Southern IPM Center

June 2004

Soybean Rust Response Planning Workshop

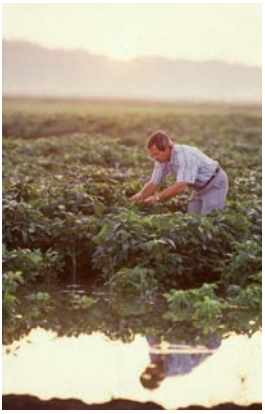
The Southern Region Integrated Pest Management Center (SRIPMC) in conjunction with the Southern Plant Diagnostic Network (SPDN) hosted a Soybean Rust Response Workshop on May 11 and 12. The workshop was held on North Carolina State University's campus in Raleigh, North Carolina with an evening reception held at the Center for Integrated Pest Management's (CIPM) office on Centennial Campus.

A leaf infected with soybean rust

The workshop drew over 40 participants from 13 southern states with representatives attending from numerous industries and universities. The two-day meeting consisted of a wide range of speakers and topics chosen by Carrie Harmon, plant pathology coordinator with SPDN, Kitty Cardwell, national program leader with the Cooperative State Research, Education and Extension Service (CSREES) and Ron Stinner, director SRIPMC.

The purpose of the workshop was to help prepare southern states for the potential outbreak and spread of soybean rust. While there is no guarantee that soybean rust will be a threat to American soybean growers, SRIPMC, SPDN and CSREES want to be prepared.

"The Southern Region IPM Center and the Southern Plant Diagnostic Network worked together and planned this workshop for two reasons," said Harmon. "Number one, so that we could learn to coordinate our two centers and work on the best things that each center can do. The other reason is because the south is probably going to be sentinel for this disease and preparation is key, especially preparation before it hits."



With the goal of the workshop to prepare and inform individuals about soybean rust, the SPDN, SRIPMC and CSREES covered all the bases. After introductions from Karl Suiter, senior researcher with CIPM, Carrie Harmon and Kitty Cardwell; Monte Miles with the National Soybean Research Center, gave a brief history and explanation of the economic impact of soybean rust. Clarissa Balbalian with the Mississippi State University Extension Service followed with a description of the biology and diagnosis of the more devastating strain of soybean rust, *Phakopsora pachyrhizi*.

Soybean rust on the underside of a leaf

After a short break, Roger Magarey with the Center for Plant Health Science Technology/Animal and Plant Health Inspection Service (CPHST/APHIS) gave his prediction on when and where soybean rust may appear based on current data. Steve Koenning with the NCSU Plant Pathology Department and David Wright with the Iowa Soybean Promotion Board gave their predictions on potential problems growers may face and gave an update on current grower concerns. Following their predications, Howard Beck with the University of Florida IFAS, Agricultural and Biological Engineering Department summarized and gave an example of the current electronic notification system.

After lunch, individuals detailed response plans and systems in place including a federal response update from Matthew Royer, state responses in a general overview from Tom Sim, of the National Plant Board, and a specific example plan of a state response from David Wright, of the Iowa Soybean Promotion Board and the American Soybean Association. Kent Smith with the USDA, Office of Pest Management Policy, gave examples of current management options available.

Participants discuss soybean rust response plans

The remainder of the afternoon sessions consisted of specific experiences and examples of dealing with soybean rust. Cliff Coker, an Extension specialist with the University of Arkansas, explained the steps taken with the soybean rust exercises in Arkansas and their successes. Erik Stromberg with Virginia Polytechnic Institute and (continued on page 2)

In this issue:

For more information, visit our website at www.sripmc.org or contact us:

Director:

Ron Stinner
919-513-1432
Ron_stinner@ncsu.edu

Associate Director (Regulatory Issues):

Steve Toth
919-515-8879
Steve_toth@ncsu.edu

Communication and Information Specialist:

Jennifer Hodorowicz
919-513-1432
jmhodoro@ncsu.edu

Soybean Rust Continued...

Attendees discuss the day's meetings at the evening reception

State University went through the Virginia applied management strategies and gave specific examples. Before the conclusion of the meetings and a catered reception at CIPM, each participant was given a sample response plan from Iowa to look over for the response plan development break out sessions the next day.

Day two consisted of breakout sessions and a roundtable discussion to determine the best course of action for a response plan. Each state will come up with a response plan tailored to their specific state needs.

In addition to the workshop, the SPDN has many other activities and training materials in place to help ensure the south is prepared if in fact soybean rust does become a problem.

"We have educational materials and PowerPoint presentations available online that can be used to train Extension agents and growers, as well as a listing of additional resources," said Harmon. "In addition, every state in the southern region has run through at least one practice exercise to learn who to contact and who the chain of custody is for samples, when to send them, who to talk to and when. A few of our diagnosticians are receiving training in Beltsville, MD, to run tests for soybean rust to know what it looks like and do PCR identifications."

Not only was Harmon pleased with the workshop, individuals were asked to comment on how valuable they felt the meetings were and turn in their responses. The following are a few sample comments received.

"There was a good overview of the soybean rust situation, prospects, projections, and there was a fairly broad range of stakeholders in the same room."

"The presentations and discussions raised numerous issues that need to be addressed; good range of speakers; good location and facilities."

"The technical info was very important; contacts that were made will be valuable when soybean rust is found; the draft response plan from Iowa was helpful."

You can find out more information about what the Southern Plant Diagnostic Network is doing to prepare for soybean rust on their website at: http://spdn.ifas.ufl.edu.

Profile: Dr. Thomas Fuchs

Tom Fuchs started at Texas A&M University as an undergrad and is still there 38 years later serving as the IPM coordinator for the state of Texas. As IPM coordinator, Fuchs is responsible for managing 27 Extension IPM positions for the Texas Cooperative Extension Statewide IPM Program, as well as other IPM programs through Texas A&M.

Raised on a cotton and grain sorghum farm, Fuchs' interest in entomology and IPM can be traced back to early days in the field.

"When I was a kid the county Extension agent for our area would come out to our farm and help us monitor problems of various sorts. He had an interest in entomology which in turn cultivated my interest," said Fuchs.

Fuchs started his career working in the Rio Grande Valley of Texas with vegetables, cotton and sugarcane. After finishing his PhD research on the sugarcane borer, Fuchs worked as an assistant professor with the Texas Agricultural Experiment Station until 1979 when he became an Extension Entomologist in San Angelo. Fuchs worked with all crops as an Extension entomologist but concentrated on cotton, grain sorghum and livestock. Fuchs assumed his current position as IPM coordinator in 1993.

In addition to the daily management of 27 IPM agents and IPM program specialists, Fuchs and Texas A&M are implementing programs across the state to make individuals more aware of the importance of IPM.

"I think everyone needs to be aware of IPM programs, regardless if you are on a 2,000 acre farm or a quarter of an acre lot in the city. No matter who you are, IPM is the best solution to pest problems," said Fuchs.

Fuchs and co-workers are currently pilot testing the ISEC Household Pest Control project that teaches individuals to take a common sense approach to preventing pest problems in their homes. Texas also has a strong IPM in Schools program headed by Mike Merchant to implement IPM methods to control pests in and around school facilities.

In addition, Fuchs heads the IPM Internship program at Texas A&M. The program takes college sophomores, juniors and seniors who are in production or crop production disciplines and pairs them with an Extension IPM agent for the summer.

"These interns work with Extension IPM agents to gain in-field training on things such as scouting, plant growth and development, properly conducting applied research and demonstration field tests, summarizing data, making management decisions, learning how to interact with growers, and other goals we set and help them meet throughout the summer," said Fuchs.

The IPM internship program lasts 10 to 16 weeks during the summer and complements classroom education with in-field training.

If you would like more information about IPM programs in Texas visit http://ipm.tamu.edu or http://insects.tamu.edu or e-mail Tom Fuchs at t-fuchs@tamu.edu.

Dr. Thomas Fuchs

"I think IPM is really science's best answer to problems that growers have, both from an economic and environmental standpoint. IPM is just applying the best science available to the solution of pest problems."

-Dr. Tom Fuchs

Mole Cricket Control in Florida and the Southeastern U.S.

Non-indigenous mole crickets cause serious damage to pastures, lawns and crops throughout lowland areas of the southeastern U.S. including Florida and Puerto Rico. Mole crickets tunnel and feed on grass and in turn damage turf and reduce its aesthetic quality in residential areas, sports fields and sod farms. The damage interferes with the roll of the ball on golf courses and results in the loss of forage for livestock grazing, causing severe problems for the beef production industry.

Cattlemen, golf course managers, turf producers and others whose livelihood depends on healthy grass, as well as those who care for public parks, playgrounds and home lawns, have suffered millions of dollars in damage and control costs for more than a century due to mole crickets. In Florida alone, the total mole cricket damage is greater than 100 million dollars per year. Between 1996 and 1999, mole crickets destroyed about 300,000 acres of bahiagrass pastures in south-central Florida alone. Annual pasture renovations cost about 10 million dollars, and an additional 45 million dollars is lost annually due to reduced hay production from mole cricket infestation.

"People don't like great big bare patches in their pastures. Ranchers get really sick of that kind of damage and having to replant an entire pasture. Mole crickets cost them a lot of money," said Howard Frank, professor of entomology at the University of Florida.

Southern Mole Cricket

Golf course superintendents also feel the pressure to control mole crickets on their courses.

"A golfer comes along and pays a lot of money to play a round of golf. He hits a ball on the green and instead of it going toward the hole it veers off at angle because it hit a digging made by a mole cricket," said Frank. "The golfer gets angry and threatens the golf course manager and says if he doesn't fix the problem he is going to lose his job."

Mole Cricket Nematode

In the past, golf course managers would have to apply chemicals multiple times to try to control their mole cricket problem. But researchers at the University of Florida have shown that they can take care of most of the mole crickets on the golf courses using nematodes and wasps.

"On the tees and greens where they want the grass to look like a billiard table, we can't do that with nematodes and wasps," said Frank. "We can't eradicate all the mole crickets; it can't be done by biocontrol alone. That's where you come in with a little bit of chemicals, and this becomes an IPM program with the basis the control provided by natural enemies, the biocontrol agents, plus chemicals in the few places where you really, really need them."

The mole cricket nematode works as a combined biopesticide and classical biocontrol agent. Most nematodes are applied like a chemical; they kill a large number of the pests and then die off, therefore presenting the need for reapplication. Instead of dying off, this nematode finds and enters a mole cricket, reproduces inside the cricket and then releases its progeny into the soil where it can be sustained for years.

"We have records of nematodes present 12 years after release on some Florida golf courses. It is still there, still working. It's a concept that we've got to get through to farmers, ranchers and golf course superintendents and managers who haven't seen anything like this before," said Frank.

In addition to the nematode, researchers with the University of Florida have imported the *Larra bicolor* wasp as a natural enemy of mole crickets. They also are working with a parasitic fly, *Ormia depleta,* and a beetle.

The wasp proved to be highly efficacious in terms of both establishment and mole cricket control. The wasps are natural enemies to the crickets and have been imported successfully into Florida and Puerto Rico. These wasps can fly and distribute themselves, but they need nectar sources to survive. The wildflower *Spermacoce verticillata* (southern larraflower) has proven to be the best nectar source for these wasps.

A concern with using the *Larra* wasp on golf courses is the possibility of golfers and other individuals being stung. But these wasps are very non-aggressive, as shown in a site visit.

Larra Wasp attacks Mole Cricket

"In the fall of 2002 we had a site visit from the US Golf Association, and one of my students was demonstrating the wasp in a plastic box with mole crickets. The wasp would attack the mole cricket, and our visitors loved the demonstration," said Frank. "Somehow, the wasp got loose and began flying around the room, and the leader of the US golf group reached up and grabbed it out of the air and handed it back to my student. We looked at him and asked if it stung him. It didn't, that's how non-aggressive they are."

There are other IPM options to try to control mole cricket populations in golf courses, yards and pastures. One way is to plant a different type of grass that is more resistant to mole crickets, or to plant something besides grass. Another way is to look at mole cricket behavior and biology, and eliminate factors necessary for them to survive.

"I've had people call me up and tell me there is nothing that they can do; they literally pour insecticide on their front lawn and can't get rid of them. I went out to their site and they have a 24-hour street light directly on their lawn. Since mole crickets are attracted to light, their lawn is a great big breeding ground," said Norm Leppla, IPM coordinator for Florida.

Researchers with the University of Florida are continuing research on the nematode, *Larra* wasp, fly and beetle, and have seen success with their research thus far. In pastures, mole cricket activity has declined. The observed rates of infection and spread have clearly indicated that the nematode has become established across the pastures, is recycling and continues to kill mole crickets. Pest mole cricket populations in the Gainesville area declined by 95 percent during the 1990s as a result of the combined effects of the nematode and wasp.

Cattlemen, turf farmers, golf course superintendents, municipal landscapers, homeowners and allied industries in the southeast are benefiting greatly by having the cost-effective nematode for mole cricket control, supplemented by biocontrol by the wasp. The effort is a model for other fast track Integrated Pest Management projects in Florida, the southeast and the nation. The benefit is cost effective, long-term, safe biological control of non-indigenous mole crickets and other invasive pest species.

For more information about the University of Florida's mole cricket research, visit http://molecrickets.ifas.ufl.edu or contact Dr. Howard Frank at jhf@ifas.ufl.edu or (352) 392-1901 ext. 128 or Dr. Norm Leppla at ncl@ifas.ufl.edu or (352) 392-1901 ext. 120.

In the States...

Alabama

Greg Traxler, an Auburn University agricultural economics professor and Alabama Agricultural Experiment Station researcher in the College of Agriculture, has been named to a National Academy of Sciences (NAS) committee examining how agricultural biotechnology can be used to address key global problems including food security, health, pollution and natural resource conservation.

Kentucky

Kentucky - Brood X of the 17-year cicadas is emerging all across Kentucky. Check the Department of Entomology Cicada Map at http://www.uky.edu/Agriculture/Entomology/bugalert/bugalert17.htm to see where they have been sighted! This map will be continually updated as information is received about emerging cicadas. To learn more about these fascinating insects, read the Entfact information sheet link on the map page!

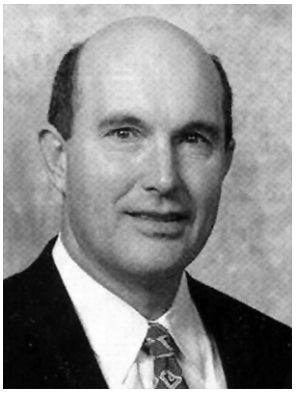
Updates

If you have any updates you would like included as part of the In the States section, please contact Jennifer Hodorowicz at jmhodoro@ncsu.edu or 919-513-1432.

Monsanto

Founded in 1901 and headquartered in St. Louis, Missouri, Monsanto is a leading provider of agricultural products and solutions. The company provides growers with options that include DEKALB® and Asgrow® brand seed, Roundup Ready®, YieldGard® and Bollgard® traits and Roundup agricultural herbicides.

Monsanto has been involved in the development and marketing of pest control products for decades. In the mid 1990s, Monsanto was the first to bring biotech crops into the market place and alter, in many ways, how the industry views IPM.



John Anderson, technical manager with the Technology Development group

"With the development of Roundup Ready soybean, YieldGard corn and Bollgard cotton, Monsanto has put IPM tools into seed, giving growers a more efficient way to control pests that generates environmental benefits," said John Anderson, technical manager for Monsanto.

Working in the Technology Development group in Monsanto and leading the environmental affairs group in U.S. Markets, Anderson is responsible for academic affairs in North America and environmental issues affecting commercial products.

"IPM is important because, in practice, it allows crop and animal producers to utilize their resources efficiently to achieve high levels of productivity," said Anderson. "Of additional importance is the fact that the term, IPM, translates into stewardship. Growers practicing IPM on rural landscapes, urban pest managers who employ IPM techniques and absentee landowners who encourage IPM share a concern for natural resource conservation that benefits both rural and urban communities."

Monsanto's Ecological Technology Center works closely with their technology development group to determine how new products fit into IPM programs.

"We're a big supporter of IPM systems and we want to make sure we have a good fit when we bring a new product into the market place," said Anderson.

As a result, Monsanto spends a lot of time on collaborative projects with IPM researchers and independent crop consultants.

"Academic scientists and independent crop consultants are great research and development partners that help us learn about our products. Most importantly, they help growers put those technologies on the ground in productive ways and manage them properly." said Anderson.

If you would like to learn more about Monsanto visit their website at www.monsanto.com or contact John Anderson at (919) 821-9295. Always read and follow pesticide label directions. Roundup refers to Roundup agricultural herbicides. Roundup Ready®, YieldGard®, Bollgard®, Monsanto Imagine™, and Asgrow® are registered trademarks of Monsanto Technology LLC. DEKALB® is a registered trademark of DeKalb Genetics Corporation.

RFA Grant Recipients to be Selected

Recipients of the grants from the first RFA will be decided on Wednesday, June 2. Recipients will be notified as soon as possible once decisions have been made. Look for more information in the next edition of the newsletter.

The Southern Region IPM Center is managed by the National Science Foundation Center for Integrated Pest Management through a grant from USDA/CSREES.