By Anthony Pioppi, Contributing Editor

"Sustainability" just might be the hottest term in the golf maintenance universe.

The precise definition of the word depends on whom you ask or to what sector of the industry you are referring.

According to the Environmental Institute for Golf, "Sustainable practices consider the environment, the community and the financial requirements that contribute to the long-term success of the golf industry."

Greg Lyman, Director of Environmental Programs for GCSAA, says this definition is different from what a biologist might say. Lyman defines sustainability as, "more along in perpetuity with few inputs such as a wetlands system or a desert."

The goal, Lyman continued, is to "meet the needs of the present without compromising the ability of future generations to meet their own needs."

Fungicides that fit that definition of sustainability have a role in golf course maintenance.

"Fungicides provide another opportunity to be more effective with inputs," Lyman said.

Superintendents and chemical companies are working to make sure both are happy by being smart about fungicides.

Less dangerous, adequate control

When it comes to fungicides, sustainability is a topic on which superintendents and manufacturers focus. Utilizing fungicides that fit with sustainability is important to Sean Tully, the superintendent at the Meadow Club in Fairfax, Calif. Meadow Club has the distinction of being the first American design of English architect Alister MacKenzie, opening in 1927 some 25 miles north of San Francisco.

Having as little impact on the environment as possible is important to the Meadow Club members, Tully said. The topic of lessening the club's carbon footprint came up during a recent green committee meeting, including the possibility

of installing solar panels.

"We want to use stuff that's less dangerous," Tully said. "We do tend to lean towards fungicides that are a lower risk to us as users and still provide adequate control. We look at effectiveness of each product, potential risks, and cost, in that order."

The fungicides Tully wields include Affirm, Heritage and Medallion. Heritage is for the treatment of anthracnose and other summer diseases with Medallion used to combat brown ring patch and anthracnose in the summer.

He also sprays Agri-Fos in an effort to stave off sudden oak death that is wreaking havoc on the Meadow Club's oaks.

Another tool for helping with sustainability and fungicides for Tully is the TDR 300 Soil Moisture Probe. Tully said the tool gives him a much better understanding of the irrigation needs of his greens. This means he has been able to reduce his water usage and that led to a reduction in fungicides by either extending his application intervals or by eliminating an application altogether.

"We continue to look for other products that would benefit us and the environment," Tully said.

Jimmy Johnson is the fungicide product manager for Bayer. He said the company views sustainability as "a strategy that protects the environment and manages our resources for the future."

For Bayer, the StressGard technology found in five of its 11 fungicides that have applications for golf course turf is the best example of the company's aim.

"The direction with fungicides is putting a lot of focus on plant health promotion," Johnson said.

He pointed out that while the active ingredients in the StressGard products, Chipco Signature, Chipco Triton FLO, Interface, Reserve and Tartan, work well against pathogens, the role played by the non-active ingredients are just as important.

Those components, according to Bayer's own research, have been shown to strengthen cell walls or boost enzymes that have fungicidal capabilities or help protect cell walls from harmful radiation.

"They can not only control the target disease but also improve plant quality under stress," Johnson said. "We're seeing a healthier root system, which means it's going to be more resilient.

One result of a healthy plant is that it may require fewer inputs such as water and fertilizer, and there is even the possibility of extended time between spray intervals.

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PHOTOILLUSTRATION BY: CARRIE PARKHILL; SOURCE IMAGES BY: ISTOCK INTERNATIONAL INC.

"We want to use the stuff that's less dangerous," says Sean Tulley, superintendent at the Meadow Club in Fairfax, Calif.

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Tom Hill is the commercial manager, turf and ornamentals, for BASF. He said like all companies, BASF is working on solutions that provide economic, social and environmental benefits to the golf industry. For them, that not only pertains to fungicides that are sustainable, but the packaging as well.

This means out with the traditional plastic buckets and in with corrugated cardboard. The packaging holds 33 pounds of Curlan and could potentially eliminate, in the next two years, up to 150,000 pounds of plastic that would take up 35,000 square feet of landfill space.

Corrugated cardboard is replacing the plastic container.

Eventually, Insignia will be sold in 36-pound cardboard containers.

"For the turf professional, that means less impact. The cardboard will breakdown and it can be recycled," Hill said.

The idea of switching away from plastic is in line with the concept of "verbond," German for "no waste," according to Hill. He said it is a company-wide concept, not just in the golf turf business.

Hill also said there is anecdotal evidence, "right now, no definitive data," that pyraclostrobin, the active ingredient in Honor and Insignia fungicides, strengthens plants and leads to longer root systems, making them more resistant to drought.

GCSAA's Lyman applauds those companies working on behalf of the environment as well as the superintendent. He encourages superintendents to seek out and use the best available products.

"The way forward is with more technology, more knowledge, fewer inputs," Lyman said. "Another step towards improving the environment you manage."

Lyman recognizes it's a big investment for manufacturers to continue to fund the search for new chemistries that meet the tough EPA standards.

"We think it's important to support companies that can afford the research and development," Lyman said.

What your budget wants

For some superintendents like Adam Ikamas, sustainability in regards to fungicides translates to using as little as possible, which reduces the budget, and not so much worrying about the new chemistries.

"Losing money out of the front end, that's not sustainability," he said.

In 2009, Ikamas undertook an experiment to see how much he could reduce his fungicide usage on fairways. That year he applied 15 percent less fungicide to one fairway on the 36-hole Crystal Mountain Resort and Spa in Thompsonville, Mich. While there was increased disease on the trial site, it was not enough to make him turn back. Instead, in 2010 he reduced usage on a fairway by 25 percent. Ikamas is encouraged by the results, and next year four fairways will see fungicide application cut by 25 percent.

"We'll see what happens. If we like the results, all the golf courses will be reduced by 25 percent," he said.

The final number may not reach that level, but that is fine with Ikamas as long as there is a decrease.

PHOTOS COURTESY: SEAN TULLEY, MEADOW CLUB

"Maybe it will only be 10 or 15 percent," he said.

Ikamas said he would monitor the *Poa annua*, the dominant grass on his course, to see how much stress it can take. Ikamas' efforts are somewhat hindered by an old irrigation system that does not allow him to manage small areas.

"My goal is to see how far we can push it (*Poa*), and see what fills in," he said.

Ikamas pointed out not all superintendents could copy what he is doing since off-color or dead turf might cost them a job.

"Ninety percent of superintendents apply more than they need just to protect themselves," he said.

He added that he thinks it is a wise strategy for superintendents to try and reduce fungicide applications on their own. Ikamas said too many superintendents "lean on their budgets" to keep the course in great shape, while not looking for cheaper alternatives. That process, he said, can end up getting a superintendent fired when their budgets are cut significantly in a cost-saving move by the club for which they work.

As the experiment on the fairways continues, Ikamas said application on greens will stay at the current rate, for now, but may change eventually. On the other hand, he is targeting tees as an area that can receive fewer inputs as well.

"It's the only place on the golf course where you can improve your lie," he said. "Why are we spraying every two weeks?"

According to Ikamas, a key to sustainability and fungicides, or any input, for that matter, is for a superintendent to know his own golf course and situation.

"You have to find what your members want. You have to find what your budget wants," he said.

It's a point to which the GCSAA's Lyman agrees.

"Supers are the key managers of change," he said. ■