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“Profile” Kit Proves a Valuable Tool for Battling Brown Rot in Southeastern Peaches

By Paul Smith, Georgia IPM Coordinator

Collectively, Georgia and South Carolina make up the second largest peach producing region in the United States. Guido Schnabel, associate professor of fruit pathology from Clemson University, and Phillip Brannen, associate professor and extension fruit specialist from The University of Georgia, have teamed up to develop a monitoring system for detection of fungicide resistance in *M. fructicola* (Brown Rot), a major fungal pest of peaches in the southeast. This pathogen can devastate orchards if left uncontrolled, and it is largely the use of systemic fungicides that allows for control.



Brown rot on peaches

Over time, *M. fructicola* may build up genetic resistance to these fungicides. The aim of this

collaborative effort is to

identify *M. fructicola* resistance prior to major economic losses, and make appropriate recommendations to producers for effective management of this pest. This collaboration has resulted in development of the Profile kit, a self-contained resistance management system that can be utilized by any trained individual.

The Profile kit is able to detect resistance to three major systemic fungicide



The Profile kit

classes commonly used to control brown rot. These are the benzimidazoles (BZIs), the demethylation inhibitors (DMIs) and the quinone outside inhibitors (QoIs). The Profile kit is a lip-balm assay system developed using growth media infused with concentrations of fungicides sufficient to control typical populations of *M. fructicola*. Extensive growth of *M. fructicola* on slices of fungicide treated growth media after 72 hours would indicate resistance, alerting the grower of a problem. Being informed that resistant strains are present in their orchards, growers may select alternative, active fungicides for future use. Extension pathologists can also monitor resistance trends in the area. This information will benefit producers by supplementing local knowledge with a more global understanding of the disease patterns, thereby educating producers of trends in their region.

The effectiveness of this program was demonstrated during the 2009 growing season. Data collected from numerous disparate locations throughout the peach producing region of Georgia indicated DMI resistance in some areas. Producers were informed of their individual resistance issues, and recommendations were made to avert destructive epidemics of brown rot throughout the state as the season progressed. The ease of use of this system,



Continued on next page

Profile kit (continued)

and its relatively low cost make it a valuable management tool for southeastern peach producers. In addition, since the testing kit is fully self contained, and does not require the use of specialized equipment, it can easily be modified for use in other cropping systems.

Because of the kit and increased monitoring efforts, peach growers in Georgia and South Carolina saved \$20 million in what could have been losses in yields and wasted fungicide applications. Visit www.peachdoc.com for more information on the Profile kit.

Louisiana IPM Coordinator Receives Friends of IPM Lifetime Achievement Award

Besides a plaque and a bit of recognition, Clayton Hollier received something he didn't expect during his Friend of IPM Award presentation: a standing ovation.

"I've never gotten a standing ovation before," he said afterwards.



From L to R: Jim VanKirk; Dr. Paul Coreil, AgCenter Vice Chancellor for Extension; Clayton Hollier; LSU AgCenter Chancellor Bill Richardson; Dr. David Boethel, AgCenter Vice Chancellor for Research

Hollier's accomplishments earned him both the award and the standing ovation. At the AgOutlook Conference on January 21 in Alexandria, Louisiana, director Jim VanKirk from the Southern Region IPM Center presented Hollier with the Friends of IPM Lifetime Achievement Award.

One of six Friends of IPM awards sponsored by the Southern Region IPM Center, the Lifetime Achievement Award recognizes a person who has made significant contributions to the field of IPM during his or her career. Hollier began making those contributions just after arriving at Louisiana State University.

Before Hollier began his career at LSU, he used IPM as a research technician at the H.J. Heinz Company research facility in Merigold, Mississippi. From there he continued his IPM education as a graduate student in plant pathology at Mississippi State University.

After he graduated from Mississippi State, he started his new career as a plant pathologist in the Louisiana State University AgCenter.

As Hollier began working with growers on disease management, he found that most growers used fungicides and antibiotics to prevent disease. He presented his first workshop to a group of rice growers in Acadia Parish, none of whom had ever heard of IPM. Over the next several months, Hollier taught them about scouting for diseases and preventing pathogen development by changing planting and fertilization practices. He created a new disease management approach for them and growers of other crops that began with pre-plant decisions like fertilizer, variety selection and planting site preparation and ended with harvest and post-harvest disease management.

Hollier (continued)

Hollier's disease management approach in Louisiana soon became one of the recommended approaches for the entire Southeast. In 2000, he and three of his colleagues collaborated and published *Management of Wheat Diseases in the Southeastern United States: an Integrated Pest Management Approach*.

Hollier educated both growers and university students alike. During his 28 years at LSU, he authored several chapters in textbooks explaining IPM principles and practices in farming. He routinely teaches extension agents, agricultural consultants, pesticide applicators, home gardeners, producers, Master Gardeners and agribusiness clients at field days and individual workshops.

According to the Louisiana Department of Environmental Quality, his audience has been listening. Water quality tests on the Mermentaud River, Bayou Queue de Tortue and Quachita River basins have shown that pesticide levels in those rivers has decreased significantly, in part because of the

IPM practices that growers along the basins have adapted.

As Louisiana's IPM Coordinator, a responsibility that he gained in 1996, Hollier challenged traditional approaches to the IPM program. In addition to entomologists, Hollier included plant pathologists and weed scientists in the program. He began and maintained a mini-grants program to fund small IPM projects led by Extension agents. He used Internet technology to reach a broader base of Louisiana citizens by creating a website called *IPMLouisiana*.

Twice a year Hollier travels to Raleigh, North Carolina, to serve on the Southern Region IPM Center Advisory Council.

VanKirk said that Hollier was a model to all IPM professionals.

"Because of his efforts, the water is cleaner," he said. "People throughout the state are learning about IPM. Impacts like that make our jobs easier."

Dr. Danesha Seth Carley Joins SRIPMC



Dr. Danesha Seth Carley, our new Assistant Director, joins us from the NCSU Crop Science department, where she is Director of Environmental Physiology Field Studies with

the plant physiology laboratories. With a masters degree in entomology and plant pathology and a double Ph.D. in plant pathology and crop science, Danesha has a strong background in applied research and IPM. In fact, in her previous position, she supervised the design of NC State's new Lonnie Poole Golf course, choosing elements that would help conserve water and reduce pesticide inputs.

Danesha is working several projects with SRIPMC. First, she will work on Transition Plans for the National Plant Disease Recovery System (NPDRS) through the USDA Office of Pest Management Policy. She is also working with USDA Natural Resources Conservation Service on the Conservation and Environmental Assessment (CEAP) Project.

Danesha will also head up SRIPMC's evaluation efforts, beginning with a call for reports from past IPM Enhancement Grant projects.

When she's not doing work for SRIPMC, Danesha is teaching people about IPM. She teaches the graduate-level IPM course at NCSU, instructs middle and high-school students about IPM and ecology on the Lonnie Poole, and manages the continued design of the course.

North Carolina School IPM Specialist Receives Friends of IPM Educator Award

Amidst a crowd of entomologists from the Southeast Branch of the Entomological Society of America, Dr. Godfrey Nalyanya received this year's Friends of IPM Educator Award from the Southern Region IPM Center.

Steve Toth, associate director of the Southern Region IPM Center, presented Nalyanya with the award during the Southeast Branch's award luncheon on March 9. Nalyanya won the award because of his excellence in educating school personnel about integrated pest management (IPM).

Toth cited Nalyanya's work as "an educator, conducting seminars, training workshops, and consultation meetings for pest management professionals, administrators, teachers, and school support staff within the past five years."

Because of Nalyanya's IPM workshops, 76 percent of North Carolina's 115 public school districts are now using IPM to manage pest problems. Many other districts are beginning IPM programs.

The Southern Region Integrated Pest Management Center fosters the development and adoption of Integrated Pest Management (IPM), a science-based approach to managing pests in ways that generate economic, environmental and human health benefits. The center, which is located at North Carolina State University, works in partnership with stakeholders from agricultural, urban and rural settings to identify and address regional priorities for research, education and outreach.

When Nalyanya and retired N.C. State crop science professor Dr. Mike Linker first started the school IPM program in 2001, school districts contracted with pest control companies to spray for pests on a scheduled basis.

Nalyanya introduced school maintenance personnel to the concept of monitoring for pests. He also trained them how to prevent pests from entering their buildings. Over 4,700 people have

attended Godfrey's training events.

The Friends of IPM Educator Award is one of six possible Friends of IPM awards given annually by the Southern Region IPM



Godfrey Nalyanya (L) with Steve Toth (R)

Center. This year marks the third year of the award. The educator award goes to someone who has proven excellence in teaching or training, and whose lessons have had impact.

Not only have Nalyanya's workshops influenced school personnel to change their method of pest management, but a 2009 research project on cockroach allergens led more school districts to switch to IPM. The results of the study were published in the *Journal of Medical Entomology* in May 2009.

In 2006, the school IPM program contributed to the passage of the North Carolina Schoolchildren's Health Act (G.S. 115: 47). The bill mandates all public school districts to notify parents, guardians and staff about pesticide use on school property, and to implement an IPM program by October 2011.

Originally from Kenya, Nalyanya completed his graduate education at North Carolina State University under NCSU entomology professor Dr. Coby Schal. In 2001, he began working with Linker on the new school IPM program.

He and Linker shaped the program, instituting a statewide award program for North Carolina school districts and personnel who adopted school IPM programs. Colleagues from other

Continued on next page

UGA Center Receives Plant Biosecurity Grant

The University of Georgia's Center for Invasive Species and Ecosystem Health has been awarded a \$328,714 grant from the USDA National Institute of Food and Agriculture (NIFA) to provide high definition videos and presentation materials on high consequence plant pathogens, arthropods and invasive plants. These videos will be used by public and private sector, plant biosecurity personnel and first detector educators to educate people on detection and response procedures to new introductions.

Invasive pest species cause billions of dollars in economic losses to cropping and natural systems each year in the United States. These non-native species grow and reproduce rapidly, cause major disturbance and harm to the environment and economy.

The Center's team, led by Dr. David Moorhead, Dr. Keith Douce, Joe LaForest and Chuck Barger, will develop an online system called BugwoodVideo that brings together new and existing videos. This new system will integrate with the Center's existing image database and other resources. All content will be available at no cost for educational use as long as the work is cited. Videos will help better illustrate complex procedures used in diagnosing identifying, and responding to new pest introductions.

The three year USDA NIFA grant is a joint effort between the University of Georgia, Colorado State University, University of Florida and Texas A&M. These organizations

will work together to help farmers, foresters, educators and professionals learn about and implement strategies to safeguard U.S. agriculture.

The project will provide knowledge and decision support to anticipate, predict, prepare for, and respond to high consequence agricultural threats. It helps to meet the training needs of multiple agencies as well as the general public.

The University of Georgia's Center for Invasive Species and Ecosystem Health utilizes partnerships and information technology to advance invasive species, forestry and agriculture education. It is collaboration between UGA's Warnell School of Forestry and Natural Resources and the College of Agricultural and Environmental Sciences. The Center operates the Bugwood information systems, and collaborates with a wide range of educators and other professionals across the United States. Bugwood delivers unbiased educational information to users through a network of integrated and user-focused websites, publications and educational meetings. The Bugwood Image Database System (BugwoodImages) contains 120,000 images on 13,767 subjects and 1,640 photographers that are available for educational use. Center websites received 187 million hits and served 8.4 million users during 2009. Visit the Center's website at bugwood.org.

Godfrey Nalyanya (continued from previous page)

southeastern universities agreed that Nalyanya deserved the regional award.

"Dr. Godfrey Nalyanya is deserving of the *Friends of IPM Award* for an IPM educator because of his many contributions to the School IPM Program in North Carolina, which also include administering the State-mandated program, developing IPM training

materials, and conducting surveys to access IPM implementation among the state's 115 school districts," Toth says.

One of Nalyanya's protégés, Chris Mills, won the Friends of IPM Implementer Award last year for successfully executing and maintaining an IPM program in the Union County school system.

Scientists Study Wicked Weed's Impact on Loblolly Forests

by AI.com press staff

A team of Auburn University scientists has been awarded a \$494,000 grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture to search for possible links between cogongrass and pine decline

The researchers, led by College of Agriculture invasive plant specialist Stephen Enloe, say they want to determine whether the rapid spread of cogongrass across Alabama is increasing pine trees' susceptibility to pine decline, a syndrome that is jeopardizing the health and survivability of loblolly pine plantations statewide.



Cogongrass

Cogongrass, which ranks 7th on the list of the world's worst weeds, is a hardy, aggressive grass that can ruin native ecosystems in countries outside its native Asia. If left unchecked, it forms deep, dense mats of thatch and underground rhizomes that quickly overtake and choke out most plant species.

In addition, cogongrass is both highly combustible, fueling fires that burn hotter and blaze higher than typical fires, and fire tolerant, which means it rebounds from fires faster and more vigorously than native species.

In their three-year NIFA-funded project, the Auburn researchers are investigating the impact that cogon grass infestations have on loblolly, as well as longleaf, pine ecosystems, or, specifically, on the insect communities in those forests. In addition to Enloe, researchers include Auburn forest ecologist and inva-

sive plant specialist Nancy Loewenstein, forest pathologist and entomologist Lori Eckhardt and entomologist David Held.

Forestry is Alabama's number-one industry, and loblolly pines are a major player, accounting for 36 percent of Alabama's 22.7 million acres in timberland. In recent decades,

however, the health of many loblolly pine forests in Alabama and across the Deep South has been deteriorating, the growth rates slowing and the mortality rate rising.

"Throughout the project, we will be sharing our findings with forest

landowners and managers

through a number of outreach events, offering science-based cogongrass-control recommendations that will help them improve the health and productivity of their forest stands," Enloe said.

Cogongrass has plagued southwest Alabama for several decades, but the noxious weed has been spreading rapidly over the last decade, hitchhiking out of that area of the state on vehicles and equipment from around the state that had assisted in the post-Hurricane Ivan cleanup and rebuilding. It now claims at least 100,000 acres in 32 of Alabama's 67 counties. So menacing is the plant to the state's economy and environment that late in 2009, Alabama was awarded a \$6.28-million federal grant to be used solely to "control, mitigate and eradicate" cogongrass.

IPM At Work: Collaboration of Specialist Develops Threshold for Tarnished Plant Bug

Boll weevil eradication removed the boll weevil as a pest management concern. The advent of Bt cotton spelled the eventual demise of major cotton pests like the bollworm and tobacco budworm. Together, Bt cotton and boll weevil eradication reduced the need for pesticide applications in cotton, saving growers money and improving environmental quality. However, as the destructive worms and weevils diminished, other cotton pests, such as stink bugs and plant bugs, began to increase. In the Mississippi Delta region, the most serious of those pests is the tarnished plant bug.



Until 1996, the tarnished plant bug was a minor pest; controlled by the same pesticides used to control bollworms and budworms. When Bt cotton reduced the need for sprayed insecticides for bollworms and budworms, the tarnished plant bug began to thrive, unabated by the Bt toxin in the plant. Because growers had not been monitoring for the plant bug, they did not know how to manage it.

“Scouting methods and decision-making were based on worms,” says Fred Musser, Mississippi State University entomologist. “Tarnished plant bug thresholds had been developed in the 60s and 70s but hadn’t been updated. Farmers didn’t know how to scout for these pests, and they weren’t sure how to sample them or what to look for. Thresholds hadn’t been widely used because growers were spraying for the other pests.

So there wasn’t a lot of confidence in the existing thresholds.”

The tarnished plant bug feeds on cotton squares, causing the squares to drop from the plant. If enough of the squares drop, the plant doesn’t produce a good crop of cotton. According to data cited in a 2009 article in the *Journal of Economic Entomology*, cotton growers throughout the Delta and mid-south regions have experienced crop losses and higher control costs because of the tarnished plant bug.

During a meeting in 2004, row crop entomologists from five states—including Mississippi, Arkansas, Louisiana, Missouri and Tennessee—identified tarnished plant bug sampling and thresholds as research priorities.

“Louisiana, Mississippi and Arkansas all had different thresholds, so a grower on one side of the river was doing something different from a grower on the other side,” said Musser. “We didn’t have a consistent threshold in the region, but there wasn’t a biological reason for these varying thresholds.”

From 2005-2006, the team of entomologists tested various sampling methods for tarnished plant bug. At the time, the most widely used method for sampling was looking for them in the plants. The team compared this method to several other sampling methods: especially the black drop cloth and a sweep net. They concluded that the sweep net was most efficient for sampling adults, but a black drop cloth was best for sampling nymphs.

During 2006-2007, the entomologists examined tarnished plant bug thresholds in flowering cotton based on the drop cloth sampling method. Commercial cotton fields

IPM At Work: Tarnished Plant Bug (continued)

were divided into plots and sampled and treated throughout the flowering period (5-8 wks) based on one of five thresholds: an automatic weekly insecticide application, a low threshold of 1 tarnished plant bug per 5 row-feet on a black drop cloth, a medium threshold of 3 plant bugs, a high threshold of 5 plant bugs and a very high threshold of 10 plant bugs. The traditional action threshold for tarnished plant bug for Mississippi was 3 plant bugs per 6 row feet on a white drop cloth, 12-15 plant bugs per 100 sweeps with a sweep net, or 9-15 plant bugs per 100 plants by visual inspection.



Photo by Debbie Roos,
NC State University

The team noted a 1.5 percent yield loss for every tarnished plant bug per 5 row feet on a black drop cloth, which means insecticide application was economically justified when tarnished plant bug density exceeded 2.4 to 3.8 plant bugs per 5 row feet, depending on yield potential. As a

result, Mississippi now uses a threshold of 3 tarnished plant bugs per 5 row feet on a black drop cloth..

“We now have a consistent threshold for tarnished plant bugs in flowering cotton throughout the mid-south,” said Musser. “Both the extension entomologists as well as the growers now have confidence in the thresholds.”

The threshold project generated further collaborations as well that should produce more regional pest management recommendations in the future.

“This was the first time that this group of entomologists worked together in a coordinated manner,” Musser said. “So this has become a win-win for all of us. It allowed extension entomologists to participate in research, it allowed researchers to collect huge datasets with minimal personal effort, and it provided growers with more rapid answers to pest management problems than would have been possible otherwise. We’ve become a pretty large group that works together on a variety of applied IPM problems.”

Alabama IPM Coordinator Receives Honors



Henry Fadamiro

Alabama IPM Coordinator Dr. Henry Fadimiro recently was elected as a Fellow of the Royal Entomological Society of London. This is one of the oldest and most esteemed entomological societies in the world, founded in London in 1833. Royal Charter was granted to the Entomological Society by Queen Victoria in 1855 and the privilege of adding the word "Royal" to the title was granted by King George V in 1933, the Centenary of the Society's foundation. Some former members include Charles Darwin, Alfred Russel Wallace, and several members of the Rothschild family. Dr. Fadamiro may now add the following initials after his Ph.D.: F.R.E.S.

Dr. Fadamiro was also appointed co-editor of *Physiological Entomology*, a publication of the Royal Entomological Society, January of this year. This is the first time that a US editor has been appointed in the 34-year history of *Physiological Entomology*.



Publications and Events

July 25-28, 2010: 93rd Annual Meeting of the Florida Entomological Society. Preregistration form at <http://www.flaentsoc.org/annual10.htm>. For more info, call Jennifer Gillett-Kaufman at (352)273-3950

June 9-10, 2010: IPM Center Directors Meeting, Washington, DC

June 14-15, 2010: Southern Region IPM Center Advisory Council / Steering Committee meeting, Raleigh, NC

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New From IPMSouth (SRIPMC's Blog)



If you haven't yet checked out our new blog, ipmsouth.com, you're missing some of our observations about what's going on in IPM in the southern region. We've covered a variety of different topics, from herbicide resistance to the possible demise of the IPM Centers, invasive species and a 100-year rotation experiment in Alabama.

Here are links to some of our latest topics:

- [How to Resist Resistance](#)
- [Specialty Crop Farmers Face Weed Battles](#)
- [IPM on the Golf Course](#)
- [Alabama's Old Rotation Proves Crop Rotation Improves Yields](#)
- [Integrated Pest Management Controls Water Hyacinth](#)

If these titles interest you, go to ipmsouth.com and check out our blog.

And follow us on Twitter, twitter.com/southernipm.

And, of course, you can always find IPM news headlines on our home page at www.sripmc.org.

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