

Mississippi Entomological Association (MEA)



Newsletter

September 17, 2010

President's Message:

Another summer is pretty much in the books and it is time to start thinking about the annual meeting. It has been an exciting year full of new challenges for the Entomological profession. From a row crop perspective, we have had one of the worst insect years in several years. Bollworm populations were extremely high throughout most of the summer and provided a lot of challenges in both cotton and soybeans. In cotton, tarnished plant bugs and spider mites continued to be a significant problem for growers across the state. On a national scale, the recent bed bug outbreak across the U.S. has been a hot topic for news outlets. That being said, we should have a lot to talk about at the annual meeting this fall. I encourage all of you to submit titles for the upcoming MEA in October. Finally, I want to express my appreciation again to Meg Allen for reviving the MEA Newsletter. The newsletter is a good way network, and keep the membership up to date on activities associated with the MEA.

I look forward to seeing everyone at the annual meeting in a few weeks.

Annual Meeting:

Watch for the official email (coming soon) - Mississippi Entomological Association Meeting

The 57th Annual Conference of the Mississippi Entomology Association will be held at the Bost Extension Center on the Mississippi State University Campus on October 25-26, 2010. We hope to see you there.

The deadline for Advance Registration is October 8, 2010. The form will be available in an updated version soon - online at http://mea.org.msstate.edu/pdfs/2010/Advance_Registration.pdf.

To schedule a talk or poster presentation, please submit your title and a short synopsis by (Oct 8, 2010) to: MEA Secretary (Mike Caprio), email: mcaprio@entomology.msstate.edu. Each presenter will have approximately 12 minutes for his/her presentation. Slides, overhead or PowerPoint presentations (preferred) are acceptable. Don't forget to submit an ABSTRACT for inclusion in Mid-South Entomologist, due by 31 October 2010. See the MEA website for details.

Faculty Corner:

The merger of the Entomology and Plant Pathology Department at Mississippi State University is moving forward. The University has proposed merging this department with the Department of Biochemistry and Molecular Biology. A decision on the merger by the Mississippi Institute of Higher Learning is expected in the next few months.

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As reported in the last newsletter, Jack Reed and Clarence Collison retired from the University on June 30, 2010. Both had been strong supporters and officers of MEA for many years. Scott Willard has been named the interim department head. Dr. Willard is also the head of the biochemistry and molecular biology department.

The department has gained five new entomology graduate students this fall semester. Jeanette Martinez and Ben von Kanel began PhD programs while Nathan Blount, David Plotkin and Andrew Adams began MS programs.

Contributed by Fred Musser

**editor's note: any other faculty news from Mississippi or our region would be a welcome addition to the MEA newsletter, so please send your current news to your friendly neighborhood newsletter editor, meg.allen@ars.usda.gov.

News Articles:

Two new Research Leaders at Stoneville

Dr. Randy Luttrell:

We are pleased to announce the selection of Dr. Randy Luttrell as the Research Leader of the Southern Insect Management Research Unit, Jamie Whitten Delta States Research Center, Stoneville, Mississippi. Dr. Luttrell's formal education includes a B.S. in Agricultural Education from Texas A&M University, and M.S. and PhD in Entomology from the University of Arkansas. He was a professor and entomologist with Mississippi State University from 1981-1998 and served as acting head of the department in 1988. In 1998, he accepted the position of associate dean of the Dale Bumpers College of Agricultural, Food and Life Sciences at the University of Arkansas. In this position, he was responsible for leadership and management of the academic programs of the college. He also held the title of associate director and worked with administration to coordinate academic programs with research activities in the Arkansas Agricultural Experiment Station. In 2002, Dr. Luttrell returned to active research and teaching in the Department of Entomology at the University of Arkansas until he joined ARS and the Southern Insect Management Research Unit in May.

Dr. Luttrell is a recognized field crop entomologist. He was responsible for cotton insect research during his tenure at Mississippi State University and has also worked on a number of insect management problems in soybean, corn, sorghum, peanuts and pecan. He is an authority on insecticide resistance management and has recently provided national leadership for monitoring of Bt toxin resistance in corn earworm and tobacco budworm. Other research areas include microbial control, application technology and farm-scale management systems. Dr. Luttrell's research and mentoring of students have resulted in more than 250 publications including refereed journal articles, book chapters and various scientific proceedings. He has given more than 100 invited presentations and has taught numerous academic courses in applied entomology and pest management.

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Please join us in welcoming Dr. Luttrell to this leadership position.

Two new Research Leaders at Stoneville

Dr. Walker Jones:

We are also pleased to announce Dr. Walker Jones as the Research Leader of the Biological Control of Pests Research Unit (BCPRU), Jamie Whitten Delta States Research Center, Stoneville, MS. Dr. Jones' formal education includes a B.A. degree from the University of Mississippi and M.S. and Ph.D. degrees from Clemson University.

Dr. Jones began his professional career as Quarantine Entomologist with Mississippi State University in the ARS Stoneville Research Quarantine Facility in 1979. In 1980 he joined ARS as a Research Entomologist in the ARS Stoneville Southern Insect Management Laboratory. He transferred to the ARS European Parasite Laboratory in Behoust, France, in 1985, and in 1987 was reassigned to the ARS Biological Control of Insects Laboratory, Tucson, Arizona. In 1991 he was reassigned to the Beneficial Insects Research Unit, Weslaco, Texas. From 2000-2005 he served as Research Leader of the Beneficial Insects Research Unit. In 2005 he was appointed as Director of the ARS European Biological Control Laboratory, Montpellier, France.

Dr. Jones is recognized internationally as an authority in the ecology of pest pentatomids and their natural enemies, and as a specialist on the biology and behavior of parasites attacking the silverleaf whitefly and glassy-winged sharpshooter, among others. He has published over 100 papers and made dozens of presentations documenting his research. His leadership of the Weslaco Beneficial Insects Research Unit and the European Biological Control Laboratory is characterized by increased productivity and increased personnel diversity.

Please join us in welcoming Dr. Jones as Research Leader of the Biological Control of Pests Research Unit.

Contributed by the USDA ARS MidSouth Area Office

Standard of Care for Control of Bed Bugs and a "Safe Harbor" for the Hospitality Industry is Needed Now

In 2009 bed bug infestation levels rose to the point where they were declared a public health hazard by the Center for Disease Control (CDC). The NPMA in cooperation with the University of Kentucky reports that "prior to the years 2000 only 25% of US PMPs had encountered this pest. As of 2010, 95% of US respondents have encountered bed bugs in their daily business." The problem has continued to worsen as the general population is suffering physically, emotionally and economically. In particular, the economic interests of those engaged in the inn keeping, hospitality, vacation, recreation and gaming industries as well as state tax revenues that come to the state from these economic sectors have suffered. Pest control operators offer a variety of treatments that vary from operator to operator. Some operators have confided in me that the bed bugs are the best economic news they have had. Their fees are generally derived on a per treatment basis. Most pest control companies claim they are able to respond with a protocol (pesticide) that kills the bed bug on contact; however, few are aware of nontoxic/safer alternatives that can also act as a preventative. Even fewer

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are aware that recent Virginia Tech research shows that the toxins most often used are only 74% effective.

Since successful treatment depends upon detailed application of product to the mattress, box springs, frame, head board, carpeting and many other areas in a room or facility, non-toxic products must be used that not only kill on contact but leave a residual component to kill emerging bed bug nymphs. Where no preventive product is used, future re-infestation will occur in every case. Infestation maybe transferred between rooms and new guests may bring in new infestations at any time. Therefore, a standard of care will not only insure proper and effective treatment with minimal use of toxins, but will serve to mediate between competing economic interests and to afford protection for the owner/operators of our inn-keeping industry in Mississippi.

As an aid to this effort, we are working closely with our Mississippi hospitality industry association and will be establishing a beta test and focus group to evaluate our program of "standard of care" that will educate the owner/operator and their staff on identification, inspection, treatment, documentation and follow-up to provide the "safe harbor" for those that act responsibly and with due care and concern for the safety and welfare of all of our citizens. With the results from the focus group, we will be presenting the findings to a national association of hotels and motels for a comprehensive program for the United States.

Our emphasis is to educate the industries to be pro-active and treat their entire facility now before an infestation of bed bugs is established with the subsequent loss of revenue and damage to reputation. At the same time, this will also serve to reduce the burden that otherwise falls to our health departments.

The history of any public health agency clearly shows that the public is best served and resources are used most efficiently where means of prevention and standards of care are established. The EPA has already found it necessary to issue cautionary statements as in the absence of such standards some of the practices have no effect or cause more damage and are more dangerous than the infestations themselves. Frustrated, some use far greater quantities of toxic chemicals than are reasonably necessary causing a danger to themselves, those that inhabit such environments and adding to the environmental burden.

Working with important groups like those in Mississippi Hospitality Industry Association will help to assure that the standards that are developed are reasonable and realistic. The standards themselves will educate an uninformed and frustrated public on how to best meet the challenge and will at the same time serve as a protection for all of us and our environment from the potentially dangerous practices that provide no enduring benefit.

Contributed by Jeffrey K. Brown, Ph.D., R.P.E., B.C.E.
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Getting a Fix on Fire Ants

Sherri DeFauw, Guadalupe Rojas, Juan Morales and Debbie Boykin (USDA, ARS, Stoneville) recently introduced a new GC-MS method for the biochemical analysis of imported fire ants (to be published in the *Journal of Entomological Science* 45(4)) that is complementary to a widely used method based on calculating cuticular hydrocarbon and venom alkaloid indices. The relative proportions of 12 peaks served to differentiate imported fire ant hybrids into four assemblages - hybrids closely allied with *Solenopsis invicta*, hybrids close to *S. richteri*, a “core” hybrid grouping, and an “outlier” hybrid group. The most influential peaks included three peaks with the piperidine structural motif and an alkane. Use of four peaks resulted in the misclassification of only 2.5% of the ant colonies. Thus, this new method and 3-D multivariate assessment of the biochemical data may facilitate the finer-scale distinction of hybrid colonies based on their surficial semiochemical complexity and ‘alliance’ with parental species. Application of these techniques would be especially useful in refining regionally-based biological control strategies such as the release of phorid flies (*Pseudacteon* spp.) or other species that use semiochemicals to detect appropriate hosts.

Contributed by Sherri DeFauw

Soybean IPM in Brazil

The soybean Integrated Pest Management (IPM) work started in Brazil around 1975, when the Brazilian government created the Embrapa Soybean, the National Soybean Research Center, which together with other research institutes and universities had to cope with 4 to 6 broad-spectrum insecticide applications per crop season. After extensive research and the implementation of sampling techniques along with the use of economic injury levels (EILs) to base management decisions, the number of insecticide applications dropped down to 1 or 2 per soybean season. More recently however, some soybean growers have been seduced by the relative low cost and simplicity of insecticide use which has raised the number of insecticide applications back to 4 to 6 per crop season.

Not only abandonment of the EILs but also overuse of non-selective insecticides has created challenges to soybean pest management. These include insecticide resistance, pest resurgence, and outbreaks of secondary pests. For example, the soybean looper, *Pseudoplusia includens*, which always had been kept under control by natural enemies, is now - after the use of chemicals applied in the crop - a key pest of soybean throughout the country. Moreover, the brown stink bug, *Euschistus heros*, has been reported resistant to several insecticides and has become the most abundant stink bug infesting soybean in Brazil.

Because of concerns with these problems as well as other longterm negative side-effects that excessive use of non-selective insecticides can cause to the environment, the Laboratory of Egg Parasitoids of Embrapa Soybean, located at Londrina, Paraná State, Brazil, has carried out several studies with egg parasitoids aiming to offer more sustainable management options to soybean growers. Among the species of parasitoids studied are *Trichogramma pretiosum* as a control option for *P. includens*, *Telenomus remus* as an egg parasitoid of both *Spodoptera cosmioides* and *S. eridania*, pest species that have worried soybean growers in Brazil more recently, and *Telenomus*





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podisi to be used as egg parasitoids of *E. heros*. The studies carried out involve pesticide selectivity to these parasitoids, studies related to biology, parasitism capacity, number of parasitoids required in the field, distribution of the release sites, and field efficiency among other important issues. Some important and promising results have been obtained by the research team who work in this laboratory. The most recent results published so far can be viewed in details in following articles:

CARMO, EDUARDO LIMA, BUENO, ADENEY DE FREITAS, BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS. Pesticide selectivity for the insect egg parasitoid *Telenomus remus*. *BioControl* (Dordrecht), v.55, p.455 – 464. 2010. doi: 10.1007/s10526-010-9269-y

BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS, BUENO, ADENEY DE FREITAS, PARRA, JOSÉ ROBERTO POSTALLI, VIEIRA, SIMONE SILVA, OLIVEIRA, LUCIELE JANUÁRIO DE. Biological characteristics and parasitism capacity of *Trichogramma pretiosum* Riley (Hymenoptera, Trichogrammatidae) on eggs of *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae). *Revista Brasileira de Entomologia*, v.54, p.322 – 327. 2010. doi: 10.1590/S0085-56262010000200016

BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS, CARNEIRO, TATIANA RODRIGUES, ADENEY DE FREITAS, PARRA, PRATISSOLI, DIRCEU, FERNANDES, ODAIR APARECIDO, VIEIRA, SIMONE SILVA. Parasitism capacity of *Telenomus remus* Nixon (Hymenoptera: Scelionidae) on *Spodoptera frugiperda* (Smith) (Lepidoptera: Noctuidae) eggs. *Brazilian Archives of Biology and Technology*, v.53, p.133 – 139. 2010. doi: 10.1590/S1516-89132010000100017

PRATISSOLI, DIRCEU, OLIVEIRA, HARLEY NONATO, HOLTZ, ANDERSON MATIAS, REGIANE CRISTINA OLIVEIRA DE FREITAS, ADENEY DE FREITAS, BUENO, GONÇALVES, JOSÉ ROBERTO. Adult feeding and mating effects on the biological potential and parasitism of *Trichogramma pretiosum* and *Trichogramma acacioi* (Hymenoptera: Trichogrammatidae). *Brazilian Archives of Biology and Technology*, v.52, p.1057 – 1062. 2009. doi: 10.1590/S1516-89132009000500001

BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS, PARRA, JOSÉ ROBERTO POSTALI, DE FREITAS BUENO, ADENEY. Biological characteristics and thermal requirements of a Brazilian strain of the parasitoid *Trichogramma pretiosum* reared on eggs of *Pseudoplusia includens* and *Anticarsia gemmatalis*. *Biological Control*, p.355 – 361. 2009. doi:10.1016/j.biocontrol.2009.07.006

PRATISSOLI, DIRCEU, BUENO, ADENEY DE FREITAS, BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS, ZANÚNCIO, JOSÉ COLA, POLANCZYK, RICARDO ANTONIO. *Trichogramma acacioi* (Hymenoptera: Trichogrammatidae) parasitism capacity at different temperatures and factitious hosts. *Revista Brasileira de Entomologia*, v.53, p.151 – 153. 2009. doi: 10.1590/S0085-56262009000100032

BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS, CARNEIRO, TATIANA RODRIGUES, PRATISSOLI, DIRCEU, BUENO, ADENEY DE FREITAS, FERNANDES, ODAIR APARECIDO.



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Biology and thermal requirements of *Telenomus remus* reared on fall armyworm *Spodoptera frugiperda* eggs. *Ciência Rural*, v.38, p.1 – 6. 2008. doi: 10.1590/S0103-84782008000100001

BUENO, ADENEY DE FREITAS, BUENO, REGIANE CRISTINA OLIVEIRA DE FREITAS, PARRA, JOSÉ ROBERTO POSTALI, VIEIRA, SIMONE SILVA. Effects of pesticides used in soybean crops to the egg parasitoid *Trichogramma pretiosum*. *Ciência Rural*, v.38, p.1495 – 1503. 2008. doi: 10.1590/S0103-84782008000600001

REGIANE CRISTINA OLIVEIRA DE FREITAS, BUENO, ADENEY DE FREITAS, MOSCARDI, FLÁVIO, PARRA, JOSÉ ROBERTO POSTALI, HOFFMANN-CAMPO, CLARA BEATRIZ. Lepidopteran larvae consumption of soybean foliage: basis for developing multiple-species economic thresholds for pest management decisions. *Pest Management Science*, *in press*. 2010.

Contributed by Dr. Adeney de Freitas Bueno, Entomologist Researcher and Dra. Regiane Cristina Oliveira de Freitas Bueno, CAPES Post-doc Student
Laboratory of Egg Parasitoid and FESURV – Embrapa Soybean

We'll see y'all at the Annual Meeting!

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