Volume 4 Issue 4 November 1, 2007

Rice Research Station News

Pest of the Quarter — Panicle Rice Mite

LSU AgCenter Research & Extension — Southwest Region

During the summer of 2007, rice research greenhouses and a limited number of fields in Arkansas, Louisiana, and Texas were found to be infested by the panicle rice mite (PRM), *Steneotarsonemus spinki* Smiley. This included one commercial field in Vermilion Parish that was infested with both PRM and bacterial panicle blight. Currently, the PRM is present in nearly all rice producing regions of the world. In the tropical climate of the Caribbean, it has caused the most significant crop losses. Fortunately, the damage from this mite can be minimized by variety development and proper management.

Eric Erbe, USDA-ARS SEL

The PRM is clear to straw-colored and approximately 250 µm (1/100 of an inch) in length so they must be scouted for with a hand lens. Male PRM have elongated rear legs containing a pair of elongated spines. The legs are carried above the body. Female PRM are ovoid-shaped. Larval stages are about half the size of adults. Eggs are also about 1/3 the size of adults. The PRM is parthenogenetic, which means that virgin females can produce male offspring. The female will then mate with these male offspring and produce eggs. A mated female PRM can produce an average of 55 eggs in her lifetime. The lifecycle in the laboratory can vary from three days at 86 degrees to 20 days at 68 degrees. If held in the laboratory at 17.6 degrees for 72 hours, all PRM died.

Cont. pg. 2

Panicle rice mites cause damage to plants both directly by feeding on leaf tissue in the leaf sheath and developing grains at the milk stage and indirectly by transmitting fungal pathogens such as sheath rot and bacterial panicle blight. PRM can carry sheath rot spores on their body. It is thought that feeding by the mites causes damage to plant tissue, which may facilitate entry of fungal pathogens into developing grains and the leaf sheath. Damage to grains can result in sterility and deformed grains, parrot-beaking of grains and straight-head type symptoms. Damage to the leaf sheath

32nd RTWG

San Diego, California, February 18-21, 2008

The 32nd Rice Technical Working Group meeting will be held February 18-21, 2008, at the Westin San Diego in San Diego, California. The Rice Technical Working Group (RTWG) meets biannually and brings together scientists, extension personnel, government and industry representatives and growers involved in all aspects of rice production. The objective of the RTWG meeting is to share information, coordinate research and join efforts to find solutions for the rice industry's most important problems.

Cont. pg. 2

In this issue:

Special Dates of Interest:

USA Rice Federation Rice Outlook Conference
Lake Buena Vista, FL
December 2-4, 2007

Rice Technical Working Group
San Diego, CA
February 18-21, 2008

Pest of the Quarter: Panicle Rice Mite

may decrease yield. Research is needed to determine how much damage is caused directly by PRM feeding and how much is caused by PRM associated with disease.

Scout for PRM by looking for the symptoms associated with bacterial panicle blight and sheath rot. In affected plants, look for a cinnamon, yellow or chocolate-brown discolored lesion on the leaf sheath that does not have a distinct edge. To find mites, pull the leaf sheath back and examine the underside of the leaf sheath with a minimum 20X hand lens. The PRM feeds on the plant material on the inside of the flag leaf sheath. Once a new leaf begins to develop, a female PRM will move to the new leaf sheath, produce male offspring and establish a new feeding lesion. Thus, damage will often be observed on inner sheaths when the outer sheath is removed. This continues until the PRM reaches the leaf nearest the stem. They also feed on developing panicles.

High temperatures and low amounts of rainfall are favorable for development of large populations of PRM in the field. Continuous rice culture, as well as the sharing of equipment between infected and uninfected fields, is also conducive to building economically damaging populations of PRM. The PRM can be spread to other fields by: 1) people, equipment and other insects, 2) irrigation water and 3) wind.

The inside of a rice leaf sheath which is infested with panicle rice mite (small white specks).

LSU AgCenter staff are exploring options to best manage this pest. Contact your county agent if you suspect that this mite may be present in your field and to obtain the latest information on this pest.

Dr. Natalie Hummel
nhummel@agcenter.lsu.edu

32nd RTWG

San Diego, California, February 18-21, 2008

Among the main speakers for the RTWG 2008 meeting are Robert Zeigler, International Rice Research Institute Director General; Will Horwath, Professor of Soil Biogeochemistry in the Department of Land, Air and Water Resources, University of California Davis; and Scott Rozelle, Helen F. Farnsworth Senior Fellow in the Freeman Spogli Institute for International Studies, Stanford University.

RTWG 2008 will feature a poster session, committee meetings, a symposium and the following technical sessions:

- Rice Culture
- Breeding and Genetics
- Economics and Marketing
- Plant Protection
- Processing, Storage and Quality
- Rice Weed Control and Growth Regulation

Find information on all aspects of the meeting and register to attend at the 32nd Rice Technical Working Group meeting website: http://www.plantsciences.ucdavis.edu/rtwg.

Conference Highlights

Titles and Summaries Due
Nov. 1, 2007

Abstracts Due
December 1, 2007

Award Nominations Due
December 1, 2007

Presentation Submission to Panel Chairs Due
February 1, 2008

Conference Registration *(Last Day for early, on-line registration)*
January 15, 2008

Beyond Command Permit Propanil Prowl Facet NewPath

Potential New Uses for Older Herbicides

The rice weed management project is constantly evaluating herbicides that may be labeled at certain application timings and looking at that particular product from another angle. In the past few years, with the reduction in the number of experimental herbicides being evaluated, we are investigating broadening of herbicide labels. One example of this type of evaluation is Command.

Command was initially labeled as a preemergence herbicide. It was believed Command needed to be applied to the soil surface prior to weed emergence to obtain adequate control. Approximately five years ago, a supplemental label was granted for the use of impregnating Command on a fertilizer granule and applying to rice in the pegging stage. As this particular use was being evaluated, it was observed to have some postemergence activity on small grasses. This is often referred to as "reach-back."

These findings and a new supplemental label for aerial spray application for Louisiana gave more evidence of "reach-back" activity. This project began looking at the possibility of applying Command plus 1% v/v crop oil concentrate as a postemergence application. Over the past three to four years, data indicates that Command applied postemergence can control grasses with one to three leaves. This type of control can also be enhanced when mixed with other herbicides with postemergence activity. Propanil is an excellent tank-mix partner with Command because of the broad spectrum activity obtained from these two herbicides with the added benefit of residual activity from Command. This is an excellent choice for someone who is considering propanil plus Prowl or Facet.

In 2006, this project began to evaluate the potential of Permit as a preplant burndown herbicide or as a preemergence application following rice planting. This project had evaluated the use of Permit plus Command as a preemergence combination to broaden the spectrum of Command by obtaining sedge and broadleaf control from Permit. This was always a very good combination in research plots.

In 2007, this project evaluated Permit applied alone as a preemergence application to rice. Permit at 0.5, 1, and 2 oz/A was applied at 14, 7, and 0 days prior to planting and 3 and 5 days after planting. The results from this research indicated that sedge and broadleaf control was obtained; however, residual activity was also observed on barnyardgrass and broadleaf signalgrass and most promising, Amazon sprangletop. The residual activity was observed for several weeks after application. Excellent crop safety was also observed when Permit was applied preemergence immediately after planting. This project will continue this research and a label change is expected in 2008; however, at the time of publication no label change has been approved. Consult with your county agent before and during the 2008 planting season for this possible label change.

Other research currently being conducted in this project involves the use of Beyond in Clearfield rice. By label, Beyond can only be applied after two NewPath applications; however, this could potentially change. Research indicates that an application of Beyond in substitution for the second application of NewPath may bring added benefits from both a weed control and a carryover standpoint. Beyond has increased activity on larger weeds and it has little or no carryover issues compared with NewPath. This would allow producers to have more production options the following growing season. Research indicates NewPath should remain as a first application herbicide in a Clearfield system to provide residual control of both grass and broadleaf weeds. Consult with your county agent before and during the 2008 growing season before applying Beyond in this manner.

This project has already impacted label changes for herbicides on the market such as Command on water seeded rice and Permit use under flooded conditions. This project will continue to research new uses for old herbicides and, we hope, give producers a new tool for weed control without having to purchase a new wrench.

Dr. Eric Webster
ewebster@agcenter.lsu.edu

CHENIERE AVAILABLE IN 2008

The rice variety Cheniere was not available for commercial production in 2007 because of the adventitous presence of Liberty Link traits that trace back to the 2003 foundation seed production. However, the 2005 foundation production tested negative for LL traits, and registered and certified seed that traced back to this source were produced by Louisiana seed rice growers in 2007. More than 1,100 acres of potential certified seed of Cheniere were entered for certified seed production, and more than 370 acres were entered for registered seed rice production with the Louisiana Department of Agriculture and Forestry. All of these fields were planted with seed that tested negative for LL traits. These fields must pass field inspection, and the seed harvested must pass laboratory analyses for this seed to be eligible for certification.

It appears that seed will be available for this popular variety for 2008 commercial production. In addition, the Rice Research Station produced foundation seed (also subject to inspection) on 19.4 acres in 2007.

Dr. Steve Linscombe
slinscombe@agcenter.lsu.edu

Rice Disease in 2007 Different from 2006

The disease situation in the 2007 growing year was significantly different from 2006. One of the major differences was that narrow brown leaf spot, caused by the fungus *Cercospora,* did not develop at high levels this year as it did in 2006.

This was probably due to three reasons. Less rice overwintered from 2006 to 2007, lowering initial inoculum levels. Most rice fields were treated with some form of propiconazole fungicide. Also, a higher percentage of rice acreage was planted to less susceptible varieties.

The combination of these factors and a drier early season reduced narrow brown leaf spot to low levels. However, the wet August and early September allowed *Cercospora* to develop to significant levels in some second crop fields.

The extensive fungicide applications for *Cercospora* control did have the additional benefit of broad spectrum activity against sheath blight and a wide range of common rice diseases. But the earlier fungicide application timing at boot recommended for *Cercospora* appeared to allow more sheath blight development late in the season than heading applications.

One surprise in 2007 was the amount of blast on Jupiter. Jupiter had been rated as resistant or moderately resistant to blast in experimental plots up to this year. However, later-planted Jupiter fields had significant levels of the rotten neck phase of this disease. Jupiter should be closely scouted next year for blast development and sprayed at heading if conditions are favorable for disease development.

Serious bacterial panicle blight developed in late rice exposed to high temperatures, greater than 95 degrees, during heading. Fungicide applications had no activity against this disease. Grain and milling yield losses were severe in some fields.

Dr. Don Groth
dgroth@agcenter.lsu.edu

Entomology Program Continues Evaluation

The rice entomology program continues to evaluate alternatives to the insecticides currently registered for use against rice arthropod pests and to cooperate with industry and with state and federal agencies to bring these alternative insecticides to the producer.

Much of our research on insecticides is directed toward finding replacements for the pyrethroid insecticides used against the rice water weevil (Karate, Mustang and Prolex). Alternatives to the pyrethroids are urgently needed to address problems related to the toxicity of pyrethroids to crawfish, the poor efficacy of pyrethroids against heavy infestations of weevils, and the potential development of insecticide resistance in weevil populations.

Over the past several years, several alternative insecticides have been evaluated against the rice water weevil in small-plot and large-plot trials. One of these alternatives, Trebon (etofenprox), was available under a Section 18 registration in the 2007 growing season. Trebon is a granular, pyrethroid-like insecticide that is used in a manner similar to the other pyrethroids (i.e., it is normally applied immediately after flooding to kill adult weevils in flooded fields). Trebon, like the other pyrethroids, is toxic to crawfish, but this product is less prone to drift into crawfish ponds because it is a granule. Application will be made for an extension to the current Section 18 registration for Trebon for the 2008 growing season and we are optimistic it will be granted.

Of the remaining products tested for efficacy against the rice water weevil, three are seed treatments (like Icon) and one is a granular product. All have proven to be very effective against rice water weevils in small-plot tests. Preliminary data indicate that all of these potential alternatives are much less toxic to crawfish than are the pyrethroids. An application for a 2008 Section 18 registration will be submitted this fall to the EPA for at least one of the seed treatments. If approved, the insecticidal seed treatment will be available for use in drill-seeded rice only.

Dr. Mike Stout
mstout@agcenter.lsu.edu

2007 RiceCAP Research Update

The RiceCAP Project is a USDA-funded cooperative research program that involves institutions from nine states, including three USDA research centers in Arkansas, Mississippi and Texas. The primary objective of RiceCAP is to identify DNA markers for sheath blight resistance and milling quality that will facilitate breeding of superior varieties for the U.S. rice industry. RiceCAP also has an important outreach component to communicate research progress to stakeholders and the general public.

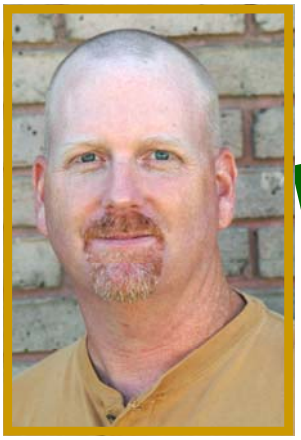
The Rice Research Station has played a crucial role in the development of germplasm and completion of field trials over the past three years for the RiceCAP project. For example, the Louisiana variety Cypress, which shows high milling quality, and a breeding line from Dr. Chuck Rush, which has sheath bight resistance, were instrumental in the development of “mapping populations” used to identify DNA markers.

In 2007, the Rice Station collected agronomic data for sheath blight resistance, height and maturity from the SB2 mapping population (Cocodrie x MCR10277). This is the third and final year for this trial. Data from SB2 were also collected by Drs. Karen Moldenhauer and Fleet Lee in Arkansas and will be used, along with data from Louisiana, to select DNA markers associated with sheath blight resistance.

A second mapping population, referred to as MY2, was initially developed by the Rice Research Station breeding program. It was derived from a cross between Cypress and LaGrue and evaluated for the second and final year in Louisiana and Arkansas to identify DNA markers for high milling yield and other agronomic traits.

All results obtained from the RiceCAP project will be made available to breeders, stakeholders and the general public. More information about the RiceCAP project can be found at http://www.uark.edu/ua/ricecap/index.html.

Dr. Jim Oard
joard@agcenter.lsu.edu



Quentin Zaunbrecher joined the Rice Research Station on September 12, 2007. He is working as a research associate with Dr. Brooks Blanche in the medium grain variety development program. Quentin is a native of Crowley and a graduate of Notre Dame High School and University of Louisiana-Lafayette where he received a Bachelor of Science degree in Soil and Crop Science.

www.lsuagcenter.com/en/our_offices/research_stations/Rice/

Rice Research Station
1373 Caffey Road
Rayne, LA 70578

Phone: 337-788-7531
Fax: 337-788-7553
E-mail: **slinscombe@agcenter.lsu.edu**

This newsletter is produced by:

Karen Bearb
Bruce Schultz
Don Groth
Darlene Regan
Steve Linscombe
Linda Benedict
Frankie Gould

Focus on Research Associates

Brent Theunissen grew up farming, so his work as a research associate at the Rice Research Station is a natural fit.

Brent graduated from the University of Louisiana at Lafayette in December 1997. He spent the next year working in the fields and harvesting crawfish on 200 acres, then he started working at the station on Jan. 1, 1999.

“I started exactly where I am now,” he said.

He works in the breeding program as a research associate.

“I like the agriculture part of it,” he said. “That’s just the way I was brought up. It’s always been a part of my life.”

Sometimes the work is tedious, he said, but he gets satisfaction from having a role in the development of a variety. Most of his work is outside in the field, and that’s what he prefers.

“Field work is my biggest responsibility, from planting and maintaining a crop all the way through harvest.”

Dr. Steve Linscombe, Rice Station director and rice breeder, said Brent is a huge asset to the variety development program at the station.

“Brent is the epitome of what a research associate should be,” Linscombe said. “He is hardworking, meticulous, dedicated and has a great personality. He is an outstanding equipment operator and has an exceptional mechanical ability.”

Often Brent helps his dad, Sam Theunissen, a farmer in Crowley. “I’ll leave here from work and go get in a combine or a tractor.”

When he isn’t in the fields, Theunissen is hunting or fishing and attending events with his daughter and son. “Four nights a week, we have something.”

Research partially funded by the Louisiana Rice Research Board