Tips

Mapping a Fungicide Plan

Knowledge, gathering information vital to the process

By Peter Blais

Jim Hodge walks Val Halla GC every day to check the turf on the Cumberland, Maine, course for signs of problems. He watches the weather expected to hit the area to check for potential disease-inducing conditions. Most of all, he calls on his 11 years experience as superintendent of the municipal layout when mapping out his $15,000 annual fungicide plan.

"I know the telltale signs of certain diseases and where they're going to hit," says Hodge, whose plan includes monthly preventative applications to his greens and two fairway treatments in the more-humid months of July and August. "I'll monitor those areas and put a preventative down."

Knowledge

As Hodge and other course managers understand, diseases can wipe out a golf course — and a superintendent's career — in a matter of days. What does a superintendent need to know to stop that from happening? Bruce Clarke, a Rutgers University professor and director of the school's Center for Turfgrass Science, listed several steps in mapping out a fungicide plan:

- List the course's key disease problems. Major problems every year need to be addressed preventatively. Those occurring infrequently can be treated curatively.
- Develop a schedule detailing when each disease is likely to occur throughout the season.
- Determine the best fungicides to control those diseases.
- Examine the full spectrum of those fungicides.
- Schedule applications so they suppress more than one disease at a time.

"You need to know the strength of the fungicide, what controls it best and then schedule preventative treatments when those diseases normally occur," Clarke says. "Don't apply preventative treatments for an infrequent disease.

"The more infrequent diseases can be treated on a curative basis," he adds. "Gray leaf spot, for example, occurs every three to four years in most locations, although some courses have the problem every year. Optimize the use of each product at the lowest rate possible."

Peter Farno, fungicide business manager of Chipco Professional Products, says once superintendents identify major diseases and determine whether to treat them preventatively or curatively, they need to develop a plan that rotates different types of chemicals. The pathogens that cause the disease will become resistant to a particular chemical if it is used repeatedly over a period of time.

If a superintendent continues to have problems with a particular disease following a fungicide treatment, chances are the pathogen is becoming resistant to that particular chemical, according to Wakar Uddin, an assistant professor of plant pathology at Pennsylvania State University.

"It could have been a sudden change in the fungal spores where the resistant population went up and the resistant group dominates," Uddin says. "Or it could be a gradual shift over time, from month to month or season to season."

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Superintendents should chronicle where diseases like *Rhizoctonia solain* occur on their courses for diagnostic purposes.

Superintendents must also be aware that regulatory agencies limit the amount of a particular chemical that can be applied on the same course.

"Certain chemistries are limited to maximum use," Farno says. "If the fungicide I choose covers all my problems and meets little resistance, I still can't use it endlessly. There is a capped-out usage."

History

According to Farno, Clarke, Hodge and others, a superintendent's biggest asset in mapping a fungicide plan is the history of the course. The superintendent knows the climate, the timing of certain disease outbreaks and how susceptible the course is to particular chemicals.

Hodge keeps track of when, where and what he applied and how long the materials were effective. "It's a matter of knowing what I've used and what I've gotten for results, keeping an eye

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on the weather and monitoring the fertility program, since it's geared toward disease resistance," he says.

BASF Marketing Manager William Strickland recommends mapping a preventative maintenance program on an Excel spreadsheet.

Gathering information

Where can superintendents gather information concerning diseases that are likely to strike their courses as well as ways to treat them?

Most depend heavily on local associations, universities and manufacturers offering field development and technical support, Farno says.

"The best way to stay informed is to attend turfgrass conferences," Uddin says. "Superintendents also need to read scientific journals. Decisions must be made on scientific merit. Don't make applications simply because something worked elsewhere."

For $20 a year, Rutgers sends out a twice-monthly pest-advisory newsletter that tracks potential disease outbreaks in various parts of New Jersey. Many states offer similar services through educational institutions, Clarke says.

Many superintendents rely on diagnostic labs to identify disease outbreaks. Rutgers is home to one of several well-known labs throughout the country.

"We received 3,500 samples from 18 states last year," Clarke said. "Rutgers fee is $50 in-state and $75 out-of-state with a 48-hour turnaround time. That's pretty reasonable to make sure you're putting down the right fungicide treatment when a single treatment often costs thousands of dollars."

Some superintendents take advantage of e-mail and online services that monitor weather conditions to help predict disease outbreaks. Dennis Watkins, superintendent of Lords Valley CC in Hawley, Pa., helped develop turf disease models for Skybit, a meteorological data-analysis company. Skybit takes site-specific meteorological data (which is broken down to 1-square-kilometer areas) and compares it to known disease models. Then it produces a daily report that depicts the potential for disease at a given site, Watkins says. The daily reports can be e-mailed or faxed to the subscribing course.

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Steven Langlois, who teaches in Rutgers' two-year golf course maintenance program, kneels next to a brown patch epidemic, highlighting the need for a plan.

"It's particularly helpful with the timing of my first and last pythium spray preventatives," says Mike McNulty, superintendent of Philadelphia CC and a Skybit subscriber for the past four years. "It could save a whole treatment. Being a 27-hole course, it could also save us as much as $10,000. I also have a lot of confidence in the gray leaf spot model."

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If symptoms like these show up on your course, it's possible that dollar spot has infected it.

Syngenta Professional Products offers Pest Outlooks, located at www.greencastonline.com. The free, online service uses weather data from the National Oceanographic and Atmospheric Administration, historical data and pest models to identify — on a weekly basis — climatic conditions that favor outbreaks of a variety of diseases and insects within various geographic areas of the country. The service covers seven of the most common diseases encountered by superintendents: dollar spot, gray leaf spot, summer patch, brown patch, pythium blight, rust and red thread. It also covers eight common white grub species, including Oriental beetle, May/June beetle, European chafer, masked chafers, Japanese beetle, Asiatic garden beetle and black turfgrass ataenius.

"It's a window to the future," says Joe DiPaolo, Syngenta's golf market manager. "Once superintendents know the likelihood of the disease appearing, they can go to where they usually see it [on their courses] and do some other things to verify its existence. [Syngenta Technical Manager] Dr. David Ross and his team have put together a series of turf-solution sheets that address what the pest problem is, when it occurs and what the different control options are. Those pieces of information let superintendents decide what they need to do and when they need to do it."

While these technical information-gathering tools are helpful in keeping turf diseases at bay, there's still no substitute for the firsthand research that superintendents like Hodge do on a daily basis.

"You take all the fancy equipment and new technology, and they're wonderful," Clarke said. "But the bottom line is that superintendents still have to walk around their golf courses." ■

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