

Weapons of War

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

By Frank H. Andorka Jr., Associate Editor

The 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) 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

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(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.

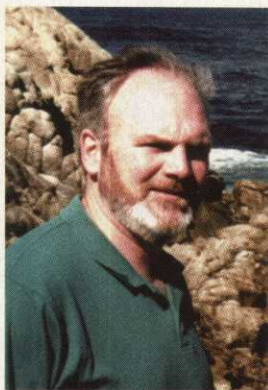
In 1994, the company was looking for courses willing to test its system, and Dennis Watkins, superintendent at Lords Valley CC in Newfoundland, Pa., agreed to try it.

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.

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TurfSite: Products and Examples

The E-Weather Service Tier 1 "TurfSite" products provide basic weather data for golf course management across the conterminous United States and Southern Canada. The tabular combination of forecast and summary and the graphical Turfgrass Canopy Forecast are presented as examples below.

TurfSite Daily Report: [Summary and Forecast](#)

Turfgrass Canopy: [Forecast](#)

E-Weather Service Tier 2 "TurfSite" products are designed for management. The examples below show the irrigation product as well as the TurfSite IPM.

TurfSite IPM: [Disease](#)

TurfSite Irrigation: [Greens](#) [Fairway](#)

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

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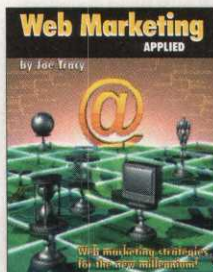
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outbreak this year, some plant pathologists remain skeptical, and caution superintendents against putting all their faith in Skybit forecasts to fight disease.

"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." ■