

THE 2011 PLANT HEALTH SERIES



A SUPERINTENDENT recently told us that because he had made a fundamental change in the way he maintained his golf course, he was now able to sleep better at night.

So we try to understand this at *Golfdom*: That the health of a superintendent's turf is so important that it actually has an impact on the health of superintendents themselves. It's not so hard to fathom; when turf is stressed, so are superintendents.

And guess what? Here comes what will probably be another hot summer that will challenge turf managers across the nation.

That's why *Golfdom*, in partnership with BASF Professional Turf & Ornamentals, is bringing readers the three-part 2011 Plant Health Series. Part 1 begins right here, while parts 2 and 3 will be coming in the next two months. All three parts of the series are sponsored by BASF Professional Turf & Ornamentals.

When your turf is stressed, you're stressed. *Golfdom* and BASF want you to have better success with your course, and maybe even get a better night's sleep because of it.

Why? Because you deserve it.

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Real World Science Focused for Superintendents

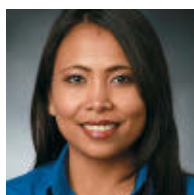
After more than three years of turf research Intrinsic brand fungicides from BASF delivered golf course superintendents an industry-first in 2010: fungicides labeled for disease control and plant health benefits.

Based on the proprietary active ingredient pyraclostrobin, Insignia SC Intrinsic brand fungicide and Honor Intrinsic brand fungicide from BASF provide broad spectrum control of the top diseases challenging turfgrass playability as well as plant health benefits that help turf to better withstand stresses from the inside out.

But the real benefit is below ground.

While the surface of turfgrass treated with an Intrinsic brand fungicide may not appear any different than turfgrass treated with other fungicides, including other strobilurin class fungicides, the roots and plant systems treated with Intrinsic brand fungicides show a substantial improvement in overall health.

BASF research shows pyraclostrobin primes the plant's immune system before a stress event occurs, which helps the turf endure and overcome the event through root retention. In addition, it helps the plant operate more efficiently and effectively, making the turf more able to withstand disease and environmental stresses, including drought, moisture, temperature ex-



BY THAVY STAAL

temperes, as well as mechanical stress, such as aeration.

Speaking of aeration, BASF worked with superintendents across the U.S. last spring and summer to better understand the effects of Honor Intrinsic brand fungicide on turf root systems. Superintendents were asked to time the fungicide application for preventative disease control and prior to a stress event such as aeration in order to benefit from the plant health effects of Honor Intrinsic. Root cores were pulled and sent for analysis using a root scanning system called WinRHIZO. Not surprising, results paralleled that of greenhouse research — turf treated with Honor Intrinsic brand fungicide resulted in increased total root length compared to standard treatments.

BASF will be conducting more real world research this spring and summer that focuses on the effects of turf root systems from additional stress factors such as temperature extremes. Our research shows turf treated with Intrinsic brand fungicides are less sen-

sitive during drought by moderating temperature of leaves and canopy and can be visualized via infrared photo.

One can only guess what the 2011 season will bring but two things are certain: after turf breaks from its dormancy, turf stresses will follow. And when used in an integrated pest management program, Insignia SC Intrinsic and Honor Intrinsic manage disease, enable plant health and help to reduce labor costs, which all help superintendents sleep easier at night.

BASF science helps superintendents get more out of their disease control program investments. Consider incorporating an Intrinsic brand fungicide into your disease prevention and treatment program, and share your disease control and plant health results with our team.

Learn more about Intrinsic brand fungicides at www.Intrinsic-PlantHealth.com and other BASF Professional Turf & Ornamentals innovations at www.betterturf.basf.us. ■

Thavy Staal is marketing manager for BASF Professional Turf & Ornamentals.





The NEW Plant Health

BY SETH JONES AND BETH GERACI

Every day, superintendents are trying to get more bang for their buck.

It's a tough economy, and with gas prices soaring, any little edge they can give their courses is a valuable addition.

Enter the new plant health label.

Like seeing an extra 33 percent added to your Snickers bar for free, adding the additional benefit of plant health to a product that treats for diseases is pretty much a home run, right?

Many superintendents and researchers are on board with the added value, while some researchers remind us that though added benefits are good, superintendents still have to be mindful of what they're applying to their courses, and why, exactly, they're applying it.

Disease control and plant health

The plant health label hasn't permeated the industry yet — *Golfdom* only counts two companies, BASF and Bayer, that currently sell fungicides with plant health on the label — but the word is spreading.

Last year BASF Turf & Ornamentals launched an umbrella brand called Intrinsic for all of their products that are labeled for plant health in the turf and ornamental market. Currently two products fall under this category, Honor and Insignia SC fungicides.

This year Bayer Environmental Science also received EPA approval to add plant health to two of its fungi-



Getting its start in the crop industry, it's now moved over to turf. So what does "plant health" on a label mean to superintendents and their turf?



These two words are starting to show up on fungicide labels in turf.



Label

cides: Interface and Reserve.

So what exactly does “plant health” mean?

Karl Danneberger, Ph.D., professor of horticulture and crop science at The Ohio State University and *Golf-dom*’s science editor, said that the term seems to be growing in popularity every day.

“What I think of when I hear ‘plant health’ is that these products provide something to the plant not directly related to the disease control,” Danneberger said.

Thomas Hill, communications manager, specialty products for BASF, said he often hears the plant health question from superintendents.

“On the crop side, farmers understand it gives greater yield. On the turf side, you don’t want more turf, like a farmer would want a greater yield of corn,” Hill said. “(In golf) we’re looking at the effect on the plant. And what we’ve discovered is that our products are creating a stronger root system, which allows the plant to better recover from stress.”

Danneberger said he likes the idea in theory, with one caveat.

“The idea is good — having side benefits, helping the plant get through stress better,” Danneberger said. “But there has been some concern; Are superintendents going to use the product for the disease control, which is what it’s for, or the plant health, which is supposed to be the side benefit?”

Origins in agriculture

Like many products in the turf and ornamental industry, the origins of the plant health label can be traced back to the agriculture industry.

Back in January of 2009, a fungicide in the agriculture industry called Headline stole the headlines. A BASF product, the company heralded it as the “most researched fungicide on the market” with more than 7,000 farm trials conducted on over a million acres in seven years. In trials Headline showed the ability to increase the yields of corn, soybeans, cotton and wheat.

“We saw the plant health effects in a variety of crops,” said Brian Lish, business manager for BASF Professional Turf & Ornamentals. “Our team started looking at the impact pyraclostrobin (the common ingredient in BASF’s Intrinsic fungicides) had on turf and ornamentals. It took them two or three years to see that the impact it has is longer, stronger roots.”

Lish said acquiring the plant health label was a significant undertaking for the company.

“It’s not just a simple task to go out and get an EPA-approved label with plant health on it,” he said. “We had to demonstrate with sound science the benefits pyraclostrobin has on turf. It cost a little bit of money, took a lot of time and a lot of sweat. We’re happy to know we have the sound science behind our label.”

According to an Environmental Protection Agency (EPA) spokesperson, to be approved by the agency, products must meet federal safety requirements stipulating that the product will not have unreasonably adverse effects on the environment or human health, and, of course, accomplish what the label says.

The EPA stated that it often takes one to two years for products to be approved, depending on how the product will be used.

Richard Rees, senior principal scientist in the turf, plant health and vegetation management areas for Bayer Environmental Science, said it took Bayer about three years to get approved for the plant health label.

“We have to do a tremendous amount of field work to prove these claims. We have to submit everything from turf color, quality, density — anything we want to put as a claim on the label, we have to submit to EPA,” Rees said. “It’s a tremendous amount of trial work. It’s quite detailed and expensive.”

Superintendents on plant health

One believer in the plant health label is Carlos Arraya, superintendent at Hawk’s Nest Golf Club in Vero Beach,

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Fla. He treats his greens with Honor Intrinsic fungicide. Arraya began using the product in response to problems he noticed on his greens a couple years ago. Within two months of applying the product, he noticed the grass had better resiliency, he said.

"It gives us better protection," he said. "The grass stays healthier for a longer period of time through periods where there's stress. All in all, it just has the ability to bounce back."

If a course's turf is under stress, said John Hoofnagle, superintendent at Bookcliff Country Club in Grand Junction, Colo., "it's certainly not going to be a positive for conditions on the golf course. You've got to have a healthy stand of grass to appease golfers."

Hoofnagle wasn't familiar with the plant health label, but said he'd learn more about it because it was such an important topic.

"It's a huge subject," he said. "It's everything, when I hear those words."

Arraya echoed those sentiments. "Plant health is the number one driver to what we do," he said. "Without that healthy plant, you're up the stream without a paddle, so to speak."

David Phipps, superintendent at Stone Creek Golf Club in Oregon City, Ore., said he felt the term "plant health" has been over-used as of late, but understood the importance of the term.

"Plant health is vital to our industry," Phipps said. "A plant has to be healthy."

Especially on greens, said the superintendents *Golfdom* spoke with.

Why? "Golf is an extreme sport on turf," Phipps explained. "Greens are put under extreme stress."

Learn through experience

One concern of Bruce B. Clarke, Ph.D., vice chair of the department of plant biology and pathology at Rutgers University, and echoed by Danneberger, was that superintendents should keep in mind that over applying any chemical to treat diseases could result in problems.

"I think superintendents have to realize that if they use fungicides more often than they normally would for dis-

ease control, with the idea that they're going to promote plant health... that comes with it some potential risks," he said. "Many superintendents I've talked to say this is a non-issue, because the fungicides are expensive, they wouldn't use them as plant growth promoting products alone, they'd use them as fungicides which happen to have growth-promoting properties."

Hill said that his staff gets questions about the plant health effects, and they always give superintendents a clear idea of what to look for.

"We tell them that we already know it's a great disease control product, we know they're going to see that performance," Hill said. "We tell them to wait for a stress period — impending weather, tournament conditions,

Like many products, the plant health label got its start in the ag industry.

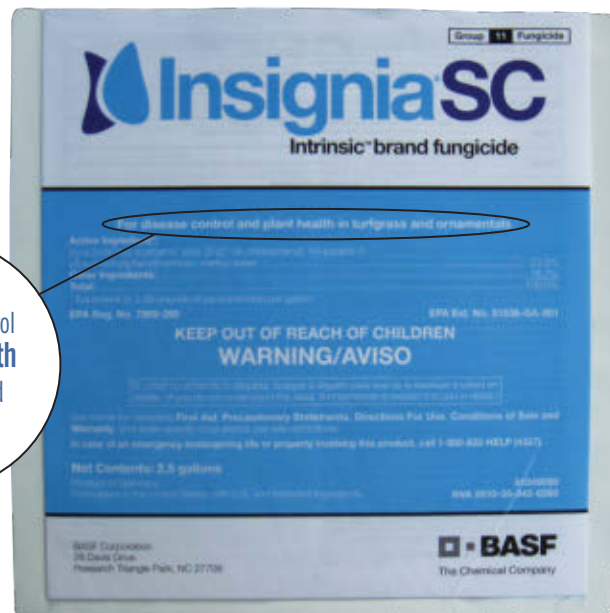
an aerification. Then apply it and call us. Do you see the aerification holes closing faster? Is the turf recovering faster than other areas where you didn't spray?"

Peter Landschoot, Ph.D., professor of turfgrass science at Penn State University, said that the best way to learn about plant health is through experience.

"Plant health is just a balancing act right now. How many inputs do you put into your plant to make them functional yet not overdo it to make them contribute to this environmental problem



For disease control and plant health in turfgrass and ornamentals





we're having?" he asked. "You can't control the weather, (or) getting your budget cut, but what you can control is the inputs. It takes someone with managerial skills to get the proper balance of maintaining a functional, healthy stand of turf, but not overdoing it to the point where turf becomes unhealthy or you're contributing to environmental degradation.

"Getting education is not enough — you need to get experience."

Infancy of plant health

So are we in the golden age of the plant health label? Will superintendents see this term used more and more around the industry?

Golfdom's Magic 8 Ball says "All signs point to yes."

"The term goes right down to the soil," Landschoot said. "They're different, but they definitely affect each other. (And) if you don't have good soil, you don't have good plants."

"The superintendent is already seeing the benefits of the plant health claim out in the field," Bayer's Rees said. "The reason these claims are important to have on the label is that we can now legally place this in our advertising to tell our customers."

BASF's Hill said, "We're proud to say we were the first fungicide in the market with plant health on the label. It's

The above turf was planted in tubes and set at 45-degree angles so the roots would be visible. The turf was treated with an Intrinsic brand fungicide or a competing strobilurin fungicide used at the high labeled rate. The control represents untreated turf.

The turf was planted on March 1, 2011, and treated on the same day and then again 14 days later. The photo was taken April 12, 2011. The tubes with turf treated with Intrinsic brand fungicides appear to have more and longer root systems.

a huge deal. The question is always, 'What's the next innovation?' I appreciate hearing (superintendents) say that they appreciate the branded products because they want to support the research and development. You daydream about people saying that."

Lish agrees that this is just the beginning of something bigger for the turf industry.

"I think we're just in the infancy of saying, 'here is what we can do with our Intrinsic products,'" Lish said. "Do I think we'll make it more robust? Yes I do. I think we'll continue to screen for and identify ingredients that improve turf."

But at the end of the day, Lish said, it all comes down to his customers wanting stronger roots.

"If we go into a stress period with healthier turf, we should also come out of that period healthier." ■