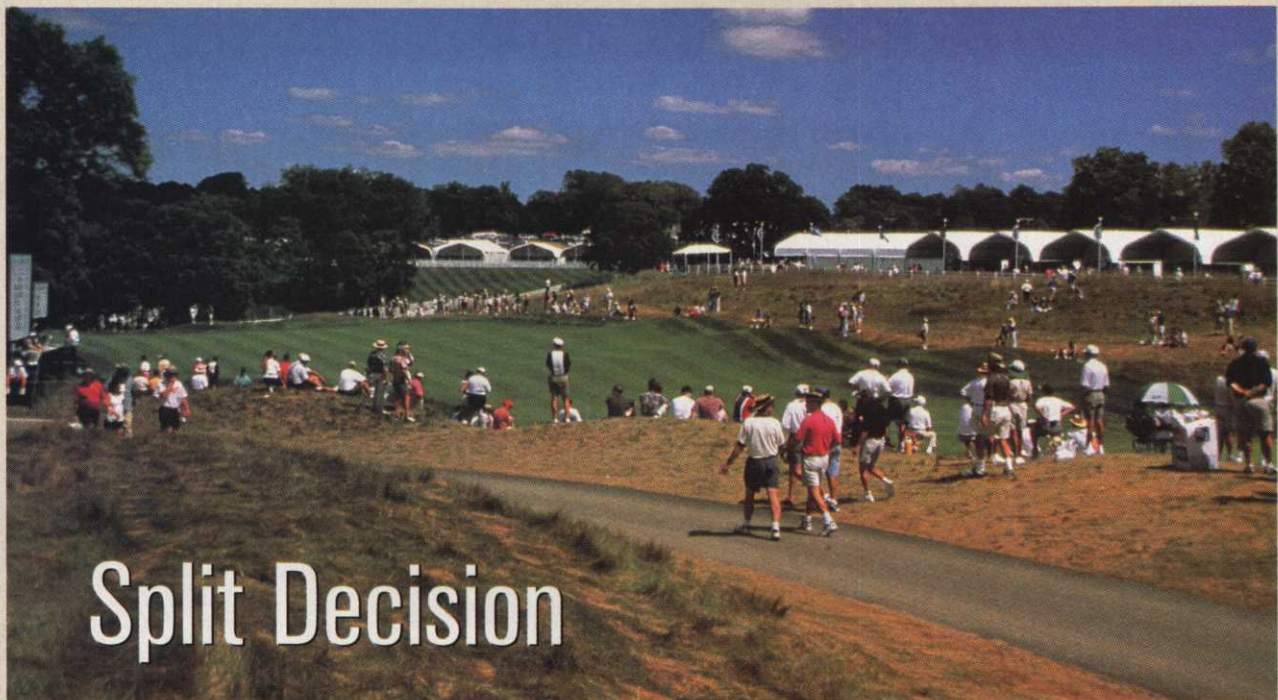
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# Real-Life Solutions

■ VALHALLA GC, LOUISVILLE, KY



## Split Decision

**When you stage a PGA Championship, you have to make sure your course is in pristine condition for attendees and TV viewers, Mark Wilson says.**

**Valhalla CGCS Mark Wilson opted to divide herbicide applications on new turf to capitalize on brand's pre- and post-emergent activity**

### Problem

Heavy construction during the winter months at the site of two PGA Championships forced spring reseeding and resodding. This precluded early spring uses of pre-emergent herbicides.

### Solution

Split application of a pre- and post-emergent herbicide helped restore aesthetics and playability in time for a late-summer tournament.

**V**alhalla GC in Louisville, Ky., has hosted two PGA Championships since the mid-1990s. The club reconstructed nine tees after the first championship in 1996. Each year since, additional modifications have been made.

In preparation for this year's tournament, which took place in August, new tees were built on holes 1, 2 and 6, and existing tees were extended or enlarged on holes 3, 5, 11, 12, 14 and 18. The backside of the No. 8 green also was extended, and a bunker was added to the left side of the No. 9 fairway.

### The problem

This type of heavy-duty construction over the winter

months exacerbated crabgrass and goosegrass emergence in the spring because the reseeding and resodding that was necessary precluded the use of early-application herbicides. Preferential grasses need time to establish before herbicides can be applied.

By the time herbicides could be safely applied at Valhalla, much of the crabgrass and goosegrass that annually plagues the course already had already emerged. So applying herbicides that only have pre-emergence activity was useless. At the same time, products that only offer post-emergence control wouldn't prevent crabgrass that might germinate later. As a result, a product with a large window of pre- and post-emergent activity was

needed to maintain course aesthetics and playability.

According to CGCS Mark Wilson, crabgrass and goosegrass present more problems than merely being unsightly and adversely affecting play.

"These weeds rob nutrients from our more desirable grasses and shade them, robbing them of sunlight, when we need the grasses to grow and strengthen," Wilson says. "Weakened grasses are prone to diseases. We certainly don't need to find disease problems on the course in July and August."

It's vital not to have weak turf going into the heat of the summer, Wilson notes.

"Herbicide damage to reseeded or freshly sodded turf in the spring will lead to major problems with disease