



Director's Notes

Since our last newsletter, the Center has been engaged in several initiatives. One that we're very excited about is the beginning of a new IPM in Schools regional effort.

During a discussion about IPM in schools at the December Advisory Council meeting, several IPM Coordinators discussed challenges and successes in implementing school IPM in their states. The Advisory Council recommended that the Center facilitate a collaborative meeting among school IPM leaders in the region.

On April 17, school IPM specialists from nearly all of the Southern states participated in a conference call to discuss what steps would be useful to move forward with school IPM in the region. As a result of that call, we will meet in Atlanta on May 24-25. Two things were clear from the conference call: first, everyone who participated is excited about

working together, and second, everyone feels this collaboration will be very valuable.

The working group, which will eventually expand, includes the following contacts from each state, as well as others:

- Fudd Graham, Alabama
- John D. Hopkins, Arkansas
- Faith Oi, Florida
- Paul Guillebeau, Georgia
- William W. Witt, Kentucky
- Mary Grodner, Louisiana
- Blake Layton, Mississippi
- Godfrey Nalyanya, North Carolina
- Tom Royer, Oklahoma
- Leslie Godfrey, South Carolina
- Karen Vail, Tennessee
- Janet Hurley, Texas
- Dini Miller, Virginia

-Jim VanKirk

Our National Partners

On January 30-31 in Orlando, FL, directors from the four regional IPM Centers met to share updates of their individual activities and discuss shared projects. Topics included school IPM and pest management strategic plans (PMSP). The national school IPM PMSP, facilitated by the IPM Institute and the IPM Centers, brought together experts in school IPM, school administrators and other stakeholders from around the country. The Southern Region IPM Center shared their plans to facilitate a collaborative meeting among school IPM experts in the south.

We also discussed several initiatives at various stages of development. These include collaborating with the US Department of

Mark Your Calendar!
The next Advisory Council is scheduled for Monday and Tuesday, July 9-10.

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National Partners (continued from p. 1)

Housing and Urban Development (HUD) in their Healthy Homes Initiative to deliver IPM training to housing authority staff and supervisors, assisting the IPM Institute in working with food suppliers to develop IPM standards, and working with EPA and other agencies on ways to collect, analyze and disseminate information about the impacts of IPM programs.

We also discussed communication and marketing issues common to all IPM Centers. In fact, at the next meeting, June 6-7, the writer/editors from all four regional Centers will discuss how to market IPM nationally, as well as how we can all support each other's regional efforts.

The new Farm Bill, announced while we were in Orlando, was part of our discussion as well. Besides more support to conservation efforts and specialty crops, the most notable difference for IPM was a proposed reorganization in the USDA. The President's proposed Farm Bill would merge the Cooperative State Research, Education and

Extension Service (CSREES) and the Agricultural Research Service (ARS) into one agency named the Office of Science. While representatives of CSREES have already received several questions about this change, they are still waiting for official word about when and how it will take place. According to Undersecretary Gail Buchanan, the change would enhance the IPM programs currently supported by both agencies.



SRIPMC Associate Director Steve Toth relaxes during a break while NE IPMC Co-Director John Ayers checks his notes.

IPM PIPE Update

As we move into the growing season, the IPM Pest Information Platform for Extension and Education (IPM PIPE) once again will facilitate the efforts of a wide range of stakeholders to monitor, analyze, and manage Asian soybean rust (ASR). Again this year the system will also address soybean aphid, an important insect pest. A new component, viruses and other diseases of legumes, will broaden the project's geographic range by addressing important IPM issues on dry beans, pulses and other legumes across most of the country.

So far this year soybean rust has not spread from its overwintering areas along the Gulf Coast states. The very cold weather that adversely impacted many southern crops in March and April at least had the beneficial effect of killing back ASR host plants – primarily kudzu. Dry weather

has probably also slowed development of the disease. Of course, things are warming up now. By the time you read this, the situation probably will have changed. For an accurate and up to date assessment, go to the website at <http://sbrusa.net>.

Recently the IPM PIPE made another move that may significantly impact its further development. A "call for concept notes" was released, with submissions due May 5. These concept notes will present potential new components of the PIPE, discussing pest and crop situations, how the PIPE would be useful in improving IPM in the system, and suggesting beneficial impacts from the development. The collection of concept notes, we hope, will help determine future government funding for the project.

State Contacts Meet in Orlando

A couple of warm, sunny days and the casual atmosphere of Orlando, Florida provided the setting to this year's state project leaders meeting on February 1, 2007. Besides the usual state reports and Southern IPM Center updates, this year's meeting had two timely agenda items: a mini grant writing workshop and discussion about the President's new Farm Bill, revealed by Undersecretary Gail Buchanan during the National Plant Diagnostic Network Conference the previous day.

Jim VanKirk kicked off the meeting with a Center update and information about the Farm Bill, followed by Auburn University IPM Coordinator and State Contact Henry Fadamiro's summary of the December SRIPMC Advisory Council and Steering Committee meetings.

A few themes arose during the grantwriting discussion: start early, submit all required forms, include sufficient details in the narrative portion of the proposal, and explicitly demonstrate stakeholder support for your project. Several state contacts who have received IPM Enhancement Part 1 grants in the past gave examples of how they prepared successful proposals.

As state contacts gave their reports, many had unique and innovative stories to tell. Here are a few:



- Henry Fadamiro (Alabama—left, with Steve Toth) recently established an Advisory Board and website and is finishing up crop profiles for peaches and Satsuma citrus.
- Ples Spradley

(Arkansas) serves on Cooperative Extension Service committees which provide funding for statewide IPM projects, requiring county Extension agents to write grant proposals to receive the funds.



- Besides helping with information requests, Patty Lucas and Darryl Hensley (Kentucky and Tennessee—above) have been doing a lot of work with the Southern Plant Diagnostic Network.
- Mary Grodner (Louisiana) had been working to implement IPM in schools in the state.
- Charles Luper (Oklahoma) has been busy promoting insecticide resistance management, through incorporating insecticide mode-of-action categories in the Oklahoma Extension Agents Handbook and distributing insecticide resistance management fact sheets to Extension educators and stakeholders across the state.
- Bob Bellinger (South Carolina) is establishing a new state contact project and developing IPM guides for small fruit.
- Mark Matocha (Texas) deals with more than 400 information requests from various agencies and groups in Texas and is also assisting on a project promoting public awareness of IPM for mosquitoes.
- Holly Gatton (Virginia—right) has been working with Mike Weaver to update the state's crop profiles, heavily used by their extension agents.



To address participants' concerns about scheduling and travel difficulties, the next meeting will be in the fall.

SRIPMC Begins 2007 with a String of PMSPs

As the New Year was beginning to pick up speed, a group of researchers, specialists, regulatory personnel and growers gathered together during the Southeast Regional Fruit and Vegetable Conference for a Pest Management Strategic Plan for tomato and pepper. Led by David Riley from the University of Georgia, the tomato and pepper PMSP was the first of four in which the Southern Region IPM Center has participated so far this year, covering a range of commodities from tomatoes to turkeys.

Pepper and tomato pests dominated the agenda during the PMSP at the conference in Savannah, Georgia on January 5 and 6.

“Scheduling the workshop during the conference helped ensure better grower participation,” said Steve Toth, Associate Director of the Southern Region IPM Center.

The watermelon PMSP at the end of January was also unique. A multi-state collaboration between North Carolina, Delaware and New Jersey, the workshop took place in three separate locations; participants from the different states communicated through teleconferencing. An especially notable feature was the priorities discussion, during which priorities were updated in real time online.

North Carolina State University horticulture specialist Mary Peet facilitated a national PMSP on greenhouse tomatoes at the end of February, drawing growers and greenhouse specialists from nearly all of the regions of the country. Since funding has historically been scarce for green-



Participants of the greenhouse tomato PMSP look at the pest-by-pest table.

house tomato research, Dr. Peet said that the PMSP was a good first step to fill in the gaps.

“We need to go through this process to find out what growers need before we can prioritize our research and extension needs,” Peet said. “This meeting, which involved 25 people, is just the beginning.”

On March 2, only a few days after the greenhouse tomato workshop, NC State University apiculturalist David Tarp gathered together beekeepers, state apiarists, researchers and the presidents of two state beekeepers associations for a honey bee PMSP. The workshop took place during the 2007 North and South Carolina State Beekeepers Conference and included both Carolinas and Virginia specialists. Even with the media attention currently commanded by the Colony Collapse Disorder, the major research priorities for the group were for problems that have plagued apiarists for years—Varroa mites and Africanized honey bees.



NC State's Mike Stringham “talks turkey” during the turkey PMSP.

With the cold weather in April, some might have been reminded of Thanksgiving, as NC State entomologist Mike Stringham led a turkey PMSP on April 11. Attended by representatives of the poultry industry, an Extension area specialized poultry agent and university specialists, participants discussed management priorities of turkey pests, from insect and vertebrate pests to diseases.

All of the documents begun this year are currently being reviewed and sent to others who were not able to attend the workshops but want to contribute to the plans' development. PMSP facilitators have said that they plan to complete the documents before the end of the year.

1890-1862 News: Oklahoma State and Langston Universities Team Up on Rotational Grazing Project

When Oklahoma IPM coordinator Tom Royer and Langston University goat researcher Roger Merkel met at the 1862-1890 collaboration meeting sponsored by SRIPMC in September 2006, they left knowing that they wanted to work together.



So as Royer kept his eye out for a project that could involve both universities, one popped up that was a perfect fit. One of his extension specialists, Justin Talley, was planning to submit a research proposal for a study on parasites in goats and cattle. With the scarcity of goat research available, Royer knew that Langston's years of goat research would furnish Talley's team with a thorough background.

"There's not a lot of research on external parasites affecting goats, especially meat goats," said Talley. "Langston's goat research is a good base to build on."

The purpose of the project is to determine the effect of external parasites on meat goats. Because of a growing trend toward raising meat goats with cattle on the same ranch, Talley said that it is important to know whether pest management of both will differ from that for each species separately. Currently no research exists on how concurrent habitation of goats and cattle affects either of them. Since parasites can reduce a

goat's appetite and cause them to lose weight, the research will be quite valuable.

"We're trying to determine the effect of external parasites on meat goats," Talley said. "For instance, how many lice does it take to affect the growing stages?"

To determine if proximity of the two species changes the parasite load in either, Talley's team has separated the goats and cattle into three groups: goats only, cattle only and a mixture of cattle and goats. To determine the number of internal parasites, Dave Sparks, DVM, an area extension food-animal quality and health specialist, will take fecal samples. The extension specialists will perform counts for ticks, lice, mites, and flies.

To find out if and how ranchers are monitoring for parasites, Talley and Royer, along with Merkel and Terry Gibson from Langston University, are preparing a survey to send to ranchers and print in Langston's newsletter for goat specialists. The next step is to conduct trials to measure how external parasites such as lice affect a goat's average daily gain, or the amount of weight the animal gains based on how much it eats.

As the OSU-Langston team begins work on the survey, their collaborative efforts—a collaboration that formed as a result of the September meeting in Indianapolis—will ultimately lead to conclusions that could save ranchers thousands of dollars in treatments or in lost production and pave the way for further research in an uncharted area.

Louisiana State University Unveils "IPM Louisiana"

In January, the IPM program at Louisiana State University made its debut online--on the new IPM Louisiana website.

The site, still under construction, already has links to definitions of integrated pest management and pest management publications available at the AgCenter.

Clayton Hollier, Louisiana's IPM Coordinator, says that the website will help define what the IPM program can become.

"We're not just talking about insect pests," he said. "We're also dealing with disease pathogens and weeds."

He is also excited about the prospect of informing users about the services available through the IPM program and conducting some lessons on the side. LSU's AgCenter has a plant disease diagnostic clinic, so growers who are unsure about what disease is killing their plants

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SERA-03 Members Meet in San Antonio

When members of the Southern Region research and extension group for IPM (SERA-03) gathered for their annual meeting in March, they had a major undertaking before them—to identify regional priorities.

A group of research and extension leaders from throughout the region, SERA-03 members gather once a year to discuss IPM research and extension projects and to meet with IPM Center staff and the CSREES program leader for IPM.

During a facilitated discussion about regional priorities, everyone shared lists of what they considered to be the most important needs in research and extension. From a list of topics that ranged from the specific to general, the group chose six regional research priorities and nine regional extension priorities.

Creating those short lists required everyone to rethink issues in light of how they affected the entire region. Sometimes a few items were combined under one topic; other items were discarded completely because they were too broad or narrow. But by lunchtime, everyone had a list of priorities that they felt could direct research and extension projects for a number of years.

In addition to the priorities discussion, the group listened to several presentations. Pete Teel from Texas A & M University discussed his 2006 Southern Region IPM (S-RIPM) funded project on using pheromones to control ticks on cattle. Allen Knutson from Texas Cooperative Extension discussed his project, also funded by S-RIPM, creating a multi-state network for predicting pest activity in pecans. Marty Draper, program leader from CSREES, spoke about some of the changes to

IPM Louisiana (continued from p. 5)

can have a definite answer. In addition, as the days become warmer, extension specialists and growers will be on the lookout for new instances of soybean rust.

Other links to be added include a directory of insect and weed images, as well as lists of suc-

cess stories and new projects. The site will also link to the plant disease diagnostic clinic, which has an image library.

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- USDA proposed under the President's Farm Bill (see p. 2). From the state reports, some of the most notable were:
- Clemson gave out nine mini-grants this year for state IPM research and extension projects.
- Texas A&M runs a program for home IPM that includes an "IPM Toolbox" complete with effective and easily found IPM tools, including duct tape, steel wool, window caulk and more.
- The University of Florida exhibited their brochures, calendars and other marketing materials that have cost them a little and earned them significant recognition.
- The University of Tennessee continues to develop a website on imported fire ants and is doing work in forest entomology.
- Louisiana State University is taking steps to create a state center for IPM, the first of which was to develop a website (see p. 5). IPM coordinator Clayton Hollier received good ideas from regional IPM directors in January.
- Kentucky IPM coordinator Doug Johnson led a discussion about the challenges in collecting program impacts.
- Mississippi State University sent several researchers to the greenhouse tomato PMSP in Raleigh.
- Oklahoma State University offered the Pesticide Economic and Environmental Tradeoff website, or PEET, a database that shows the most effective herbicide for most weed problems—and the effects it will have on water quality.

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The site is located at http://www.lsuagcenter.com/en/crops_livestock/crops/Integrated_Pest_Management/index.htm.

IPM At Work: PCR Test Thwarts First Incidence of Tomato Yellow Leaf Curl Virus in Kentucky

A Kentucky greenhouse tomato grower knew his stunted, curled tomato plants meant something was wrong. While he was familiar with most tomato diseases, this was one he had never seen before. Because it was affecting only a portion of his crop, he figured he could manage the disease once he discovered what it was. So he called the University of Kentucky Extension to diagnose the problem.

Three years earlier, Extension Professor Paul Vincelli had received a grant to explore the effectiveness of polymerase chain reaction (PCR) technology on disease identification. PCR is a sensitive test that replicates trace amounts of DNA until they are multiplied billions of times and as a result can be positively identified. Dr. Vincelli knew that the PCR test could undoubtedly identify the disease on the greenhouse tomato crop.

The test revealed that the tomatoes were infected with the tomato yellow leaf curl virus, a disease that entered the United States through Florida in 1997 and had decimated farms from Florida to North Carolina. The grower had to destroy the infected crop.

But while the grower faced a loss, the state gained a victory—Kentucky's first incidence of the virus had been thwarted before it spread to other greenhouse production facilities.

While PCR technology has existed since 1985, it was initially used only for HIV diagnosis and has only recently been used to diagnose plant disease on a routine basis. The test is so sensitive that it can identify DNA strands much sooner than traditional DNA tests detect them. However, because the technology is expensive and requires a significant investment in laboratory infrastructure and expertise, many university extension offices cannot afford to purchase the equipment. Thanks to an initial two-year grant from the Kentucky IPM Program and continued funding from the National Plant Diagnostic Network, the University of Kentucky was an exception.

"We could always have used other more traditional diagnostic techniques, but they can take months and even then may not be accurate enough," said Vincelli. "PCR is the core of molecular diagnostics. We can take the genetic se-

quence in an infected plant and match it to the disease that has been reported. It's a powerful tool."

PCR technology can potentially save growers hundreds or even thousands of dollars by confirming in only a few days what diseases their crops have—or do not have.

The test proved its worth in 2004 when Dr. Terry Jones, an extension specialist from Quicksand, KY, reported what he and other extension specialists thought was bacterial leaf spot on a pepper crop in a research plot. The disease (caused by *Xanthomonas axonopodis* pv. *vesicatoria*) had caused millions of dollars in damage in Kentucky, often destroying over 90% of a producer's crop. The standard tests to diagnose the disease took weeks if carried out to a high degree of accuracy, and results came back too late to salvage any marketable yield.

But the PCR test results surprised Vincelli's team: the disease was not bacterial leaf spot, as they had assumed. Instead, the test and follow-up studies confirmed the presence of another bacterium—*Pseudomonas syringae* pv. *syringae*. And while that disease can occur on peppers, it generally only mildly affects them. The disease disappeared on its own without any treatment.

"We discovered that the presumptive tests were not always accurate," Vincelli said.

What Vincelli finds so exciting is that PCR technology may provide a way to identify species of *Phytophthora*, the pathogen that causes Sudden Oak Death and many other lethal diseases. Because *Phytophthora* organisms are resistant to chemical treatments and can survive in the soil for years, eradicating them and regaining a healthy crop is very difficult. Early identification means early and often more successful treatment.

"*Phytophthora* species are some of the most destructive organisms we know, especially in horticultural and high value crops," Vincelli said. "We now have the technique to identify them to the species level using molecular technology."

The DNA replication also affords Vincelli's team the opportunity to sequence the genes for unmis-

Kentucky PCR (continued from p. 7)

takable identification. DNA sequencing typically uses the “chain termination method,” determining the exact genetic code of the invading microorganism—the most fundamental information possible.

“The genus *Phytophthora* has many dozens of species,” said Vincelli. “So with the PCR test we use on unknown samples, we’ll know that it’s a *Phytophthora*, but we won’t know which one. To find out which one it is, we’ll have to sequence it and compare the sequence to a national database.”

Since sequencing is even more expensive than the PCR test, Vincelli said that he would use it only in high-priority situations.

Still the technology gives the state an increased peace of mind. With the diseases Vincelli’s team has been able to identify, extension agents and growers

have access to a service that was not previously possible. Not only can PCR detect fungi, viruses and bacteria that have already infected a crop, but researchers can also use the data to track the path of a disease.

“Rational control depends on knowing what diseases exist in the field,” Vincelli said. “This provides a powerful tool in knowing what’s going on in the state of Kentucky.”

Already the technology is in high demand—Vincelli said that his colleagues have been steadily approaching him with test requests and have asked him for written protocols for diagnosing diseases. Someday, he said, PCR testing will supplement and even replace some of the current presumptive testing in all plant diagnostic labs.



Upcoming Events

IPM Enhancement Review Panels Meet
(to be determined)

May 24-25: School IPM Collaboration Meeting

June 5: Federal IPM Coordinating Committee

June 6-7: National IPM Centers Coordinating Committee

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