

# DISCOVERING A 'GREEN' MINE

BY **MARTY WHITFORD**  
EDITOR-IN-CHIEF

Bayer and North Carolina State University are collaborating on a plethora of plant health research projects. One look in the mirror behind NCSU doctoral student Shannon Sermons reflects the pack of trade media reporters who toured NCSU's phytotron during Bayer Environmental Science's inaugural Plant Health Symposium, held Nov. 10-11 in Raleigh and Clayton, NC.

Bayer Environmental Science's first-ever Plant Health Symposium brings together landscapers, golf course superintendents, academia and trade media to discuss the key roles of turfgrass, trees and plants in sustainability, and related research, testing tools and formulations.

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FIRST, BAYER PLANTS the seeds. Then it plants the trees.

"Sustainability has long been a way of life for us at Bayer — but now we're sharing more, regarding our key role in environmental stewardship, through endeavors such as this Symposium," said Nick Hamon, Bayer Environmental Science's vice president of product development and sustainable development.

"As you can tell by my title, for Bayer, product development and sustainability go hand in hand," noted Hamon during a beverage break at Bayer Environmental Science's inaugural Plant Health Symposium, held in Raleigh and Clayton, NC, Nov. 10-11. "This Symposium will help us collaborate, innovate and educate. Today and tomorrow, we're planting more seeds to sustainability. After the Symposium concludes, we'll plant a few more trees to offset our carbon footprint from this meeting."

A group of about 25 landscapers, golf course superintendents, North Carolina

State University (NCSU) "turf doctors," trade magazine editors and Bayer Environmental Science team members comprised the Symposium's participant mix.

Healthy, well-maintained green spaces with turfgrass, trees and plants, can work wonders to decrease erosion, buffer noise, reuse water, promote biodiversity, sequester carbon and cool outdoor temperatures, noted Dr. Tom Rufty, director of the Center for Turfgrass Environmental Research and Education and professor of environmental plant physiology, NCSU's Department of Crop Science.

Dr. Rufty noted the world already is grappling with limited oil and water resources and significant climate shifts — and he, Hamon and other Symposium speakers suspect carbon output caps and credits similar to those already adopted by the European Union soon might be *mandated* in the United States. Further demanding more-sustainable practices, the world's population is projected to



An infrared gas analyzer tests the carbon sequestration capabilities of tall fescue (left) and bermudagrass (right) at Bayer's Clayton (NC) Development & Training Center.

mushroom from about 6.9 billion people today to 9.2 billion by 2050.

"As countries like China and India continue to industrialize and grow, resources are going to become more costly and less available," said Dr. Rufty,

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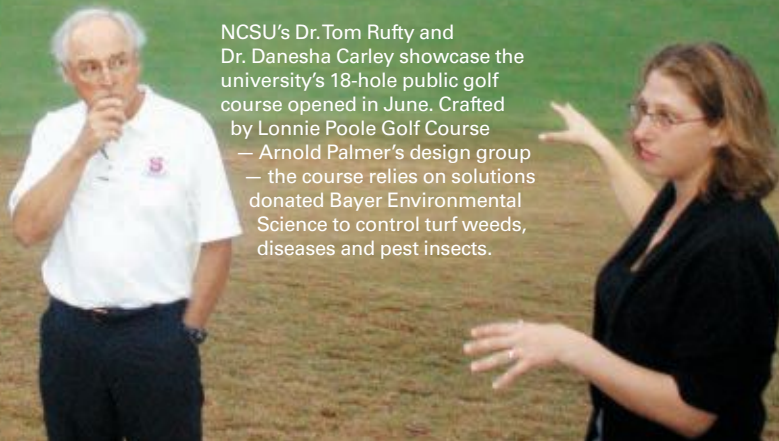
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## GREEN MINE



NCSU's Dr. Tom Ruffy and Dr. Danesha Carley showcase the university's 18-hole public golf course opened in June. Crafted by Lonnie Poole Golf Course — Arnold Palmer's design group — the course relies on solutions donated by Bayer Environmental Science to control turf weeds, diseases and pest insects.

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recently named the first Bayer Environmental Science Professor of Sustainable Development, a chair endowed by the Bayer CropScience business unit. “Ready or not, like it or not, we are challenged with using our resources much more efficiently and better protecting our environment — while maintaining the quality of life we value so much.”

### Nurturing green spaces

Dr. Ruffy noted 1 hectare (2.47 acres) of healthy turfgrass can sequester 1 ton of carbon emissions annually. The United States is home to up to 60 million acres of turf, capable of storing a combined 24 million tons of carbon each year. Healthy trees reportedly store another 3,200 lbs. of carbon per acre annually.

Lawn care chemicals help combat turf weeds, diseases, pest insects, and heat and water stress. They are part of the solution — not the problem, Dr. Ruffy said. These Green Industry innovations help protect our turf and, in turn, our ability to sequester carbon and keep temperatures from rising higher than the 6- to 7-degree climb already projected by some scientists to occur in the coming decades.

“There are a lot of misperceptions about lawn care chemicals,” Dr. Ruffy explained. “For instance, our research shows very little leaching with pesticides on turfgrass. Pesticides last five to 10 times longer in agricultural settings.”

In addition to carbon sequestration, turfgrass rapidly is becoming a key effluent dispersal solution. As populations bloom and fresh water supplies dwindle

across the globe, intelligent irrigation on green spaces increasingly will incorporate the reuse of “gray water.” However, Dr. Ruffy noted some studies have shown an increased need for fungicides in such cases to ward off heightened vulnerability to dollar spot and other diseases. More studies need to be conducted, but there also might be a greater need for weed and pest control solutions on effluent-irrigated turf.

### Turf research central

Bayer's Development and Training Center is a 280-acre research site in Clayton featuring four golf course holes, a number of 20,000-sq.-ft. “super greens” and more than 50 types of cultivars used for testing sustainable turf solutions under an array of stress scenarios.

“We're located in the transition zone: We can work with warm- and cool-season turf,” said John Rock, manager of technical information for Bayer's Clayton D&T Center. “Neither type is extremely happy here, but that's a benefit to us as we test the stress tolerance of various turf types.”

“We joke that we can grow every single type of turf here — but badly,” Hamon chimed in.

“And my home lawn testifies to that,” Rock added.

Bayer's Clayton D&T Center also houses an 8-acre ornamentals nursery.

“We recently added a chain-linked fence around the nursery because it had become quite the salad buffet for deer,” Rock said.

The Center also serves as a proving grounds for all types of John Deere equipment.

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## GREEN MINE

Participants in Bayer Environmental Science's first-ever Plant Health Symposium survey NCSU's outdoor turf lab spanning more than 24 acres. Approximately 6 acres have been added for NCSU's new turf breeding program.



Dr. David Spak, Bayer Environmental Science's herbicide lead – product development, shares how Bayer is leveraging GPS and radiometer technologies to measure and digitally map plant health.



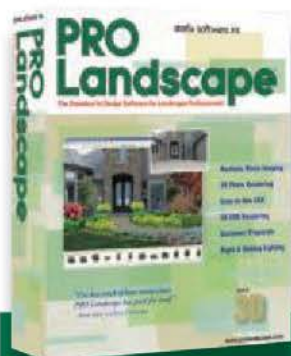
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Bayer's close collaboration with NCSU gives the partnership access to:

- The vast Clayton D&T Center, where staffers deploy technologies such as an infrared gas analyzer gauging the carbon sequestration of different turf types, and a GPS-radiometer tech duo that allows easy measurement and digital mapping of plant health;
- NCSU's outdoor turf lab, spanning more than 24 acres; 6 acres recently were added to accommodate a new turf breeding program;
- NCSU's phytotron featuring more than 70 environmental chambers for testing plant health under various controlled conditions; and
- NCSU's 18-hole public golf course, which opened in June and relies on a host of Bayer Environmental Science's Green Business solutions to sustain plant health.

Symposium participants received backstage passes to tour all of the facilities.

### Forward acting

According to Bayer Environmental Science, much of it boils down to:

- 1. Sustainable Development** — "A commitment to living and conducting business in a way that meets the needs of the present without compromising the ability of future generations to meet their needs."
- 2. Greening and Growing** — "Managing



harmful plants and pests while improving plant health, and contributing to the well-being of people and the quality of their urban and recreational environments.”

**3. Together with Nature** — “Reducing our footprint and fostering environmental stewardship” through, among other practices:

- Manufacturing processes that reuse water and reduce greenhouse gas emissions and freight;
- Packaging that incorporates more recycled content; and
- The development of new technologies featuring low-dose active ingredients, more-targeted applications and integrated pest management (IPM).

Bayer Environmental Science’s commitment to sustainability has yielded myriad advances.

“We recently received registration for Celsius, our newest post-emergent herbicide that attacks weeds through their shoots and roots,” noted Matt Bradley, Bayer Environmental Science’s herbicides marketing product manager. “The development of Celsius required a significant investment, but it paid off with a new formulation for warm-season turf that combines three active ingredients to achieve improved weed control with 25% to 75% *less* active ingredient.”

StressGard is another gem discovered during “green” mining, noted Richard Rees, Bayer Environmental Science’s fungicides product development manager. Incorporated within several Bayer Environmental Science turf management solutions, StressGard protects against environmental stress and disease, while improving turf quality and overall plant health.

Bayer Environmental Science has made sustainability — namely,

“*Protecting Tomorrow ... Today*” — the primary principle behind its strategic, operational and cultural activities, said Neil Cleveland, director of Bayer Environmental Science’s Green Business.

“Bayer Environmental Science’s CEO, Pascal Housset, has great vision,”

Cleveland noted. “Years ago, Pascal said, ‘We need to move from killing stuff — weeds, diseases and pest insects — to greening and growing.’ And, today, that’s precisely what Bayer Environmental Science and this Plant Health Symposium are all about.” **LM**

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## HYDROSEEDERS

Neil Cleveland, Bayer Environmental Science's director of Green Business, discusses the Green Industry's role in "providing great places for people to live, work and play."

