

**Natalie A. Hummel, Ph.D.**  
Department of Entomology  
Louisiana State University AgCenter  
Baton Rouge, Louisiana 70803

**Appointment: 100% Extension**

**Requested Action: Promotion to Rank of Associate Professor (with tenure)**

Curriculum Vitae

Document structured according to LSU AgCenter Policy Statement 42 (PS42).

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## EDUCATION

**EDUCATION**

UNIVERSITY OF CALIFORNIA, Davis, California  
Doctor of Philosophy, Entomology, 2005

Dissertation title: Reproductive biology of the female *Homalodisca coagulata* (Say)  
(Hemiptera: Cicadellidae).

Bachelor of Science, Animal Biology, 2001

Senior thesis title: Potato aphid, *Macrosiphum euphorbiae* (Thomas), in tomatoes: plant  
canopy distribution and binomial sampling of processing tomatoes.

MODESTO JUNIOR COLLEGE, Modesto, California  
Associate of Science, Poultry Science, 1999

## **EMPLOYMENT HISTORY**

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**Assistant Professor (Extension Specialist)**, Department of Entomology  
Louisiana State University AgCenter, Baton Rouge, Louisiana, July 2007 to Present

See: *HISTORY OF ASSIGNMENTS WITH THE LOUISIANA STATE UNIVERSITY AGCENTER* (page 8)

**Non-Tenure Track Faculty (Lecturer)**, Department of Biology  
University of Texas, San Antonio, Texas, August 2006 to May 2007

- Lecturer for two courses: Introductory Biology, and Human Anatomy and Physiology. Lead instructor for these courses which were 3 hour credit lecture courses. Number of students ranged from 30 to over 100 students.

**Post-doctoral Scientist (GS-11)**, United States Department of Agriculture – Agricultural Research Service  
USDA-ARS Knippling Bushland United States Livestock Insect Research Laboratory, Kerrville, Texas, July 2005 to June 2007

- Developed immunocytochemical protocols to detect the presence of biogenic amines and peptides in synganglia, salivary gland, alimentary canal, and reproductive tissue of male and female hard ticks.
- Produced drawings and 3-D videos from confocal images using Imaris and Corel Draw.
- Determined, for the first time, the distribution of serotonin and octopamine in tick nervous tissue. Also, completed backfills from nerves and double-labeled with neurobiotin and serotonin.
- Developed collaboration with University of Texas, San Antonio, which included imaging specimens using a Zeiss LSM 510 laser-scanning confocal microscope located at the RCMI Advanced Imaging Core Facility.
- Supervised a student intern who conducted an independent project on serotonin-like immunoreactivity in the reproductive system of male hard ticks.
- Worked under Dr. Norman T. Davis in the Hildebrand Laboratory, Division of Neurobiology, University of Arizona Research Laboratories, Tuscon, AZ, to learn immunocytochemical techniques.

**Research Assistant**, Department of Entomology  
University of California, Davis, California, August 1999 to May 2005

- Completed dissertation research which included laboratory, greenhouse and field studies.
- Examined the reproductive biology and physiology of the Glassy-winged Sharpshooter, *Homalodisca coagulata* (Say), an introduced pest which threatens the California grape industry, because it is a vector of the bacterium that causes Pierce's Disease of grapes.
- Described the reproductive patterns of females and the number of generations per year. This information was used by a collaborator to improve the efficacy of the area-wide management program in southern California.

- Reported the presence of sensillae on the ovipositor of female *H. coagulata*. These sensillae may be used to select an appropriate host for oviposition.
- Confirmed that multiple generations developed on a single host-plant. This indicated that the threat of high population densities in monocultures is real and should be addressed in any area-wide management schemes.
- Conducted an examination of the surface of the anal stylus, which in combination with electrophysiology, indicated the presence of hygrometers on the anal stylus. This sensillae may be involved in regulating the pattern of movement between hosts, which results in the spread of disease-causing bacteria.
- Supervised an undergraduate project describing *H. coagulata* nymphal instars and sexing of nymphs.

**Teaching assistant**, Department of Entomology

University of California, Davis, California, January 2004 to March 2004

- Prepared and presented laboratory sessions and exams for Functional Insect Morphology.
- Assisted in grading laboratory exams and midterms.

**Guest Lecturer**, Biology Department

California State University, Sacramento, California, September 2003 to December 2003

- Presented the following guest lectures in a General Entomology undergraduate course:
  1. "Internal Anatomy and Physiology"
  2. "Aquatic Insects, Predators and Parasitoids"
  3. "Biological Control and Medical Entomology"
  4. "Reproduction, Insect Development and Life History"

## **HISTORY OF ASSIGNMENTS WITH THE LOUISIANA STATE UNIVERSITY AGCENTER**

***HISTORY OF ASSIGNMENTS WITH THE LOUISIANA STATE UNIVERSITY AGCENTER***

**Title(s):**

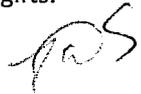
Assistant Professor, Department of Entomology, Louisiana State University AgCenter, July 2007 to Present

**Duties and Responsibilities**

100% Extension Appointment

Louisiana Cooperative Extension Service, Louisiana State University AgCenter, Department of Entomology

Develop and deliver educational programs related to integrated pest management (IPM) in rice, fruit, and nut crops. The audience for my programs includes county agents, crop producers and supporting industry personnel. I also participate in the 4-H and Louisiana Master Gardener programs. My responsibilities include water quality education as it relates to pesticide use in agricultural systems. My program has the goal of developing cost effective and environmentally sound methods of IPM in my assigned commodities (rice, fruits and nuts). I also identify pest species, develop integrated pest management guidelines, and assist county agents with educational programs for rice, citrus, pecan and small fruit producers. I cooperate with state and federal agencies, researchers, county agents and producers to establish demonstration projects and provide pesticide applicator training. I also partner with pesticide industry representatives and agricultural consultants to promote recommended IPM practices. I deliver educational programs in a variety of environments which include field day presentations, hands-on workshops, farm visits, web-sites, how-to videos, e-mail, Web 2.0 tools (Blogs, Facebook, Flickr, [www.extension.org](http://www.extension.org), and Twitter), phone calls, newsletters, and bulletins. The overarching goal of all my extension programming is to develop and deliver effective extension programs that will cause stakeholders to change their behavior and adopt recommended IPM practices. The advisory process is used to identify stakeholder needs and program goals. Logic models are used to develop extension programming with target goals in mind. Behavioral changes are measured using electronic surveys, in-person questionnaires, and face-to-face interactions with clientele in the field. My programs are supported by external funding from a variety of sources including local commodity support, regional competitive funding, federal (USDA) competitive funding and also industry gifts.



## **DOCUMENTATION OF MAJOR PROGRAM AREAS AND INITIATIVES**

## **DOCUMENTATION OF MAJOR PROGRAM AREAS AND INITIATIVES**

**Introduction:** A complete job description can be found in the section: *HISTORY OF ASSIGNMENTS WITH THE LOUISIANA STATE UNIVERSITY AGCENTER* (page 8). The goal of my extension program is to effectively educate my clientele using a variety of educational methods. My clientele include county agents, producers of rice, fruit and nut crops, and supporting personnel (crop consultants, nurserymen, and agro-chemical distributors, etc.). The ultimate goal of my extension program is to cause a change in behavior by encouraging the adoption of best management practices. Field research is an integral component of my extension program and is achieved through replicated demonstration plots on commercial farms and small-plot trials. I work closely with Drs. Seth Johnson (biological control), Jimmy Boudreaux (now retired - citrus), Johnny Saichuk (rice), Mike Stout (rice), Dennis Ring (pecan), Don Ferrin (Plant Pathology) and numerous county agents to address relevant applied research questions. This field research yields a two-fold benefit: it validates pest management recommendations and also results in peer-reviewed publications. I have also organized and/or participated in many field days and workshops. These presentations provide opportunities to assess the needs and interests of stakeholders including county agents and producers. This interaction results in an extension program that is responsive to the needs of clientele.

### **1. Economic value of extension programs**

- 1.1. Rice. According to the Louisiana AgSummary 2009 report, the gross farm value of Louisiana rice in 2009 was approximately \$399 million. On average, we predict invertebrates will cause from 10-25% crop loss in Louisiana rice production if no management action is taken. LSU AgCenter rice research and extension efforts have contributed to the development, registration, and adoption of many insecticides for control of the primary insects that attack rice in Louisiana: the rice water weevil and the rice stink bug. Rice research has also identified key cultural practices critical to pest management. By encouraging the adoption of these control measures, that have been developed and refined for use on commercial farms, we save Louisiana rice farmers approximately \$39 million dollars of potentially lost crop value each year.
- 1.2. Fruit, nut and nursery tree production. The gross farm value for all fruits and pecans in Louisiana was approximately \$77.7 million in 2009. All fruit and nut crops grown in the state are susceptible to attack by insects and other arthropods. Infestations can vary from mild to severe but can sometimes lead to death of plants and total crop loss. LSU AgCenter continues to develop extension programs to advise the public on IPM to minimize loss due to invertebrate damage. We conservatively estimate that, in the absence of IPM practices, approximately 5% of fruit and nut crops may be lost to insect damage. This would translate to \$3.9 million in annual potential lost farm value. One recent threat to citrus production is the detection of asian citrus psyllid and greening disease. LSU AgCenter faculty quickly responded to the detection of asian citrus psyllid and greening disease by developing educational programs and management recommendations. Without public awareness and proper management, citrus greening disease could eliminate our entire citrus industry (both nursery and fruit production) valued at \$9 million annually for fruit production alone.
- 1.3. Summary value of extension programs. Total gross farm value loss potentially avoided due to LSU AgCenter extension entomology programs for rice, fruits and nuts: \$51.9 million.

2. **Extension Program Objectives.** *The overarching goal of all my extension programming is to develop and deliver effective extension programs that will cause clientele to change their behavior and adopt recommended IPM practices.*

2.1. To develop and disseminate novel educational materials and programs relating to the identification and management of arthropods that damage rice, fruit and nut crops to increase stakeholder knowledge of IPM.

2.2. To conduct site visits as needed and also develop timely and effective training programs related to IPM for delivery to county agents and crop consultants.

2.3. To provide current information on IPM recommendations for rice, fruit and nut crops through traditional and non-traditional delivery methods.

2.4. To quickly identify insects submitted by the public and county agents.

3. **Educational Materials and Programs.** *These programs are developed and delivered to achieve program objectives as outlined above.*

Introduction. Extension field faculty (county agents), Louisiana rice producers, and supporting rice industry personnel (agro-chemical industry representatives, field scouts, certified crop advisor, crop consultants, and seed dealers) are the primary focus of my programs. I also develop materials for backyard and commercial producers of fruit and nut crops. Approximately 95% of my time is focused on the rice commodity while the other 5% is spent on fruit and nut crops. A variety of educational materials and programs have been developed to educate stakeholders and encourage adoption of IPM strategies. This includes oral presentations (at winter rice schools and summer field meetings), websites, web 2.0 resources (Blogs, Facebook, Flickr, and Twitter), printed extension publications, newsletters, in-field demonstrations, hands-on workshops, how-to-scout videos, and surveys. Surveys have been used to assess the effectiveness of current programs and guide the direction of future efforts. Programs are also promoted to stakeholder audiences through local and national media outlets and interviews with Farm Bureau reporters.

3.1. County agent educational program survey. Within one year of my appointment at the LSU AgCenter I distributed a survey to county agents. *The purpose of this survey was to obtain information on the most urgent insect-related educational programs that were needed for citrus, figs, pecan, pome fruits, rice, small fruits, and stone fruits in Louisiana.* The responses have been used to direct the development of county agent trainings, educational materials and programs for rice, fruit and nut IPM at the LSU AgCenter. County agent educational priorities are based on the needs of stakeholders as identified by the Parish Advisory Leadership Council Process.

3.2. Rice insect publications, newsletters, and contributions to Rice Field Notes. I have started a series of rice insect publications. The first publication was an overview of how to scout for the most common insect pests in Louisiana rice. The second publication was a joint effort with Texas AgriLife that focused on the panicle rice mite. Future publications will focus on rice stink bug and rice water weevil. I also assisted in the revision of the Louisiana Rice Production Handbook – a document that is revised every 10 years. I provided USA Rice with original

photos and text for a pocket-flip guide on rice pest identification that they plan to produce. I also have published many [lsuagcenter.com](http://lsuagcenter.com) websites focusing on rice insect identification and management. I assisted in the annual revision of the Rice Varieties and Management Tips publication (2008, 2009, 2010). Additionally, I provided pictures and information for Dr. Saichuk's (state rice specialist) Rice Insect Management Newsletter – "Field Notes" - which is sent out on a weekly basis during the rice production season. I also provided many insect pictures for a pest identification guide that is being prepared by Dr. Rick Cartwright at the University of Arkansas. These websites and print publications are used to educate clientele about rice pest identification and management.

- 3.3. Rice water weevil IPM and demonstration test. The rice water weevil (RWW) is the most important rice insect pest in Louisiana. I am working closely with my research counterpart, Dr. Mike Stout, to transfer research-based small plot generated data into commercial field control recommendations for RWW control in rice. Dr. Stout and I worked with the Louisiana Department of Agriculture and Forestry (LDAF) to prepare and submit two Section 18 requests to EPA: 1) Dermacor X-100 rice seed treatment and 2) Trebon 3G, a granular pyrethroid insecticide. Both were approved by the EPA and broaden the spectrum of insecticides we can use to control RWW. Trebon 3G and Dermacor X-100 have recently received full Section 3 registrations.

In 2008, 2009 and 2010 production seasons, I conducted a statewide demonstration test comparing various LSU AgCenter RWW management recommendations. In 2008, this test was repeated in eight locations in seven parishes. In 2009, this test was repeated at 13 locations in seven parishes. In 2010, the test was repeated in 15 locations in seven parishes. The sites were distributed throughout the rice producing regions of Louisiana. County agents, extension specialists, my research counterpart (Dr. Stout), chemical representatives, field scouts, and rice farmers participated in this study. The results of the study were presented at summer field meetings and winter production meetings in rice-producing parishes. In winter meeting presentations, I linked RWW damage and control with economic benefits of management. This approach was well-received by the audience. Communication was enhanced by preparing and distributing a series of websites, a blog, Facebook updates, a newsletter, and conducting summer field meetings at the demonstration sites. This demonstration was supported by in-kind donations of land by producers. We have also received \$54,000 in gifts from the chemical industry. This research has been supported by the Louisiana Rice Research Board since 2009. We intend to repeat this test again in the 2011 field season.

- 3.4. Rice stink bug (RSB) IPM. Dr. Stout and I are the Principal Investigators on a Southern Region Integrated Pest Management (SR-IPM) Program proposal titled: "Revising management programs for the rice stink bug in southern rice." This is a 3-year cooperative research and extension effort to improve management of RSB. This project is a multi-state effort with participants from Arkansas, Louisiana, Missouri, and Texas. An extension associate has been hired to assist on this project. The extension component involves surveys about RSB management, demonstration of recently developed management methods, and evaluation of revised thresholds for treatment.
- 3.5. Citrus IPM. I have delivered presentations on citrus IPM to homeowner and commercial citrus producers, conducted farm visits, and identified insects for county agents. I assisted in an

extensive revision of the "Citrus Homeowner Guide" (pub 1234) including the addition of full-color photos. The new version is printed in full-color and has been well-received by the public. This publication has recently been converted to a for-sale publication. I am the content manager for the citrus channel in the lsuagcenter.com content management system (CMS). I also author websites on citrus pest management.

- 3.6. Small Fruits IPM. I am the lead Principal Investigator on a proposal titled "Development of an eXtension Community of Practice All about Blueberries" that recently was funded by the USDA-CSREES Specialty crops research initiative (SCRI). The LSU AgCenter is the lead institution. Other states participating include Alabama, Mississippi, and North Carolina. I also visit strawberry farms to identify crop pest damage and provide IPM recommendations. I have prepared CMS pages on strawberry insect pests and given presentations on the topic as requested by county agents.
- 3.7. Pecan IPM. I am a member of the Regional Pecan IPM-PIPE project, directed by Dr. Marvin Harris (Texas AgriLife), titled "Taking Pecan Pest Management to the Next Level - Beltwide, Real-Time Predictions of Pecan Nut Casebearer Activity to Improve Producer Economics and the Environment - Real-time prediction of *Acrobasis nuxvorella* Neunzig (Lepidoptera: Pyralidae) to Improve Pecan IPM via IPM-PIPE (an IPM Concept)." The goal of this project is to improve pecan nut casebearer management by using a trap biofix linked with a predictive model to predict nut entry. We monitored pheromone traps across Louisiana to set a bio-fix for the predictive model. A 4-H member monitored one of our locations in Jeff-Davis Parish as an independent project in 2008. I also delivered a presentation on the Pecan IPM-PIPE at the LSU AgCenter Pecan Research Station, encouraging producers to utilize the website and participate in the regional monitoring program.
- 3.8. Louisiana Master Gardener Program. I have given many Louisiana Master Gardener (LMG) presentations on either general entomology, or IPM in fruit and nut crops. I led the revision of the "Entomology" chapter in the LMG Handbook. I also coordinated the effort to develop a standardized powerpoint presentation corresponding to the Entomology chapter. Additionally, we (Dr. Dale Pollet, Dr. Alan Morgan and I) developed a series of 10 questions to test knowledge gained from the Entomology chapter presentation. I also worked with the National Plant Diagnostic Network (NPDN) coordinator (Dr. Amanda Hodges) to add a new topic to the LMG Handbook titled "NPDN and first detector training opportunities." Dr. Hodges and I prepared this chapter, corresponding questions, and a powerpoint presentation. These presentations and questions have all been posted to the recently created LMG Sharepoint portal. We have recently scheduled a distance education facilitated training to deliver the new entomology chapter to county agents. This training will serve as an entomology training for agents and also prepare them to deliver the training themselves, if they so desire.
- 3.9. Pesticide Certification and Recertification Programs. I have prepared and presented talks at pesticide certification/recertification programs when requested by the coordinators. Topics have ranged from general entomology to rice, fruit, and nut IPM.

## **ADVISORY PROCESS AND CRITICAL ISSUE RESPONSIVENESS**

## **ADVISORY PROCESS AND CRITICAL ISSUE RESPONSIVENESS**

1. **Advisory Committees.** *The advisory process is critical for identifying stakeholder needs and developing programs that will address those needs with the goal of adoption of recommended IPM practices.*

1.1. Parish advisory councils. Participated in the Evangeline, Jeff-Davis, and Vermilion rice advisory councils when invited to attend. These councils advise on future research and extension programs to address their local rice production issues.

1.2. LSU AgCenter exchange (ACE) groups. ACE groups were created to provide opportunities for LSU AgCenter faculty to exchange ideas. ACE groups are designed to: 1) improve communication and networking among faculty with similar responsibilities in program areas, 2) exchange information about new program direction and completed projects, 3) identify priorities within each program area, and 4) identify gaps in research and extension programming activities. I have participated in both "Rice" and "Fruits and Nuts" ACE group meetings.

1.3. Assembled a Rice Extension Entomology Advisory Leadership Council. The purpose of this council is to guide the development of long and short-term goals for my rice extension entomology program. There are fifteen members on this council including the state rice specialist (Dr. Saichuk), two research faculty (Drs. Linscombe and Stout), four county agents (Mr. Courville, Fontenot, Meaux, and Mrs. Lee), two rice growers (Mr. Reiners and Owen), two consultants (Mr. Greene and Parker), one chemical industry representative (Mr. McCown), one aerial applicator (Mr. Reed), and two seed dealers (Mr. Fontenot and Gilder). The first meeting was held October 26, 2009. The following priorities were identified by the advisory board (listed in order of importance):

- RWW management in water-seeded rice, seed treatments, and rescue treatments.
- Rice stinkbug feeding effect at different rice growth stages, effect on yield and quality.
- Sugarcane borer thresholds for treatment and pesticide recommendations.
- Research the effect of rice insecticides (particularly new seed treatments) on crawfish production.
- Overall efficacy of insecticides for different insects.
- Proper timing of insecticide applications.
- Conducting more cooperative research on precision agriculture technologies.

Dr. Stout and I have rigorous research and extension programs that address each of the identified priority areas. The advisory council will meet at least once a year. The purpose of these meetings will be to assess the progress of the extension entomology program and identify priorities for future work. When we meet in October 2010, I will prepare a report/presentation describing how we have focused our efforts to address these priorities. I also regularly consult advisory board members for their feedback throughout the season.

2. **Critical-Issues Responsiveness.** *Extension programs are expected to be able to quickly and effectively respond to local crises.*

- 2.1. Emergency insecticide registrations. Quick, decisive action is needed in response to emerging pest problems. I assisted in the preparation of two Section 18 registrations for rice water weevil control products (Trebon 3G and Dermacor X-100 seed treatments). A Section 18 registration allows an unregistered use of a pesticide for a limited time if EPA determines that an emergency condition exists. Trebon 3G and Dermacor X-100 have since received full Section 3 registrations. I also prepared two Section 24C registrations for asian citrus psyllid control in backyards (CoreTect and Merit 2F). A Section 24C registration allows a state to register an additional use of a federally registered pesticide product, or a new end use product to meet special local needs.
- 2.2. Invasive species detections. My extension program responded to the detection of six invasive species including the following: panicle rice mite, Mexican rice borer, channeled apple snail, asian citrus psyllid & greening disease, *Diaprepes abbreviatus*, and citrus blackfly. When these pests were detected, I was called on by the Louisiana Department of Agriculture and Forestry (LDAF) and United States Department of Agriculture - Animal Plant Health Inspection Service (USDA-APHIS) to provide expert advice on the best course of action in response to these pest detections. I also prepared educational materials to educate the stakeholders affected by these pest detections. These included the following: numbered publications, websites, media interviews, hands-on workshops, how-to-scout videos and county agents trainings. Following is a list of invasive species detected in LA and the response from my extension program:
- **Panicle rice mite (PRM).** I discovered this pest in Louisiana in August, 2007. In response, I developed a multi-pronged educational program targeting county agents, crop consultants, and rice producers. This included developing and launching a website on the LSU AgCenter public site ([www.lsuagcenter.com](http://www.lsuagcenter.com)), a numbered publication, and a how-to-scout video. I also organized and led two hands-on identification workshops to train county agents, rice farmers, and crop consultants to scout for PRM. I spoke about the PRM in rice winter meeting presentations and also showed the how-to-scout video when it was appropriate. I have been appointed to the USDA-APHIS PRM Technical Working Group at the request of LDAF horticulture director, Craig Roussel. As a member of this group, I organized a meeting of representatives of USDA-APHIS, Texas A&M University, and USDA-Agricultural Research Service (USDA-ARS) at the Rice Research Station to discuss how to respond to this pest detection. This was a valuable opportunity to voice the concerns of Louisiana producers and gather all information on the pest. I invited regional directors, scientists, and extension specialists to these meetings. During this visit, I met with three experts on the mite (B. Castro, E. McDonald, and R. Ochoa) to prepare a literature review on the PRM. The literature review was subsequently published in *Crop Protection*. Preparation of this manuscript required translation of Chinese, Spanish and Portuguese literature. I am currently considered a leading national expert on the PRM and have been contacted by faculty at University of California, Davis; Cornell University; University of Missouri; University of Arkansas; and Texas A&M, as well as representatives of DuPont and Dow for information about the pest. I have also been invited to speak about PRM at numerous meetings [1]Missouri rice station field day in Portageville, Missouri; 2) 2009 ESA meeting in Indianapolis, IN; 3) International Congress of Acarology in Recife, Brazil – August, 2010], and have shared slides with faculty from other

institutions for the purpose of presentations. In addition, I have been interviewed about PRM by multiple media outlets (see *MASS MEDIA* on page 36).

- **Mexican rice borer (MRB)** The Mexican Rice Borer is an important pest of rice in Texas and has now entered Louisiana (December, 2008). This pest was detected with pheromone traps near rice fields in Vinton, LA (Calcasieu Parish) on December 16, 2008. In response to this introduction, we developed a numbered publication, communicated with various media outlets, and conducted a meeting with rice growers in the infested area. A scientific note about the detection of MRB in Louisiana was recently published in *Florida Entomologist*. We also participated in LDAF meetings to plan the state response to this pest. We are assisting LDAF in delimited survey for this pest using pheromone traps. This survey will determine the rate of spread of the MRB. I am co-advising a doctoral student from India (Jaspreet Sidhu) who is developing thresholds for treatment, and assessing resistance and tolerance of rice varieties to stem borers.
- **The channeled apple snail** The channeled apple snail is a pest we are monitoring in Louisiana rice. It has recently spread into regions that border rice producing areas in LA. I have discussed this invasive species at many field days – bringing an empty shell to train producers, county agents, and field scouts to identify this pest. I have also communicated with the Louisiana Department of Wildlife and Fisheries (LDWF) Aquatic Nuisance Species Task Force about how we can manage this pest. I was interviewed for a story in *Delta Farm Press* about this and other invasive species threatening rice production in Louisiana.
- **The asian citrus psyllid (ACP) and citrus greening (CG) disease** The asian citrus psyllid (ACP) was reported to me by a homeowner in Algiers City, Louisiana on May 26, 2008. The homeowner identified the insect after viewing pictures that I had posted in a citrus insects powerpoint on [www.lsuagcenter.com](http://www.lsuagcenter.com). ACP and brown citrus aphid were included in a slide about invasives we are monitoring. USDA-APHIS and LDAF immediately responded to this detection by comprehensively surveying all citrus producing regions of the state. I assisted in preparation of extension educational materials (three numbered publications), meetings with producers and homeowners, a county agent training on ACP and greening, press releases, news and radio stories, press conferences, a video on how-to-scout for ACP and CG, and also developed recommendations for ACP control in commercial citrus production (organic and conventional), nurseries and backyards. We received two Section 24c registrations for homeowner products to manage ACP in backyard citrus. We also initiated a verification program to confirm that ACP recommendations are effective. I have advised Plaquemines Parish Government on their area-wide management program for ACP and CG. To date, this program has successfully maintained an extremely low population of ACP, and no cases of CG have been detected in the parish. This is one of the first area-wide management programs for ACP in the United States. Our ACP and CG extension program was nominated for the Denver & Fern Loupe Team Award at the LSU AgCenter Annual Conference in 2008. Currently, I am a member of three USDA-APHIS working groups related to ACP and CG: 1) Citrus Greening Technical Working Group, 2) Extension, Education, Outreach and Coordination Technical Working Group; and 3) Psyllid Control Technical Working Group.
- **Diaprepes abbreviatus** The Diaprepes root weevil was detected in southern Plaquemines Parish in May, 2008. The first sample was delivered to county agent Alan Vaughn in November, 2008. I scouted the infested grove in January, 2009 with LDAF representatives. We are assisting in an LDAF monitoring program. I have also developed a list of insecticide

recommendations for backyard and commercial citrus production. Our goal is to slow the spread into north LA. I have discussed this insect in citrus presentations in an effort to rapidly detect the spread of this insect. We recently published the 2010 LSU football schedule with information about Diaprepes on the back of the schedule. This schedule is distributed to all parishes in Louisiana. This will serve as an informational piece to enhance detection efforts.

- **The citrus blackfly (CBF).** There was an outbreak of CBF in many Plaquemine Parish citrus groves in 2008. I developed recommendations for control of this pest. Experience in Texas and Florida has proven that pesticides will not effectively control CBF, but it can be effectively controlled with parasitoids. In cooperation with Dr. Seth Johnson, I established contact with Florida Department of Plant Inspection (DPI) specialists to inquire about importing biological control agents from Florida. I contacted county agents to identify suitable locations for parasitoid releases. Dr. Johnson and I released parasitoids in infested parishes. We also conducted media interviews (TV) during the parasitoid releases. The parasitoids were effectively established in southeast Louisiana (Terrebonne and Lafourche Parishes), but we have not confirmed their survival after the cold winter of 2010.

**INNOVATIVE TEACHING METHODS, KNOWLEDGE AND APPLICATION OF NEW  
TECHNOLOGY**

**1. Online resources**

- 1.1. "All about Blueberries" eXtension Community of Practice I am the Principal Investigator on a recently funded USDA-SCRI 3-year competitive grant titled "Development of an eXtension Community of Practice All about Blueberries" funded in the amount of \$518,749. This is a trans-disciplinary, multi-state cooperative effort which includes investigators from Alabama, Louisiana, Mississippi, and North Carolina. The following disciplines are represented in our team of experts: Agricultural Economics, Agronomy, Communications, Entomology, Evaluation, Food and Consumer Science, Horticulture, Information Technology, Human Nutrition, Plant Breeding, Plant Pathology, Weed Science, and Youth Development (4-H). Our goal is to develop and launch an eXtension.org website that will include information about blueberries in the follow topic areas: 1) the blueberry, 2) growers, 3) consumers, and 4) 4-H and youth. A variety of novel educational methods will be used including: videos, interactive diagrams, and moodle courses. Additionally, social networking tools (web 2.0) have been utilized to engage our audience and promote our website prior to launch. These include a Facebook fan page, Twitter feeds, Flickr photos, a blog and recipe contests. An extension associate has been hired to coordinate the project. More than three-hundred websites have been built and the site is scheduled for launch on August 23, 2010.
- 1.2. How-to-scout video series The panicle rice mite (PRM), *Steneotarsonemus spinki*, was detected in Louisiana in 2007. Due to the small size and cryptic living behavior of this mite, it was difficult to scout for this pest. A how-to-scout video was produced and posted online, as well as presented at county agent trainings, winter rice production meetings and consultant trainings. Subsequently, how-to-scout videos were developed on the following topics: 1) Asian citrus psyllid and citrus greening disease, 2) the rice water weevil (RWW), and 3) Colaspis in rice. The videos were prepared by Craig Gautreaux, LSU AgCenter Communication Specialist. These videos have been very well-received by the public and provide a valuable educational tool. The long-term goal is to develop a complete series of videos on the arthropods that attack rice and citrus. Videos are posted on [www.lsuagcenter.com](http://www.lsuagcenter.com) and to a YouTube channel. The videos have also generated interest from agricultural media outlets, such as [agfax.com](http://agfax.com), which has posted links to the videos. According to the *AgFax* Editor Owen Taylor, the RWW scouting video has generated more than 500 hits from his website.
- 1.3. Online-Interactive rice insect identification guide We are creating an online guide for the identification of invertebrates that attack Louisiana rice. This is in development using the LSU AgCenter CMS system. To my knowledge this will be the first guide of its type for insects that attack rice. We are developing this at the request of a rice producer in Evangeline Parish. I also plan to develop online identification guides for rice diseases and weeds, as well as insects that attack the citrus crop. After the guide is launched online we will develop a mobile phone app for ease of use in the field.
- 1.4. Created the Louisiana rice insects blog The Louisiana rice insects blog was launched in January, 2010. This web 2.0 tool is used to keep stakeholders informed about rice entomology extension program activities. Reception from the public has been overwhelmingly positive. There are currently 35 active subscriptions to the blog, and it has exceeded 6,300 views,

averaging approximately 30 views per day. Blogging allows me to engage my audience by responding to comments about my programs. Within a week of launching the blog, Owen Taylor (Editor of *RiceFax* and *AgFax*) requested permission to pull information for news stories. *Rice Farming* magazine has also promoted the blog as a useful information source. *Delta Farm Press* reporter, David Bennet also follows the blog. He recently called and asked me to write a regular feature about entomology. Louisiana Farm and Ranch Editor, Buck Leonards has also asked me to write a monthly column about rice entomology. Additionally, the blog posts are automatically linked to my Facebook profile online. This has generated interest in rice production from personal friends that are not associated with agricultural production. Thus, the blog and Facebook function as a portal to educate non-agriculturally related audiences about the complexities of crop production and pest management.

- 1.5. Pecan-nut Casebearer ipmPIPE This project is a multi-state effort led by Texas A&M University. The ipmPIPE (integrated pest management Pest Information Platform for Extension and Education) is a website that is used to present predictive models to accurately time the application of insecticides based on the detection of adult moths in pheromone traps. I have participated by monitoring traps containing pheromone lures to detect the appearance of adult moths. I also delivered a presentation about this program to encourage Louisiana pecan producer cooperation.
- 1.6. Development of an ACP and CG online training module for NPDN The National Plant Diagnostic Network (NPDN) requested that Dr. Don Ferrin (Extension Plant Pathologist) and I develop an online course on ACP & CG for a small farmer audience. This module will be posted to the NPDN first detector training website, which is a national resource for continuing education. This USDA-CSREES Pest Detection Education project is funded by a \$5,500 subcontract from the University of Florida. We received this request because of the extensive online educational materials we developed.

## 2. In-field workshops and classroom trainings for County Agents and/or Crop Consultants

- 2.1. Hands-on workshops in response to invasive species. I have been responsible for spear-heading the response to more than six invasive species within my commodity assignments (see *ADVISORY PROCESS AND Critical Issues Responsiveness* on page 15). I developed hands-on half-day to full-day workshops, in response to the detection of the panicle rice mite (PRM), asian citrus psyllid (ACP) and colaspis. The target audience of the training was dependent on the invasive species.
  - **Panicle Rice Mite (PRM) Identification Workshop.** When PRM was detected in Louisiana, there were a number of regulatory issues. The first course of action was to determine the total infested area by conducting a delimited survey. Scouting for this pest was difficult because of its microscopic size and habit of feeding in a concealed area on the plant. We quickly prepared an on-farm hands-on workshop at an infested field. LDAF and USDA representatives were invited to participate and answer regulatory questions. County agents and crop consultants, as well as rice producers and regulatory agency inspectors, were encouraged to attend the workshop. With less than seven days notice (due to inclement weather), more than 50 individuals attended this workshop. Participants learned to distinguish PRM damage from plant pathogens. Hand-lenses were distributed to county agents to aid in field scouting.

- **County agent training on Asian citrus psyllid (ACP) and citrus greening (CG) disease.** After the detection of ACP and CG a regulatory response was initiated by LDAF and USDA-APHIS. This pest was detected in Orleans and Jefferson Parishes, both of which have large urban populations. County agents were flooded with phone calls from the general public and requests for home visits. We conducted a full-day training for county agents that included classroom instruction and hands-on field identification. LDAF, USDA and other AgCenter specialists were invited to participate in the training. We also had one participant from Auburn University. Approximately 25 people attended this training. The training was conducted before most of the press releases were distributed to the media. The goal of this training was to enable AgCenter field faculty to be local experts on this important pest/disease complex.
  - **LSU AgCenter Training: How to scout for grape colaspis in Louisiana rice.** *Colaspis louisianae* was detected in seven Louisiana rice fields in the 2009 field season. This was the first detection of this crop pest in LA rice since approximately 1985. Crop consultants requested that I develop a hands-on training to enable them to identify this pest in the field. Within two weeks of the first report of this pest, I delivered a half-day workshop which included classroom instruction (including a how-to-scout video) and field identification training in an infested field. Dr. Jeff Davis (Soybean Entomologist) talked about the effect of a rice/soybean crop rotation on the density of this pest. County agents and more than 25 agribusiness representatives (crop consultants and chemical reps, in addition to rice producers) attended this training.
- 2.2. Rice field day pre-tour county agent training. A county agent training is conducted on an annual basis the day before the rice research station field day. All the county agents with rice responsibilities, approximately 10 agents, attend this annual training. I have been invited to participate in this program for the last three years. My role is to prepare a presentation on a new critical issue in rice IPM. The topics vary from year to year, depending on what has been observed in the field.
- 2.3. LATMC crop disorder diagnosis symposium. To assist Louisiana Agricultural Crop Advisors (LACA) consultants, county agents, and general IPM practitioners with the diagnosis of crop disorders, a 4-hour workshop was held just prior to the 2010 Louisiana Agricultural Technology and Management Conference (LATMC). This workshop focused on the symptomology of rice and cotton disorders. To provide training on the visual symptoms associated with a variety of crop disorders, a series of slides was presented by a team of LSU AgCenter scientists who discussed the visual symptoms critical to identify selected crop disorders. The goal was to provide an inter-disciplinary examination of crop symptomology resulting from pathogens, arthropods, nutrient deficiencies/toxicity, herbicide injury, and environmental effects. I delivered a presentation on rice insect symptomology.
- 2.4. Advanced Entomology Training. An advanced entomology training was held at the Acadia Parish LSU AgCenter office on March 1, 2010. The morning session was a series of lectures presented by LSU AgCenter faculty. In the afternoon we conducted a hands-on session using microscopes to study specimens. The purpose of this workshop was to give an in-depth training on the following topics: 1) rice growth and development - critical to understanding when to

scout for specific rice pests; 2) insect collection and identification techniques; 3) insect lifecycles, anatomy and physiology; 4) insecticide classes and mode of action; and 5) rice integrated pest management. Fifty-five individuals attended the training which included LSU AgCenter county agents, certified crop advisors, Agro-chemical company representatives, and Louisiana rice farmers. A pre and post-test were conducted and evaluation comments were also gathered (see *PROGRAM DELIVERY EFFECTIVENESS MEASURED BY EVALUATION, ADOPTION AND CHANGE* on page 25).

### 3. In-field demonstrations

- 3.1. Rice water weevil verification program. (see *DOCUMENTATION OF MAJOR PROGRAM AREAS AND INITIATIVES* on page 10)
  - 3.2. Citrus verification program. I have been working with county agents, Alan Vaughn (Plaquemines Parish) and Rene Schmit (St. John Parish) in a program to evaluate the effectiveness of citrus pest management recommendations. Alan and Rene have selected cooperators in their parishes that have allowed us to conduct tests on their property. This verification program has been valuable for evaluating insecticide activity and also monitoring invasive species.
4. **Small plot insecticide trials.** I have conducted small-plot insecticide trials to test the relative efficacy of insecticides that are under development for use in rice and citrus production. In rice, this includes six rice water weevil tests (Acadia, Concordia, Richland, and Franklin Parishes) and two rice stink bug (Franklin and Tensas Parish) test. In citrus, this includes one ACP evaluation (Plaquemines Parish). These tests were conducted at the request of the insecticide companies and will lead to the development of new products for use by stakeholders.

**PROGRAM DELIVERY EFFECTIVENESS DEMONSTRATED BY EVALUATION, CHANGE,  
AND ADOPTION**

**PROGRAM DELIVERY EFFECTIVENESS DEMONSTRATED BY EVALUATION, CHANGE, AND ADOPTION**

1. **Advanced entomology training evaluation.** Based on response to the county agent educational program survey, I developed the rice advanced entomology training. The training was held at the Acadia Parish LSU AgCenter office on March 1, 2010. *The purpose of this workshop was to give an in-depth training on the following topics:* 1) rice growth and development - critical to understanding when to scout for specific rice pests; 2) insect collection and identification techniques; 3) insect lifecycles, anatomy and physiology; 4) insecticide classes and mode of action; and 5) rice integrated pest management. 55 people attended the training, these included County Agents, Certified Crop Advisors, rice farmers, and chemical distributors. Participants in the training were asked to complete a pre-test and post-test to assess knowledge gained during the training. 48 of the 55 participants completed the pre-test and post-test. One evaluation method asked them to self-assess their level of knowledge in twelve knowledge areas (Table 1). Table 1 reports the percentage of respondents that rated their level of knowledge as *high to very high*. **Pre** is the average self-assessment before the training. **Post** is the average self-assessment after the training. **Increase** reports the improvement in knowledge level before and after the training. In addition to the self-assessment, a series of 12 multiple-choice questions was also included in the pre and post-test to assess actual change in knowledge of participants. The average score on the pre-test was 53.4%, while the average score on the post-test was 85.9%. There was an average improvement in test score of 32.5% after completing the training. We also provided space on the post-test for some feedback. The responses will be used to design future trainings.

Table 1. Self-assessment Pre and Post participation in the advanced entomology training. The value reported is the percent of respondents that assessed their level of knowledge as **high to very high**.

KNOWLEDGE AREA	PRE	POST	INCREASE
	%		
Identification of common rice insect pests	26	68	43
How insects damage the rice crop	37	90	52
Management practices for common rice insect pests	42	84	42
How to read an insecticide label	67	71	4
Factors that influence the choice of insecticides	35	76	41
Management of insecticide resistance	30	82	51
IRAC codes and their use	0	27	27
The various insecticides available for use in rice insect pest management	37	76	39
Insect life cycles	14	68	54
Mode of action of the insecticides commonly used in rice production	12	63	52
Spectrum of activity of the insecticides commonly used in rice production	14	55	41
Insect internal anatomy	5	37	32

1.1. Feedback from participants in the training. Following are some statements in response to specific questions:

• **What did you think was the most informative/valuable part of this training?**

“Which seed treatments to choose from and why we need to choose a particular one from the other.” - Mitchell Leger

“The speaker’s knowledge.” - Stuart Gauthier

“Understanding how insecticides affect the insects.” - Linus Regan

“Was very well planned and presented.” - Tommy Ellett

“It all tied together very well, each part was informative.” - Dennis Burns

“Insecticide MOA and classes - it was new to me.” - Allen Hogan

“All of the training was valuable, life cycle training was very good.” - Andre Bonnette

“Not to use the same chemistry of insecticides if you have a failure.” - Quentin Zaunbrecher

“How each different chemical works and how the insects react to different chemicals.” - Fred Cramer

“Insect ID and pesticide use to control rice pests.” - Dennis Fontenot

“Best presentations ever.” - Steve Zaunbrecher

“The effectiveness of different seed treatments and what they control. The timing of application of pyrethroids in controlling adult weevils.” - Vince Deshotel

“Background information on entomology and modes of action of insecticides.” - Randy Verret

“Naming and classification of insects.” - Doug Leonards

• **What subjects would you like to learn about in future trainings?**

“Updates on recent research efforts, similar to this presentation.” - Stuart Gauthier

“More on toxicology, more about rice growth stages.” - Rusty Elston

“More effective means of using pesticide.” - Linus Regan

“More on insect identification.” - James Meaux

“More on endocrine and digestive physiology of insects.” - Allen Hogan

“How insecticides effect the insects [mode of action].” - Quentin Zaunbrecher

“More on different classes of chemicals.” - Andre Fabacher

“Life cycles.” - Benet Augustine

• **Was this training a valuable use of your time?**

*All participants reported that this was a valuable use of their time. Here are a few reasons why:*

“Yes, good information on how to use insecticides.” - Mitchell Leger

“Yes, it was a refresher and taught me some things I didn’t know.” - Donna Lee

“Yes, learned practical use of pest management.” - Linus Regan

“Yes, this was something I have received little training in. It was some of the best instruction I have ever received.” - Allen Hogan

“Yes, this training went over info that we don’t get much training on.” - Benet Augustine

“Yes, we need continuous education, things change all the time.” - Kent Guillory

“Yes, humbling experience!!” - BD Fontenot

“Yes, very different approach than most training.” - Randy Richard

“Yes, improved my understanding of “why” things happen, instead of just how, and this helps me translate this to growers.” - Eddie Eskew

2. **LATMC crop disorder diagnosis symposium evaluation.** This symposium was delivered in conjunction with the LATMC meeting. I delivered a presentation of rice insect symptomology. Over 65 participants representing crop consultants, Agro-chemical industry, dealer/retailers, county agents, extension scientists, LDAF personnel and Natural Resource Conservation Service (NRCS) specialists attended the session. The results of the post-symposium evaluation documented the high value of this information to the participants. Fifty-two evaluations were returned. Participants would like the symptomology training to continue on an annual basis (98% positive, all but one), agree that it was worth the cost and time of attending, and believe their skills in diagnosing plant disorders were improved.
3. **RWW demonstration evaluation.** In 2008 and 2009, I conducted a statewide demonstration test comparing various LSU AgCenter RWW management recommendations (see *DOCUMENTATION OF MAJOR PROGRAM AREAS AND INITIATIVES* on page 10). At the end of the second year of the RWW demonstration program, the participants in the RWW demonstration test were surveyed to measure the impact of this program. Two of thirteen respondents did not have a RWW management program before participating in the demonstration. After participating, all respondents are using a RWW management program. Four of thirteen changed their rww management practices as a result of participating in the program. The new seed treatment, Dermacor X-100 was labeled for use the first year of this demonstration test. The adoption of the new seed treatments by participants has been unanimous. This is a positive outcome both financially and environmentally. The seed treatments provide improved early-season control of RWW larvae, usually improve yields, and are much less-toxic to non-target insects than the foliar-applied pyrethroid insecticides. Participants were also asked to respond to a series of questions to obtain feedback about their experience and the perceived impact of the program.

3.1. The following bulleted points summarize the themes in the responses.

- **Better understanding of pest biology and IPM approaches.**

“It helped me to more fully understand the timing, rates, and efficacy of the different treatments. This allows me to be more knowledgeable when answering questions from farmers.” – Stuart Gauthier, County Agent

"I learned a lot about how the rice water weevil comes into the field and how the weevil grows, and how they are controlled by the different kinds of methods." - Fred Cramer, Crop Consultant

"There are many ways to control water weevils. Timing is the key to most control methods." – Richard Hardee, Rice Farmer

"[RWW] control impacts overall plant health." – Joseph Fontenot, Crop Consultant

"[It is important to] be proactive." Rustin Gilder, Crop Consultant

"Broadened my thinking [about rww management]" – Joseph Fontenot, Crop Consultant

- **Side-by-side comparisons were insightful.**

"I was able to see all different ways of weevil control in one location." – Darryl Hoffpauir, Rice Farmer

"We were able to see the results in person." – Michael Fruge, Field Representative

- **Adoption of seed treatments was unanimous.**

"The seed treatments take all the guesswork out of scouting. It also controls other pests." - Darryl Hoffpauir, Rice Farmer

"Seed treatments are beneficial not only to control water weevils to advance root growth, but also improve nitrogen efficiency and lower pumping cost, since field draining [is] unnecessary." – Cullen Minter, Field Representative

- **Many were not aware of damage they were experiencing from rww infestations.**

"It opened my eyes to how much damage these pests can do to a rice crop." – Fred Cramer, Crop Consultant

"I learned that low levels can cause yield reductions... [after participating in the program] more aware of potential for yield loss and need to address rice water weevil as an annual problem." – Steve Crawford, Crop Consultant

"[RWW management] is a practice that needs more attention from everyone. It is just as important as fertilizer for the rice crop." – Fred Cramer, Crop Consultant

- **Mutually beneficial partnership.**

"It is an educational experience where both the farmer and the researcher learn from each other. It helps the researcher understand the farmer's dilemma of environmental constraints and pest management." – Richard Hardee, Rice Farmer

"Enjoyed working with the program. Well-planned and laid out. Was a good talking point for other growers that were interested in the seed treatments." – Keith Fontenot, County Agent

"Broadened my thinking, and expanded my management practices." – Joseph Fontenot, Crop Consultant

"I have become more educated about seed treatments, enabling me to better assist my customer base." – Cullen Minter, Field Representative

- 3.2. All participants are repeating the demonstration in the 2010 field season. This continued participation indicates that this demonstration is worth their time and financial investment.
4. **Colaspis training.** In response to the detection of colaspis injury in rice in the 2009 field season, Jeff Davis and I developed and delivered a colaspis training. *A zoomerang survey was completed to assess training participant satisfaction after the Colaspis in rice training.* 100% of participants reported that they were satisfied to very satisfied with the structure and resources provided at the training. 92% of participants reported that they were somewhat to very confident of their ability to answer grower questions about colaspis. 96% were somewhat to very confident of their ability to scout for colaspis in rice. The best evidence of the success of this training was that one particular consultant (Dennis Fontenot) left the training and went to inspect a field suffering from stand loss due to an unknown cause. Mr. Fontenot was able to identify colaspis larvae in the field and educate the grower about the pest. Dennis reported that he knew virtually nothing about colaspis before attending the training, but at the field was able to demonstrate the depth of his newly acquired knowledge to the producer. This was critical to his credibility as an expert consultant.
  5. **Rice insects survey.** *The purpose of this survey was to determine which insects were the most important pests in Louisiana rice production in 2008. We will compare changes in management practices over time, particularly comparing IPM practices before and after the RWW demonstration project.* Individuals associated with the Louisiana rice industry were surveyed from January to February, 2009. Surveys were delivered at winter production meetings and at the Louisiana Agricultural Technology and Management Conference (LATMC) which is attended by Crop Consultants. 176 datasheets were processed in this survey. Respondents from the following Louisiana parishes completed surveys: Acadia, Allen, Avoyelles, Beauregard, Calcasieu, Cameron, Chicot, Concordia, Evangeline, Franklin, Jeff Davis, Lafayette, Morehouse, Rapides, Richland, St. Landry, St. Martin, Vermillion and West Carroll. Rice farmers (75%), consultants (10%), dealers (3%), and others (12%) e.g. county agents, researchers, manufacturer representatives, marketing managers and land owners, participated in the survey. The questions focused on rice invertebrate pest management. We also gathered some basic demographics and production information. We are particularly interested in rice water weevil management strategies and how crawfish rotation affects producer decisions. The following is a general summary of the demographics of our respondents. 43% of survey respondents had been involved with rice production for 26-40 years. The majority (69%) of survey respondents produced or consulted on over 500 acres of rice. A follow-up survey was distributed to Louisiana rice producers in 2010 to assess the insect problems in the 2009 field season. This survey was also delivered in Arkansas, Missouri, and Texas. This survey will document regional differences in pest complex, pest management practices, and the adoption of recommended RWW management methods included in the RWW demonstration program.
  6. **Citrus Insects Survey.** I surveyed Louisiana citrus producers to document the pest problems and common control measures used. *The purpose of this survey was to obtain information on the most important insects that attack commercial and backyard citrus production in Louisiana.* Survey responses have been used to document acreage estimates, pesticide use patterns, and preferred methods of extension educational material delivery. The survey results have been summarized and presented to producers. This survey was delivered before asian citrus psyllid (ACP) and citrus greening (CG) disease were discovered in the state. A follow-up survey will be distributed in the near future to measure the adoption of IPM practices after the detection of ACP and CG.

## **DEVELOPMENT AND PRESENTATION OF RESEARCH BASED MATERIALS**

### ***DEVELOPMENT AND PRESENTATION OF RESEARCH BASED MATERIALS***

Research based extension educational programs have been developed to educate clientele about the latest IPM recommendations. Traditional education methods include written educational materials (both print and online), presentations and in-person workshops. In addition to traditional educational methods, I also use a wide variety of technologies to deliver research results to clientele. Web 2.0 tools, including social networking (blog, Facebook and Flickr), as well as video content and online educational courses are also being developed to reach a more technology savvy audience. For a complete description of research based educational materials please see *EXTENSION PUBLICATIONS* (page 33), *OTHER PUBLICATIONS – REFEREED/NON-REFEREED* (page 51) and *PRESENTATIONS* (page 55).

## **EXTENSION PUBLICATIONS**

## EXTENSION PUBLICATIONS

Refereed manuscripts are listed in *OTHER PUBLICATIONS – REFEREED/NONREFEREED* (page 51).

### 1. Numbered publications (16)

- 1.1. **Hummel, N.A.** 2010. 2010 LSU Football schedule and id card about *Diaprepes abbreviatus*. Louisiana State University Agricultural Center. Print Publication - no number assigned. August 2010.
- 1.2. Baldwin J.L., Foil L.D., Grodner M.L., Hammond A., Henderson G., **Hummel N.A.**, Johnson S.J., Leonard B.R., Morgan A.L., Pollet D.K., Pyzner J., Reagan T.E., Reed D.P., Ring D.R., Story R.N., Stout M. J. 2010 Louisiana Insect Pest Management Guide. Louisiana State University Agricultural Center. Publication 1838. April 2010.
- 1.3. Saichuk J., Blanche B., Dunand R., Harrell D., Groth D., Hollier C., **Hummel N.**, Linscombe S., Rush C., Sha X., Stout M., Webster E. and White L. "Rev. 2010. Rice Varieties and Management Tips". Louisiana State University Agricultural Center. Publication 2270. November 2009.
- 1.4. Bond J., Blanche S.B., Castro B., Dunand R., Gardisser D., Groth D., Harrell D., Hollier C., **Hummel N.**, Levy R., Linscombe S., Reagan T.E., Rush M.C., Saichuk J., Salassi M., Schultz B., Sha X., Stout M., Webster E., and White L., "Louisiana Rice Production Handbook". Louisiana State University Agricultural Center. Publication 2321. June 2009.
- 1.5. Cox, P., Ferrin D., Fletcher B., Gill D., Grodner M., Himelrick D., **Hummel N.**, Koske T., Overstreet C., Owings A., Pollet D., Stevens J., Strahan R. and Tarifa T. 2010. Louisiana Master Gardener Handbook. Louisiana State University Agricultural Center. Publication 300. May 2009.
- 1.6. Baldwin J.L., Foil L.D., Grodner M.L., Hammond A., Henderson G., **Hummel N.A.**, Johnson S.J., Leonard B.R., Morgan A.L., Pollet D.K., Pyzner J., Reagan T.E., Reed D.P., Ring D.R., Story R.N., Stout M. J. 2009 Louisiana Insect Pest Management Guide. Louisiana State University Agricultural Center. Publication 1838. April 2009.
- 1.7. **Hummel N.**, Pollet D., Reagan, G. Akbar, W., Beuzelin, J., Carlton, C., and Saichuk, J. and Way, M. "The Mexican Rice Borer (identification card)". Louisiana State University Agricultural Center. Publication 3098. December 2008.
- 1.8. Saichuk J., Blanche B., Dunand R., Harrell D., Groth D., Hollier C., **Hummel N.**, Linscombe S., Rush C., Sha X., Stout M., Webster E. and White L. "Rev. 2009 Rice Varieties and Management Tips". Louisiana State University Agricultural Center. Publication 2270. November 2008.
- 1.9. Boudreaux J., Ferrin D., **Hummel N.**, Pollet D. and Whitam K. "Louisiana Home Citrus Production". Louisiana State University Agricultural Center. Publication 1234. September 2008.
- 1.10. **Hummel N.A.** and Ferrin D. "Help us find citrus greening disease (doorhanger)". Louisiana State University Agricultural Center. Publication 3081. July 2008.
- 1.11. **Hummel N.A.** and Ferrin D. "Citrus greening (or Huanglongbing) (identification card)". Louisiana State University Agricultural Center. Publication 3080. July 2008.
- 1.12. **Hummel N.A.** and Ferrin D. "Pest Alert. Get the facts about citrus greening (or Huanglongbing)". Louisiana State University Agricultural Center. Publication 3079. July 2008
- 1.13. Bagwell R., Baldwin J.L., Foil L.D., Fuxa J.R., Grodner M.L., Hammond A., Henderson G., **Hummel N.A.**, Johnson S.J., Leonard B.R., Morgan A.L., Pollet D.K., Pyzner J., Reagan T.E., Reed D.P., Ring D.R., Story R.N. and Stout M. J. "2008 Louisiana Insect Pest Management Guide". Louisiana State University Agricultural Center. Publication 1838. February 2008.

- 1.14. **Hummel N.A.**, Castro B.A., Stout M.J., Saichuk J.K. "Rice Pest Notes, Pest Management and Insect Identification Series, The Panicle Rice Mite". Louisiana State University Agricultural Center and Texas Cooperative Extension. Publication 3023. December 2007.
  - 1.15. **Hummel N.A.** "Rice Pests of Louisiana". Louisiana State University Agricultural Center. Publication 3020. December 2007.
  - 1.16. Saichuk J., Blanche B., Dunand R., Harrell D., Groth D., Hollier C., **Hummel N.**, Linscombe S., Rush C., Sha X., Stout M., Webster E., White L. "Rev. 2008 Rice Varieties and Management Tips". Louisiana State University Agricultural Center. Publication 2270. November 2007.
2. **Arthropod Management Tests (4)**
- 2.1. **Hummel N.A.** and Stout M.J. 2010. Rice water weevil control with Dermacor X-100 seed treatment, 2009. Arthropod Management Test. In Press.
  - 2.2. **Hummel N.A.** and Stout M.J. 2010. Rice water weevil control with Clothianidin seed treatment, 2009. Arthropod Management Test. In Press.
  - 2.3. **Hummel N.A.** and Stout M.J. 2009. Rice water weevil control with Dermacor X-100 seed treatment, 2008. Arthropod Management Test. F51
  - 2.4. **Hummel N.A.** and Stout M.J. 2009. Rice water weevil control with Clothianidin, 2008. Arthropod Management Test. F50
3. **Rice Research Station Reports (8)**
- 3.1. Stout M.J., Frey M.J., Riggio M.R., and **Hummel N.** 2010. Rice insect control studies, 2009 Introduction. 101<sup>st</sup> Annual Research Report - Rice Research Station. In Press.
  - 3.2. Stout M.J., Frey M.J., and **Hummel N.** 2010. Evaluation of Dermacor x-100 seed treatment against the rice water weevil in drill-seeded rice, 2009. 101<sup>st</sup> Annual Research Report - Rice Research Station. In Press.
  - 3.3. Stout M.J., Frey M.J., and **Hummel N.** 2010. Evaluation of clothianidin against the rice water weevil in drill-seeded rice, 2009. 101<sup>st</sup> Annual Research Report - Rice Research Station. In Press.
  - 3.4. **Hummel N.**, Stout M., Burns D., Courville B., Daniels G., Fontenot K., Frey M., Gauthier S., Lee D., and Ring D. 2010. Rice water weevil management demonstration in commercial rice fields in Louisiana, 2009. 101<sup>st</sup> Annual Research Report - Rice Research Station. In Press.
  - 3.5. **Hummel N.**, McCown T., Stout M., Frey M., Daniels G., Eskew C., Gauthier S., Ring D., and Levy R. 2009. Demonstration of Dermacor X-100 seed treatment in commercial rice fields in Louisiana, 2008. 100<sup>th</sup> Annual Research Report - Rice Research Station. 268-269.
  - 3.6. Stout M.J., Frey M.J., and **Hummel N.** 2009. Evaluation of Dermacor™ X-100 seed treatment against the rice water weevil in drill- and water-seeded rice, 2008. 100<sup>th</sup> Annual Research Report - Rice Research Station. 263-265.
  - 3.7. Stout M.J., Frey M.J., Riggio M.R., and **Hummel N.** 2009. Rice insect control studies, 2008 Introduction. 100<sup>th</sup> Annual Research Report - Rice Research Station. 262.
  - 3.8. Stout M.J., Frey M.J., and **Hummel N.** 2009. Evaluation of Clothianidin as a seed treatment against the rice water weevil, 2008. 100<sup>th</sup> Annual Research Report - Rice Research Station. 266-267.

**MASS MEDIA, WED PAGE DEVELOPMENT AND MAINTENANCE**

**MASS MEDIA, WED PAGE DEVELOPMENT AND MAINTENANCE**

	SUMMARY			
	TV	Radio	Print	Web
1. Popular Press Articles			11	
2. LSU AgCenter TV News-interviewed for the following stories	5			
3. LSU AgCenter Radio News-interviewed for the following stories		9		
4. LSU AgCenter Print Press Releases			7	
5. Louisiana Farm Bureau Report, This Week in Louisiana Agriculture	10			
6. Miscellaneous Media Coverage	1	6	11	
7. LSU AgCenter Website Development				60
8. LSU AgCenter Channel Maintenance				1
9. Louisiana rice insects blog postings				75
TOTAL	16	15	29	136

*If used appropriately, media is a powerful tool to distribute extension educational programs to clientele. Information can be distributed via print, online, radio, and TV channels.*

1. **Popular Press Articles (11)** *I have been invited to write regular features for both Louisiana Farm and Ranch and Delta Farm Press newspapers.*
  - 1.1. **Hummel N.A.** and Stout M.J. "Rice stink bug research and extension efforts in Louisiana and across the southeast." *Delta Farm Press*. In Press.
  - 1.2. **Hummel N.A.** and Stout M.J. "LSU AgCenter Rice stink bug research and extension programs." *Louisiana Farm and Ranch*. August 2010. 6(8): 30-31.
  - 1.3. **Hummel N.A.** and Baldwin J. "Controlling armyworm in late-planted crawfish forage crops." *LSU AgCenter Crawfish News*. Summer 2010. 3(5): 1-2.
  - 1.4. **Hummel N.A.** LSU AgCenter "2010 rice water weevil management demonstration test results." *Louisiana Farm and Ranch*. July 2010. Pp. 17-18.
  - 1.5. **Hummel N.A.** and Stout M.J. "Cruiser vs. Dermacor: comparing rice insecticide seed treatments for insect control in Louisiana rice." Mar/Apr: 18-19. *FarmGate Mid-South*. Mar 2010.
  - 1.6. **Hummel N.A.** and Stout M.J. "Comparison of cruiser and dermacor seed treatments for insect control in Louisiana rice". *LSU AgCenter Rice Station Newsletter*. 7(1): 4. Feb 2010.
  - 1.7. **Hummel N.A.** and Davis J. "Pest of the quarter – Grape Colaspis". *LSU AgCenter Rice Station Newsletter*. 6(3): 2. Aug 2009
  - 1.8. **Hummel N.A.** and Reagan E. "Mexican rice borer crosses border into Louisiana". *LSU AgCenter Rice Station Newsletter*. 6(1): 3. Feb 1, 2009.
  - 1.9. **Hummel N.A.** and Baldwin J. "Controlling armyworms in late-planted crawfish forage crops". *LSU AgCenter Crawfish News*. 1(4): 3. Jul 2008.
  - 1.10. **Hummel N.A.** "Mighty Mite: The panicle rice mite – a new pest in the United States". *Rice Farming Magazine*. Mar 1, 2008.
  - 1.11. **Hummel N.A.** "Pest of the Quarter – Panicle Rice Mite". *LSU AgCenter Rice Station Newsletter*. 4(4): 1-2. Nov 1, 2007.
2. **LSU AgCenter TV News - interviewed for the following stories (5)**

- 2.1. Blanchard T.M. "Insect threatens Louisiana citrus crop." *LSU AgCenter TV News*. Baton Rouge, La. Sept 14, 2009.
  - 2.2. Blanchard T.M. "Rice water weevil infesting rice fields." *LSU AgCenter TV News*. Baton Rouge, La. Jun 8, 2009.
  - 2.3. Blanchard T.M. "LSU AgCenter works to conserve natural resources." *LSU AgCenter TV News*. Baton Rouge, La. Mar 16, 2009.
  - 2.4. Blanchard T.M. "Asian citrus psyllid found on home citrus trees." *LSU AgCenter TV News*. Baton Rouge, La. Jul 21, 2008.
  - 2.5. Blanchard T.M. Researchers Looking at Effects of Panicle Rice Mite. *LSU AgCenter TV News*. Baton Rouge, La. Nov 5, 2007.
3. **LSU AgCenter Radio News - interviewed for the following stories (9)**
- 3.1. Blanchard T.M. "Insects becoming active in rice fields" *LSU AgCenter Radio News*. Baton Rouge, La. May 3, 2010.
  - 3.2. Blanchard T.M. "Citrus grower faces another hardship as insects attack orchard". *LSU AgCenter Radio News*. Baton Rouge, La. Sept 14, 2009.
  - 3.3. Blanchard T.M. "Entomologist urges rice farmers to look out for grape colaspis beetle". *LSU AgCenter Radio News*. Baton Rouge, La. Jun 8, 2009.
  - 3.4. Blanchard T.M. "Entomologist bikes for multiple benefits". *LSU AgCenter Radio News*. Baton Rouge, La. Mar 17, 2009.
  - 3.5. Blanchard T.M. "New pest is threatening Louisiana's citrus crop". *LSU AgCenter Radio News*. Baton Rouge, La. Jul 28, 2008.
  - 3.6. Blanchard T.M. "Asian citrus psyllid threatens citrus crop". *LSU AgCenter Radio News*. Baton Rouge, La. Jul 21, 2008.
  - 3.7. Blanchard T.M. "Researchers Monitoring The Panicle Rice Mite". *LSU AgCenter Radio News*. Baton Rouge, La. Oct 30, 2007.
  - 3.8. Blanchard T.M. "Cultural Practices Can Help Control Rice Mite". *LSU AgCenter Radio News*. Baton Rouge, La. Oct 1, 2007.
  - 3.9. Blanchard T.M. "Researchers Are Looking For Answers About Panicle Rice Mite". *LSU AgCenter Radio News*. Baton Rouge, La. Oct 1, 2007.
4. **LSU AgCenter Print Press Releases (7)**
- 4.1. Benedict L. and **Hummel N.A.** "Blueberry Web site." Business Briefs. *The Advocate*. Baton Rouge, La. Oct 25, 2009.
  - 4.2. Benedict L. and **Hummel N.A.** Blueberries focus of LSU AgCenter Web site grant. *Baton Rouge Business Report*. Oct 14, 2009
  - 4.3. Benedict L. and **Hummel N.A.** Blueberries focus of 4-state web site grant. LSU AgCenter Press Release. Oct 13, 2009.
  - 4.4. **Hummel N.A.**, Saichuk J.K., Schulz B. 9/21/07. Study Of New Louisiana Rice Pest Continues. LSU AgCenter Press Release. Sept 21, 2007.
  - 4.5. Benedict L. and **Hummel N.A.** 2007. Tiny Rice pest found in south, Including La. *Louisiana Farm and Ranch*. 3(9): 27.
  - 4.6. Benedict L. and **Hummel N.A.** 2007. Tiny Rice pest found in south. *MidAmerican Farmer Grower*. 2007. 27(37): 10.
  - 4.7. Benedict L. and **Hummel N.A.** 2007. Panicle rice mite in South. *Delta Farm Press*. Oct 5, 2007.

5. **Louisiana Farm Bureau Report, This Week in Louisiana Agriculture (10)**

- 5.1. LSU AgCenter Research (Rice). Palmetto, LA Aug 13, 2010.
- 5.2. Evangeline Parish Field Day. Mamou, LA May 15, 2010.
- 5.3. Rice water weevil demonstration test. Ville Platte, LA Mar 22, 2010.
- 5.4. Blueberry eXtension Project. Baton Rouge, LA Oct 17, 2009.
- 5.5. *Diaprepes abbreviatus* in citrus. Buras, LA Sept 14, 2009.
- 5.6. Colaspis in rice. Crowley, LA Jun 2009.
- 5.7. Rice water weevil demonstration - Rice Station Field Day. Crowley, LA Jul 2008.
- 5.8. Asian Citrus Psyllid and Greening Disease. Metairie, LA Jun 2008
- 5.9. Channeled apple snail. Crowley, LA May 2008.
- 5.10. Rice insect control – Rice Station Field Day. Crowley, LA Jul 2007.

6. **Miscellaneous Media Coverage**

- 6.1. *The Morning Report*. Louisiana Agri-News Network. Interview used in stories on the following dates: Feb 23, Apr 8, and Jul 26, 2010. Feb 14, 19, and 25, 2008.
- 6.2. TV interview by Channel 33 reporter about blueberry eXtension grant. Baton Rouge, LA. Oct 16, 2009. <http://www.nbc33tv.com/news/blueberry-craze>.
- 6.3. National Public Radio (NPR) News. "Blueberries focus of 4-state web site grant." Announced live-on-air NPR. Baton Rouge, LA. Oct 14, 2009.
- 6.4. Interviewed for the following news articles (14)
  - Smith C. "Spreading the word, informal blogs bring rice perspectives from field to screen". *Rice Farming Magazine*. 44(5):9-10. Apr 2010.
  - Gould F. and Ratliff B. "New technology, social media shape modern Extension Service". *Delta Farm Press*. 67(12):14-15. Mar 19, 2010.
  - Schultz B. "LSU AgCenter Workshop – water weevil, stink bug in rice". *Delta Farm Press*. 67(12):34. Mar 19, 2010.
  - Buxton R. "AgCenter to develop blueberry web site". *The Daily Reveille*. Oct 20, 2009.
  - Alford J. "Citrus growers still watching insect threat". *10/12 Corridor*. Oct 7, 2009.
  - Bennet D. "Louisiana's citrus industry feels threat of greening disease". *Delta Farm Press*. 66(10):22-23. Mar 6, 2009.
  - Bennet D. "Larvicide shows promise against rice water weevil". *Delta Farm Press*. 66(8):8. Feb 20, 2009.
  - Bennet D. "Louisiana now home to several "new" invasive species". *Delta Farm Press*. 66(8):8. Feb 20, 2009.
  - Bennet D. "Channeled apple snail spreads in Louisiana". *Delta Farm Press*. 66(8):10. Feb 20, 2009.
  - Velez N. "Mites pose threat to future rice harvests". *The Daily Reveille*. 112:12. Sept 12, 2007.
  - Bradshaw J. "Tiny pest could affect farmers". *Daily Advertiser*. Sept 12, 2007.

7. **LSU AgCenter Website Development (60).**

Summary of hits: in total 11,113 page views, 7,970 unique views (as of July 12, 2010).

- 7.1. **Hummel N.A.** 8/6/2010. "Begin scouting for borers." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/Begin-scouting-for-borers.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/Begin-scouting-for-borers.htm)

- 7.2. **Hummel N.A.** 8/6/2010. "Rice Commodity Session at the Louisiana Farm Bureau Federation Conference." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/Rice-Commodity-Session-at-the-Louisiana-Farm-Bureau-Federation-Conference.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/Rice-Commodity-Session-at-the-Louisiana-Farm-Bureau-Federation-Conference.htm)
- 7.3. **Hummel N.A.** 8/6/2010. "Rice stink bug eggs and nymphs plus red rice rouging." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Ricestinkbugseggsandnymphsplusredricerouging.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Ricestinkbugseggsandnymphsplusredricerouging.htm)
- 7.4. **Hummel N.A.** 8/6/2010. "Summary of all RWW demo locations." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/Summary-of-all-RWW-demo-locations.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/Summary-of-all-RWW-demo-locations.htm)
- 7.5. **Hummel N.A.** 8/6/2010. "When to treat for grasshoppers in rice?" LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/When-to-treat-for-grasshoppers-in-rice.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/When-to-treat-for-grasshoppers-in-rice.htm)
- 7.6. **Hummel N.A.** 8/6/2010. "Whiteheads in Vermilion Parish." LSU AgCenter website.  
[http://cms.lsuagcenter.net/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Whiteheads-in-Vermilion-Parish.htm](http://cms.lsuagcenter.net/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Whiteheads-in-Vermilion-Parish.htm)
- 7.7. **Hummel N.A.** 8/5/2010. "Fall armyworm alert-insects don't follow instructions..." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Fall-armyworm-alert--insects-dont-follow-instructions.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Fall-armyworm-alert--insects-dont-follow-instructions.htm)
- 7.8. **Hummel N.A.** 8/2/2010. "NipsitInside seed." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/NipsitInside-seed-treatment-from-Valent.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/NipsitInside-seed-treatment-from-Valent.htm)
- 7.9. **Hummel N.A.** 8/2/2010. "Pyrethroid spray recommended at Vermilion Parish demo site." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Pyrethroid-spray-recommended-at-Vermilion-Parish-demo-site.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Pyrethroid-spray-recommended-at-Vermilion-Parish-demo-site.htm)
- 7.10. **Hummel N.A.** 8/2/2010. "Thrips and rice water weevil adults damaging rice." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Thrips-and-rice-water-weevil-adults-damaging-rice.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Thrips-and-rice-water-weevil-adults-damaging-rice.htm)
- 7.11. **Hummel N.A.** 8/2/2010. "Armyworms continue their march across Jeff Davis Parish." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/ArmywormscontinuetheirmarchacrossJeffDavisParish.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/ArmywormscontinuetheirmarchacrossJeffDavisParish.htm)
- 7.12. **Hummel N.A.** 7/30/2010. "Crawfish Anatomy." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Crawfish-Anatomy.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Crawfish-Anatomy.htm)
- 7.13. **Hummel N.A.** 7/30/2010. "Keep an eye to stink bugs and grasshoppers." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Keep-an-eye-to-stink-bugs-and-grasshoppers.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Keep-an-eye-to-stink-bugs-and-grasshoppers.htm)
- 7.14. **Hummel N.A.** 7/30/2010. "Advanced Entomology Training Presentation." LSU AgCenter website.

[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Advanced-Entomology-Training-Presentation.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Advanced-Entomology-Training-Presentation.htm)

- 7.15. **Hummel N.A.** 7/30/2010. "Results from Advanced Entomology Training Evaluations." LSU AgCenter website.  
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- 7.16. **Hummel N.A.** 7/30/2010. "Rice water weevils in seedling rice." LSU AgCenter website.  
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- 7.17. **Hummel N.A.** 7/30/2010. "Stand Counts Evangeline Parish." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Stand-Counts-Evangeline-Parish.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Stand-Counts-Evangeline-Parish.htm)
- 7.18. **Hummel N.A.** 7/30/2010. "Stand Counts in Jeff Davis Parish." LSU AgCenter website.  
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- 7.19. **Hummel N.A.** 7/30/2010. "Stand counts, rww scarring, colaspis and other observations." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Stand-counts-rww-scarring-colaspis-and-other-observations.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Stand-counts-rww-scarring-colaspis-and-other-observations.htm)
- 7.20. **Hummel N.A.** 7/30/2010. "Stand Emergence in St. Landry." LSU AgCenter website.  
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- 7.21. **Hummel N.A.** 7/30/2010. "Water-seeded trial update." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Water-seeded-trial-update.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Water-seeded-trial-update.htm)
- 7.22. **Hummel N.A.** 7/29/2010. "13<sup>th</sup> Annual Louisiana Farmer of the Year Banquet." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/13th-Annual-Louisiana-Farmer-of-the-Year-Banquet.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/13th-Annual-Louisiana-Farmer-of-the-Year-Banquet.htm)
- 7.23. **Hummel N.A.** 7/29/2010. "Aphids in Seedling Rice." LSU AgCenter website.  
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- 7.24. **Hummel N.A.** 7/29/2010. "Planting begins in St. Landry and Evangeline." LSU AgCenter website.  
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- 7.25. **Hummel N.A.** 7/29/2010. "Planting in Concordia and Tensas Parish." LSU AgCenter website.  
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- 7.26. **Hummel N.A.** 7/29/2010. "Planting Ville Platte Site." LSU AgCenter website.  
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- 7.27. **Hummel N.A.** 7/29/2010. "Rice Technical Working Group Meeting 2010 Notes." LSU AgCenter website.

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- 7.28. **Hummel N.A.** 7/26/2010. "News story on demonstration test." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/News-story-on-demonstration-test.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/News-story-on-demonstration-test.htm)
- 7.29. **Hummel N.A.** 7/26/2010. "Planting Acadia Demonstration sites." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Planting-Acadia-Demonstration-sites.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Planting-Acadia-Demonstration-sites.htm)
- 7.30. **Hummel N.A.** 7/26/2010. "Planting HorizonAg Strip Trial." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Planting-HorizonAg-Strip-Trial.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Planting-HorizonAg-Strip-Trial.htm)
- 7.31. **Hummel N.A.** 7/26/2010. "Rice stink bugs." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/Rice-stink-bugs.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/Rice-stink-bugs.htm)
- 7.32. **Hummel N.A.** 7/26/2010. "Stand Counts at Hoffpauir Demo." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Stand-Counts-at-Hoffpauir-Demo.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Stand-Counts-at-Hoffpauir-Demo.htm)
- 7.33. **Hummel N.A.** 7/23/2010. "Comparison of Cruiser and Dermacor." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/Comparison-of-Cruiser-and-Dermacor.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/Comparison-of-Cruiser-and-Dermacor.htm)
- 7.34. **Hummel N.A.** 7/23/2010. "LATMC conference notes." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/LATMC-conference-notes.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/LATMC-conference-notes.htm)
- 7.35. **Hummel N.A.** 7/22/2010. "Rice Growers meeting." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Rice-Growers-meeting.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Rice-Growers-meeting.htm)
- 7.36. **Hummel N.A.** 7/12/2010. "Results of Rice Water Weevil Demo Location 1, 2010." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Results2010Location1.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Results2010Location1.htm)
- 7.37. **Hummel N.A.** 7/9/2010. "Chinch bugs in Evangeline Parish." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Chinch-bugs-in-Evangeline-Parish.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Chinch-bugs-in-Evangeline-Parish.htm)
- 7.38. **Hummel N.A.** 7/9/2010. "Monitor your insecticide seed-treated fields." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Monitoryourinsecticideseed.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Monitoryourinsecticideseed.htm)
- 7.39. **Hummel N.A.** 7/9/2010. "Update-Water-Seeded trial." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/UpdateWaterseeded-trial.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/UpdateWaterseeded-trial.htm)
- 7.40. **Hummel N.A.** 7/9/2010. "Vermilion Parish -- armyworms, rice water weevils and rice leafminer." LSU AgCenter website. [http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/VermilionParisharmywormsricewaterweevilsandriceleafminer.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/VermilionParisharmywormsricewaterweevilsandriceleafminer.htm)

- 7.41. **Hummel N.A.** 7/9/2010. "Weevil processing." LSU AgCenter website.  
[http://www.agcenter.lsu.edu/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Weevil-processing.htm](http://www.agcenter.lsu.edu/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/blog/Weevil-processing.htm)
- 7.42. **Hummel N.A.** and Courville B.A. 6/17/2010. "Acadia Parish 2010 rww demo." LSU AgCenter website.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/Acadia-Parish-2010-rww-demo-.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/Acadia-Parish-2010-rww-demo-.htm)
- 7.43. **Hummel N.A.** 04/01/2010. "The Louisiana rice insects blog." LSU AgCenter website.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/The-Louisiana-Rice-Insects-Blog.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/The-Louisiana-Rice-Insects-Blog.htm) 98 page views, 75 unique views.
- 7.44. **Hummel N.A.** 08/25/2009. "Diaprepes root weevil – a new pest of citrus, sweet potatoes, sugarcane and ornamental plants in Louisiana." LSU AgCenter website.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/citrus/Diaprepes+root+weevil++a+new+pest+of+citrus+sweet+potatoes+sugarcane+and+ornamental+plants+in+Louisiana.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/citrus/Diaprepes+root+weevil++a+new+pest+of+citrus+sweet+potatoes+sugarcane+and+ornamental+plants+in+Louisiana.htm) 574 page views, 294 unique views.
- 7.45. **Hummel N. A.** 08/12/2009. "Scouting for rice water weevils". LSU AgCenter Video.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/How+to+Scout+for+Rice+Water+Weevils++video.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/How+to+Scout+for+Rice+Water+Weevils++video.htm) 247 page views, 198 unique views.
- 7.46. **Hummel N. A.** 08/12/2009. "Scouting for colaspis in rice". LSU AgCenter Video.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/How+to+Scout+for+colaspis+in+rice++video.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/How+to+Scout+for+colaspis+in+rice++video.htm) 153 page views, 115 unique views.
- 7.47. **Hummel N. A.** 06/05/2009. "LSU AgCenter Rice Training Session: How to Scout for Grape Colaspis in Rice". LSU AgCenter website.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/LSU+AgCenter+Rice+Training+Session+How+to+Scout+for+Grape+Colaspis+in+Rice.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/LSU+AgCenter+Rice+Training+Session+How+to+Scout+for+Grape+Colaspis+in+Rice.htm) 112 page views, 85 unique views.
- 7.48. **Hummel N.A.** 02/2009. "Return to your childhood and ride a bike to work". Chancellor's Challenge Blogs. (Invited blog)  
[http://www.lsuagcenter.com/en/administration/about\\_us/chancellors\\_office/Chancellors+Challenge+Blog/](http://www.lsuagcenter.com/en/administration/about_us/chancellors_office/Chancellors+Challenge+Blog/) 305 page views, 228 unique views.
- 7.49. **Hummel N. A.** 8/2008. "How to scout for PRM". LSU AgCenter Video.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/Scouting+for+the+panicle+rice+mite.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/Scouting+for+the+panicle+rice+mite.htm) 94 page views, 90 unique views.
- 7.50. **Hummel N. A.** and Ferrin D. M. 07/2008. "How to Scout for Asian Citrus Psyllid and Greening Disease". LSU AgCenter Video.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/citrus/How+to+scout+for+the+asian+citrus+psyllid+and+greening+disease.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/citrus/How+to+scout+for+the+asian+citrus+psyllid+and+greening+disease.htm) 803 page views, 492 unique views.
- 7.51. **Hummel, N.A.** 04/28/2008. "Rice Leafminer, *Hydrellia griseola*". Louisiana State University Agricultural Center.  
<http://www.lsuagcenter.com/rice/insects/rice+leafminer+hydrellia+griseola.htm> 81 page views, 67 unique views.
- 7.52. **Hummel N.A.** 05/2008. "Insects that attack citrus in Louisiana". Louisiana State University Agricultural Center.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/citrus/Insects+that+attack+citrus+in+Louisiana.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/citrus/Insects+that+attack+citrus+in+Louisiana.htm) 1,760 page views, 1,408 unique views
- 7.53. **Hummel N.A.** 05/2008. "Powerpoint presentation on insects and mites that attack backyard citrus". Louisiana State University Agricultural Center.

- <http://www.lsuagcenter.com/crops/citrus/powerpoint+presentation+on+insects+and+mites+that+attack+backyard+citrus.htm> 1,118 page views, 834 unique views
- 7.54. **Hummel N.A.** 05/2008. "Powerpoint about insects and mites that attack commercial citrus groves". Louisiana State University Agricultural Center.  
<http://www.lsuagcenter.com/crops/citrus/powerpoint+about+insects+and+mites+that+attack+commercial+citrus+groves.htm> 886 page views, 626 unique views
- 7.55. **Hummel N.A.** 05/2008. "Sap Beetle: a late season pest of strawberries in Louisiana". Louisiana State University Agricultural Center.  
<http://www.lsuagcenter.com/strawberries/sap+beetle+attacking+strawberries.htm> 144 page views, 107 unique views
- 7.56. **Hummel N.A.** 05/2008. "Two-spotted spider mites: a season-long pest of strawberries in Louisiana". Louisiana State University Agricultural Center.  
<http://www.lsuagcenter.com/strawberries/twospotted+spider+mites+a+seasonlong+pest+of+strawberries+in+louisiana.htm> 248 page views, 204 unique views.
- 7.57. **Hummel N.A.** 10/2007. "The Panicle Rice Mite: Biology, Monitoring, Control". Louisiana State University Agricultural Center.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/The+Panicle+Rice+Mite+Steneotarsonemus+spinki+A+New+Pest+To+Look+For+In+Rice.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/The+Panicle+Rice+Mite+Steneotarsonemus+spinki+A+New+Pest+To+Look+For+In+Rice.htm) 1,964 page views, 1,239 unique views.
- 7.58. **Hummel N.A.** 7/2007. "Prevention and Control of Insects Infesting Stored Rice". Louisiana State University Agricultural Center.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Insects/Prevention+and+Control+of+Insects+Infesting+Stored+Rice.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Insects/Prevention+and+Control+of+Insects+Infesting+Stored+Rice.htm) 213 page views, 132 unique views.
- 7.59. Boudreaux J.E., Reed D.P., **Hummel N.A.**, Ferrin D.M., and Benjamin S.H. 9/2007. "Commercial Strawberry Production in Louisiana".  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/strawberries/Commercial++Strawberry+Production+in+Louisiana.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/strawberries/Commercial++Strawberry+Production+in+Louisiana.htm) 2,239 page views, 1,738 unique views.
- 7.60. **Hummel N.A.** 04/24/2009. Page in a series. "Rice water weevil demonstration test" – series of 7 pages. Was updated throughout the season.  
[http://www.lsuagcenter.com/en/crops\\_livestock/crops/rice/Rice+Insect+Field+Notes/2009+Rice+Water+Weevil+Management+Demonstration.htm](http://www.lsuagcenter.com/en/crops_livestock/crops/rice/Rice+Insect+Field+Notes/2009+Rice+Water+Weevil+Management+Demonstration.htm) 74 page views, 39 unique views.
8. **LSU AgCenter Website Maintenance (1)**  
8.1. Content moderator for citrus channel in CMS.
9. **Louisiana rice insects blog** ([www.louisianariceinsects.wordpress.com](http://www.louisianariceinsects.wordpress.com)). Launched January 2010. (75 postings, 6,317 hits, 35 active subscriptions)

## **COOPERATION/COLLABORATION WITH OTHER FACULTY**

## **COOPERATION/COLLABORATION WITH OTHER FACULTY**

**Introduction.** *The majority of my programs are collaborative efforts with research and extension faculty both on and off campus in the Department of Entomology and also collaboration across departmental lines and universities.*

### **1. Rice IPM**

- 1.1. Rice Verification Project. Dr. Saichuk (LSU AgCenter rice specialist) conducts a rice verification program every field season. The goal of this program is to encourage adoption of best management practices by documenting increases in yield. This typically includes rice fields located across the state. Occasionally, Dr. Saichuk will call on me to identify invertebrate pest problems. In 2008, we also conducted a county agent tour. The county agent tour was a multi-day rice training. I participated as a trainer on this tour. The rice verification program received the 2009 LSU AgCenter Loupe Team Award.
- 1.2. Rice Water Weevil Demonstration. This is a cooperative effort between Dr. Mike Stout (Rice Research Entomologist), many county agents, and myself. We also have a large number of growers, agro-chemical industry representatives, field scouts, and consultants that are involved in this test. See *DOCUMENTATION OF MAJOR PROGRAM AREAS AND INITIATIVES* (page 10).
- 1.3. Rice Stinkbug Research/Extension Program (SR-IPM). This is a multi-state research/extension project involving entomologists and plant pathologists from Arkansas, Missouri, Louisiana, and Texas. Our study includes the following components: 1) surveys are management practices, 2) assessment of resistance to insecticides, 2) new insecticide evaluation, 3) revision of treatment thresholds, and 4) demonstration of new insecticides and revised thresholds.
- 1.4. Panicle Rice Mite (PRM) Research/Extension Program. In cooperation with Dr. Mike Stout (research counterpart in Entomology) we conducted the following studies after PRM was detected in Louisiana: (1) miticide trial in a Rice Research Station greenhouse; (2) grid survey of PRM infested plots at the Rice Research Station; (3) winter survey for PRM on weeds in Kaplan, La; and (4) evaluated relative efficacy of seed treatments. We also cooperated with a grower and field faculty to deliver a hands-on identification workshop.
- 1.5. Colaspis in rice/soybean rotation. In cooperation with Dr. Jeff Davis (Soybean Research Entomologist), we developed and delivered a specialized training and hands-on identification workshop on colaspis in rice. Dr. Davis and I also worked together to prepare newsletter articles and management recommendations. The first task was to determine the species complex in LA. Dr. Davis, consultants and field scouts collected colaspis beetles from soybeans throughout the state. I am supervising student workers who are identifying these specimens to the species level. We are surveying the species distribution from Arkansas to southwest Louisiana. In 2010, we planted 6 colaspis demonstration sites to evaluate relative efficacy of the two seed treatments (DermaCor X-100 and CruiserMaxx). Colaspis did not infest our test sites, but we were able to gather RWW efficacy data.
- 1.6. Small-Plot Rice Insecticide Trials. Conducted small plot trials to evaluate products for Cheminova, Dupont, Syngenta, and Valent. Trials have been conducted at the rice research station in Crowley, La, the northeast research station in Winnsboro, LA, the St. Joseph research station, and on cooperator land in Monterrey, LA. These trials have been conducted in cooperation with LSU AgCenter faculty Drs. Mike Stout, Bill Williams (Weed Scientist), and Dustin Harrel (Agronomist).

- 1.7. Advanced Entomology Training. Intensive entomology training with lectures presented by a group of faculty: Dr. Chris Carlton (Professor, Department of Entomology), Dr. Jim Ottea (Professor, Department of Entomology), Dr. Mike Stout (Professor, Department of Entomology), and Dr. Johnny Saichuk (Professor and State Rice Specialist, Rice Research Station)
2. **Fruit and nut IPM**
  - 2.1. eXtension Community of Practice – All about Blueberries. This project is funded by a grant from the USDA SCRI competitive grants program. This is a trans-disciplinary cooperative effort involving LSU AgCenter faculty from Agricultural Economics, Entomology, Horticulture (SPESS), Organizational Develop and Evaluation, Nutrition, and Plant Pathology and Crop Physiology. We are also working with the LSU AgCenter Communications and Information Technology service units. Faculty from Auburn University, University of Georgia, Mississippi State University and North Carolina State University are also cooperating on this project.
  - 2.2. Asian Citrus Psyllid and Citrus Greening Disease Response. The response to this invasive species detection was a cooperative effort between Entomology and Plant Pathology faculty, County Agents, and regulatory agencies (LDAF and USDA-APHIS). Dr. Don Ferrin and I developed and delivered a county agent training session on identification and management of this pest. We also prepared a scouting video, numbered publications and websites. I have an ongoing program in cooperation with county agents (A. Vaughn and R. Schmit) to monitor populations of ACP in southeast Louisiana.
  - 2.3. Parasitoids to control citrus pests. Cooperated with Dr. Seth Johnson (Professor in Entomology - Biocontrol Specialist) on releases of parasitoid wasps to control citrus blackfly. Contacted county agents to identify field sites and assisted in parasitoid releases.
3. **Graduate student education**
  - 3.1. Practicum in Extension Entomology. Entomology graduate level course that has been developed by Dr. Ring. I am listed as an instructor on the course and will assist in guiding student projects when the course is offered. The goal of this course is to prepare graduate students to work as extension entomologists.

## **EXTERNAL FUNDING, MATERIAL SUPPORT AND GRANTS**

## EXTERNAL FUNDING, MATERIAL SUPPORT AND GRANTS

### 1. Pending: (\$106,900)

#### 1.1. USDA

- PI: **Hummel N.**, Co-PIs: Carlton C., Machtmes K., Morgan A., Nix K., Ring D. (LSU AgCenter), Burrack H. (NCSU), Abney M. (NCSU), Hale F. (University of Tennessee), Hodges A. (University of Florida) and Douce K. (University of Georgia). 2010. "Development of an online-interactive Train-the-Trainer First Detector Entomology Training for County Agents." Farm Bill Section 10201 USDA-APHIS and USDA-NIFA. \$106,900. *Selected for funding, awaiting contract from USDA.*

### 2. Funded: (\$579,983 as PI and \$477,734 as co-PI. Total = \$1,105,717)

#### 2.1. USDA

- PI: **Hummel N.**, Co-PI: Ferrin D. 2010. "Multimedia educational efforts to promote enhanced pest detection for small farms audiences." USDA-CSREES Pest Detection Education. University of Florida, subcontract. \$5,500.
- PI: **Hummel N.**, Co-PI: Ferrin D. 2010. "Citrus Commodity Survey" USDA, APHIS, CPHST, CAPS. \$20,000.
- PI: **Hummel N.**, Co-PI's: Ferrin D., Machtmes K., Roy H., Coneva E. (Auburn University), Braswell J. (Mississippi State University), and Cline B. (NCSU). 2009-2012. "Development of an eXtension Community of Practice - All about Blueberries". USDA CSREES-SCRI. \$518,749.
- PI: Pollet D., Co-PI's: **Hummel N.** and Ferrin D. 2009. "Citrus Commodity Survey". USDA, APHIS, CPHST, CAPS. \$20,000.

#### 2.2. Southern Region Integrated Pest Management (SRIPM) Program

- PI: Stout M., Co-PI's: **Hummel N.**, Groth D., Machtmes K., Tindall K. (University of Missouri), Bernhardt J. (University of Arkansas) and Way M. (Texas AgriLife). 2009-2012. "Revising management programs for the rice stink bug in southern rice". SRIPM Program. \$133,019.

#### 2.3. Louisiana Rice Research Board (LRRB)

- PI: Stout M., Co-PI: **Hummel N.** 2010. "Integrated management strategies for insect pests of rice in Louisiana". LRRB. \$85,000.
- PI: **Hummel N.**, Co-PI: Stout M. 2010. "Extension program development and demonstration trials for improving integrated pest management in Louisiana Rice Production". LRRB. \$15,000.
- PI: **Hummel N.**, Co-PI: Stout M. 2009. "Extension program development and demonstration trials for improving integrated pest management in Louisiana Rice Production". LRRB. \$11,000.
- PI: Stout M., Co-PI: **Hummel N.** 2009. "Integrated management strategies for insect pests of rice in Louisiana". LRRB. \$82,000.
- PI: **Hummel N.**, Co-PI: Stout M., Harrell D., and McClain R. 2008. "The Panicle Rice Mite: statewide survey and evaluating crop rotation as a management tool". LRRB. \$9,734.
- PI: Stout M., Co-PI: **Hummel N.** 2008. "Integrated management strategies for insect pests of rice in Louisiana". LRRB. \$71,715.

#### 2.4. Cotton Incorporated

- PI: Bagwell R. Co-PIs: **Hummel N.**, and Ring D. 2008. "Evaluation of Sampling Procedures for Detecting Tarnished Plant Bugs Populations in Cotton". Cotton Incorporated. \$35,000.

- PI: Bagwell R. Co-PIs: **Hummel N.**, and Ring D. 2007. "Evaluation and use of management zones in a precision agriculture production system for cotton IPM". Cotton Incorporated. \$16,000.
- PI: Bagwell R. Co-PIs: **Hummel N.**, and Ring D. 2007. "Impact and management of bug (tarnished plant bug and stinkbug) pest on cotton". Cotton Incorporated. \$35,000.

### 3. Not Funded:

#### 3.1. USDA

- PI: Sanderlin, Co-PI's: Ham, Hall, Graham, Pyzner, **Hummel** and Machtmes. 2009-2012. "Role of insect vectors and graft-transmission for introduction of *Xylella fastidiosa* into new pecan orchards, identification of virulence factors in the pecan pathogen strain, and susceptibility of pecan rootstocks and cultivars." USDA-SCRI RFA. Requested: \$450,132.
- PI: Spiers J., Co-PI's: Fadamiro H., Murphy J., Majumdar A., Coneva E., Nesbitt M., (Auburn University), **Hummel N.**, Ferrin D. (LSU AgCenter) and Mizell R. (University of Florida). 2009-2014. "Best Management Strategies for Economic Sustainability of the Satsuma Mandarin Industry in the Gulf Coast Region." USDA-SCRI RFA. Subcontract requested: \$99,977.
- Co-PI: **Hummel N.** (many co-PIs, University of Florida - Lead Institution). 2008. "Short term and intermediate approaches to managing citrus Huanglongbing (Greening)." USDA-ARS SCRI. Subcontract Requested: 163,864.

#### 3.2. Southern Region Integrated Pest Management Program

- PI: **Hummel N.**, Co-PIs: Bagwell R., Baldwin J., Carlton C., Grodner M., Machtmes K., Morgan A., Pollet D., Ring D., Hopkins J., Burrack H., Abney M., Hale F. and Douce K. 2009-2012. "Development of an online-interactive Train-the-Trainer First Detector Entomology Training for County Agents." Southern Region Integrated Pest Management Program. Requested: \$58,758.

#### 3.3. IR-4 Biopesticide Research Program

- PI: **Hummel N.** Co-PIs: Johnson S., Stout M., Fadamiro H. and Nesbitt M. 2007. "Utilizing alarm pheromones to control leaf-footed bug, *Leptoglossus zonatus* in Satsuma production in the Gulf Coast." IR-4 Biopesticide Research Program. Requested: \$25,000.

#### 3.4. The Rice Foundation

- PI: **Hummel N.** Co-PIs: Bernhardt J., Lorenz G., Godfrey L., Espino L., Stout M., Robbins J., Buehring N, Way M, Tindall K. 2007. "Development of an interactive website to track incidence of insect pests in rice." The Rice Foundation. Requested: \$31,500.

#### 3.5. LSU Economic Development Assistantship

- PI: **Hummel N.**, Co-PI: Aime C. 2007. LSU Economic Development Assistantship. Requested: \$100,000.

### 4. Industry Funding (Total = \$59,000)

- 4.1. **Hummel, N.** 2010. Commercial grant support from DuPont (\$5,000) and Syngenta (\$4,000).
- 4.2. **Hummel N.** 2009. Commercial grant support from DuPont (\$10,000), Mitsui (\$20,000), and Cheminova (\$8,000).
- 4.3. **Hummel N.** 2008. Commercial grant support from DuPont (\$3,000), and Syngenta (\$5,000).

**OTHER PUBLICATIONS – REFEREED/NON-REFEREED**

**OTHER PUBLICATIONS – REFEREED/NON-REFEREED**

**1. Refereed (11)**

- 1.1. Stout M.J., **Hummel N.A.**, Frey M.J. and Rice W.C. 2010. The impacts of planting date on management of the rice water weevil in Louisiana rice. *Open Entomology Journal*. Accepted July 2010, In Press.
- 1.2. **Hummel N.A.**, Hardy T., Reagan T.E., Pollet D., Carlton C., Stout M.J., Beuzelin J., Akbar W. and White W. 2010. Monitoring and first discovery of the Mexican rice borer (MRB) *Eoreuma loftini* (Dyar) (Lepidoptera: Crambidae) in Louisiana. *Florida Entomologist*. 93(1), 123-124.
- 1.3. **Hummel N.A.**, Castro B.A, McDonald E.M., Pellerano M.A. and Ochoa R. 2009. The Panicle Rice Mite, *Steneotarsonemus spinki* Smiley, a re-discovered pest of rice in the United States. *Crop Protection*. 28: 547-560.
- 1.4. **Hummel N.A.**, Leal W.S., and Zalom F.G. 2008. Potentially hygroreceptive sensilla on the anal stylus of the glassy-winged sharpshooter, *Homalodisca vitripennis*. 6pp. *Journal of Insect Science* 8:58, available online: insectscience.org/8.58
- 1.5. **Hummel N.A.**, Li A.Y. and Witt C.M. 2007. Serotonin-like immunoreactivity in the central nervous system of two ixodid tick species. *Experimental and Applied Acarology*. 43:265-278.
- 1.6. **Hummel N.A.**, Zalom F.G. and Peng C.Y.S. 2006. The anatomy and histology of the reproductive organs of female *Homalodisca coagulata* (Hemiptera: Cicadellidae), with special emphasis on the categorization of developing oocytes. *Annals of the Entomological Society of America*. 99:920-932.
- 1.7. **Hummel N.A.**, Zalom F.G., Toscano N.C., Burman P. and Peng C.Y.S. 2006. Seasonal patterns of female *Homalodisca coagulata* reproductive physiology (Hemiptera: Cicadellidae) in Riverside, California. *Environmental Entomology*. 35:901-906.
- 1.8. **Hummel N.A.**, Zalom F.G., Toscano N.C. and Peng C.Y.S. 2006. Structure of female genitalia of glassy-winged sharpshooter, *Homalodisca coagulata* (Say) (Hemiptera: Cicadellidae). *Arthropod Structure and Development*. 35:111-125.
- 1.9. **Hummel N.A.**, Zalom F.G. and Peng C.Y.S. 2005. Fecundity and success of progeny produced by *Homalodisca coagulata* (Hemiptera: Cicadellidae) on single host species. *Journal of Agricultural and Urban Entomology*. 22(3+4):151-158.
- 1.10. **Hummel N.A.**, Zalom F.G., Miyao G.M., Underwood, N.C., and Villalobos, A. 2004. Potato aphid, *Macrosiphum euphorbiae* (Thomas), in tomatoes: plant canopy distribution and binomial sampling of processing tomatoes in California. *Journal of Economic Entomology*. 97:490-495.
- 1.11. Cullen E., Zalom F., Steinke W. and **Hummel N.** 2001. High-volume applications to improve canopy penetration and efficacy of reduced risk insecticides in processing tomatoes. *Acta Horticulturae*. 542:31-37. Proceedings of the 7<sup>th</sup> International Symposium on the Processing Tomato. Ed. T.K. Hartz. ISHS, Belgium.

**2. Non-refereed (24):**

- 2.1. Louisiana Agriculture Magazine (2) I submitted a proposal for a feature magazine on the topic of invasive species. The proposal was accepted by the editorial board and manuscripts were submitted July 15, 2010.  
**Hummel N.A.**, Hardy T., Paudel K., Roussel C. and Spitzer W. 2010. Economic Impact and regulatory response to Invasive Species in Louisiana. *Louisiana Agriculture*. (Invited article, submitted, IN PRESS)

**Hummel N.A.**, Ferrin D.M. and Boudreaux J. 2010. Invasive species in Louisiana citrus. *Louisiana Agriculture*. (Invited article, submitted, IN PRESS)

## 2.2. Abstracts & Proceedings (22)

Attaway A.D., Clark B. and **Hummel N.** 2010. Growing blueberry knowledge via social networks. American Society of Horticultural Science. Palm Desert, CA. Aug. 2-5. *Journal of Fruit Science*. IN PRESS

**Hummel N.A.**, Attaway A.D., Coneva E.D., Braswell J., Cline W.O., Marshall D., Ferrin D.M. Machtmes K.M., and Roy H.J. 2010. Creating a community of practice for blueberries. American Society of Horticultural Science. Palm Desert, CA. Aug. 2-5. *Journal of Fruit Science*. IN PRESS

Attaway A.D., Clark B. and **Hummel N.** 2010. Growing blueberry knowledge via social networks. North American Blueberry Research and Extension Workers Conference. Kalamazoo, MI. Jul 25-28. IN PRESS

**Hummel N.A.**, Attaway A.D., Coneva E.D., Braswell J., Cline W.O., Marshall D., Ferrin D.M. Machtmes K.M., and Roy H.J. 2010. Creating a community of practice for blueberries. North American Blueberry Research and Extension Workers Conference. Kalamazoo, MI. Jul 25-28. IN PRESS

**Hummel N.A.** 2010. Land Grant University (LGU) response to invasive species – how to communicate with the media and regulatory agencies. Proceedings of the Annual Meeting of the Southwestern Branch of the Entomology Society of America. Cancun, MX. Apr. 11-14. *Southwestern Entomologist*. IN PRESS.

**Hummel N.A.** and Ferrin D.M. 2010. Asian citrus psyllid and citrus greening disease in Louisiana. Proceedings of the Annual Meeting of the Southwestern Branch of the Entomology Society of America. Cancun, MX. Apr. 11-14. *Southwestern Entomologist*. IN PRESS.

**Hummel N.A.** and Stout M.J. 2010. Louisiana rice water weevil demonstration, 2008 to 2009. Proceedings of the 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb. 22-25. IN PRESS.

Stout M.J., **Hummel N.A.** and Rice W.C. 2010. The impact of planting date on rice water weevil management. Proceedings of the 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb. 22-25. IN PRESS.

Sidhu J.K., Stout M.J. and **Hummel N.A.** 2010. Development of pest management strategies for sugarcane borer in Louisiana rice. Proceedings of the 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb. 22-25. IN PRESS.

**Hummel N.A.** and Davis J. 2010. Detection of colaspis in Louisiana rice in 2009. Proceedings of the 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb. 22-25. IN PRESS.

**Hummel N.A.**, Meszaros A. and Stout M.J. 2010. The 2008 Louisiana rice insects survey. Proceedings of the 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb. 22-25. IN PRESS.

**Hummel N.A.**, Coneva E.D., Braswell J., Cline W.O. Marshall D., Ferrin D.M. Machtmes K.L. and Roy H.J. 2010. Development of the “All about Blueberries” eXtension Community of Practice (CoP) SCRI Proposal. Proceedings of the Southern Division American Society of Horticultural Sciences Meeting. Orlando, FL. Feb. 7. IN PRESS.

**Hummel N.**, McCown T., Stout M., Burns D, Courville B., Daniels G., Eskew C., Fontenot K., Gauthier S., Lee D. and Levy R. 2009. Rice water weevil management large-scale demo in Louisiana. Rocky Mountain Conference of Entomologists, Silverton, CO. Aug. 3-4.

**Hummel N.A.** 2008. The Panicle Rice Mite, a New Pest of Rice in the United States. Proceedings of the 32<sup>nd</sup> Rice Technical Working Group. San Diego, CA. Feb. 18-21.

- Hummel N.A.** 2008. The Panicle rice mite, a new pest of rice in the United States. Rocky Mountain Conference of Entomologists, Woodland Park, CO. Jul. 27-31.
- Way M.O. and **Hummel N.A.** 2007. Rice Panicle Mite Detected in Texas in 2007. p. 24. 19<sup>th</sup> Annual Texas Plant Protection Conference. Hilton Hotel & Conference Center. College Station, TX. Dec. 4-5.
- Zalom F.G., Peng C.Y.S. and **Hummel N.A.** 2005. Reproductive biology and physiology of female Glassy-winged Sharpshooters: Effect of host plant type on fecundity and development. pp. 131-134. *In* M.A. Tariq, S. Oswalt, P. Blincoe, and Esser, T. (eds.) Pierce's Disease Research Symposium Proceedings. San Diego Marriott Hotel & Marina, San Diego, CA Dec. 5-7.
- Zalom F.G., Peng C.Y.S. and **Hummel N.A.** 2005. Reproductive biology and physiology of female Glassy-winged Sharpshooters: Morphology and vitellogenesis cycles. pp. 135-138. *In* M.A. Tariq, S. Oswalt, P. Blincoe, and Esser, T. (eds.) Pierce's Disease Research Symposium Proceedings. San Diego Marriott Hotel & Marina, San Diego, CA. Dec. 5-7.
- Hummel N.A.**, Peng C.Y.S. and Zalom F.G. 2004. Reproductive biology and physiology of female Glassy-winged Sharpshooters. pp. 237-240. *In* M.A. Tariq, S. Oswalt, P. Blincoe, A. Ba, T. Lorick, and Esser, T. (eds.) Pierce's Disease Research Symposium Proceedings. Coronado Island Marriot Resort, Coronado, CA. Dec. 7-10.
- Hummel N.A.**, Peng C.Y.S. and Zalom F.G. 2003. Reproductive biology and physiology of female Glassy-winged Sharpshooters. pp. 237-240. *In* M.A. Tariq, S. Oswalt, P. Blincoe, R. Spencer, L. Houser, A. Ba, and Esser, T. (eds.) Pierce's Disease Research Symposium Proceedings. Coronado Island Marriot Resort, Coronado, CA. Dec. 8-11.
- Hummel N.A.**, Peng C.Y.S. and Zalom F.G. 2002. Reproductive biology and physiology of the Glassy-winged Sharpshooters. pp. 113-115. *In* M.A. Tariq, S. Oswalt, P. Blincoe, and Esser, T. (eds.) Pierce's Disease Research Symposium Proceedings. Coronado Island Marriot Resort, Coronado, CA. Dec. 15-18.
- Hummel N.A.**, Peng C.Y.S. and Zalom F.G. 2001. Reproductive biology and physiology of the Glassy-winged Sharpshooters. pp. 89-92. *In* M.A. Tariq, S. Oswalt, and Esser, T. (eds.) Pierce's Disease Research Symposium Proceedings. Coronado Island Marriot Resort, Coronado, CA. Dec. 5-7.

## **PRESENTATIONS**

## PRESENTATIONS AT PROFESSIONAL AND CLIENTELE TARGETED CONFERENCES

### 1. Professional Conferences (39)

- 1.1. **Hummel N.**, Stout M., Ochoa R., Castro B., and McDonald E. 2010. *Steneotarsonemus spinki* Smiley, field observations and an update on the status in the United States. XIII International Congress of Acarology. Recife, Pernambuco, Brazil. Aug 24. (*Invited oral presentation*)
- 1.2. Attaway A.D., Clark B. and **Hummel N.** 2010. Growing blueberry knowledge via social networking. American Society of Horticultural Science. Palm Desert, CA. Aug 3. (*Poster*)
- 1.3. **Hummel N.A.**, Attaway A.D., Coneva E.D., Braswell J., Cline W.O., Marshall D., Ferrin D.M. Machtmes K.M. and Roy H.J. 2010. Creating a community of practice for blueberries. American Society of Horticultural Science. Palm Desert, CA. Aug 3. (*Attaway presented on my behalf*)
- 1.4. Attaway D.A., Clark B. and **Hummel N.** 2010. Growing blueberry knowledge via social networking. North American Blueberry Research and Extension Workers Conference. Kalamazoo, MI. Jul 27. (*Poster*)
- 1.5. **Hummel N.A.**, Attaway A.D., Coneva E.D., Braswell J., Cline W.O., Marshall D., Ferrin D.M. Machtmes K.M., and Roy H.J. 2010. Creating a community of practice for blueberries. North American Blueberry Research and Extension Workers Conference. Kalamazoo, MI. Jul 27.
- 1.6. Attaway, A.D. and **Hummel N.A.** 2010. How to use Google Knol to create content. National eXtension workshop. Austin, TX. Jun 8. (*Invited oral presentation*)
- 1.7. **Hummel N.A.** and Ferrin D.M. 2010. Asian Citrus Psyllid and Greening Disease in Louisiana. Southwestern Branch of the Entomological Society of America Meeting. Cancun, MX. Apr 13.
- 1.8. **Hummel N.A.** 2010. LGU response to invasive species - how to communicate with the media and regulatory agencies. Southwestern Branch of the Entomological Society of America Meeting. Cancun, MX. Apr 13.
- 1.9. Stout M.J., **Hummel N.A.** and Rice W.C. 2010. The impact of planting date on rice water weevil management. 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb 24.
- 1.10. Sidhu J.K., Stout M.J. and **Hummel N.A.** 2010. Development of pest management strategies for sugarcane borer in Louisiana rice. 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb 24.
- 1.11. **Hummel N.A.** and Davis J. 2010. Detection of colaspis in Louisiana rice in 2009. 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb 24.
- 1.12. **Hummel N.A.**, Meszaros A. and Stout M.J. 2010. The 2008 Louisiana rice insects survey. 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb 24. (*Poster*)
- 1.13. **Hummel N.A.** and Stout, M.J. 2010. Louisiana rice water weevil demonstration, 2008 to 2009. 33<sup>rd</sup> Rice Technical Working Group. Biloxi, MS. Feb 24.
- 1.14. **Hummel N.A.**, Coneva E.D., Braswell J., Cline W.O., Marshall D., Ferrin D.M., Machtmes K.L. and Roy H.J. 2010. Development of the "All about Blueberries" eXtension Community of Practice (CoP) SCRI Proposal. Southern Division American Society of Horticultural Sciences Meeting. Orlando, FL. Feb 7. (*Invited oral presentation*)
- 1.15. **Hummel N.** 2010. The All about Blueberries Community of Practice. Southern Blueberry/Small Fruit Workers Meeting. Orlando, FL. Feb 6.
- 1.16. **Hummel N.** 2010. "All About Blueberries" eXtension SCRI: goals, approaches, and opportunities for synergism. Southern Blueberry SCRI 2<sup>nd</sup> Annual PI Meeting. Savannah, GA. Jan 10. (*Invited oral presentation*)
- 1.17. **Hummel N.**, Castro B., McDonald E., Pellerano M. and Ochoa R. 2009. The Panicle Rice Mite, *Steneotarsonemus spinki* Smiley, a re-discovered pest of rice in the United States.

Entomological Society of America Annual Meeting. Indianapolis, IN. Dec 13. (*Invited oral presentation*)

- 1.18. **Hummel N.**, Ferrin D., Gautreaux C. and Pollet D. 2009. Development of “how to scout” videos for invasive species and economic pests. 2<sup>nd</sup> National Plant Diagnostics Network Meeting. Miami, FL. Dec 6-9. (*Poster*)
- 1.19. **Hummel N.**, Singh R., Ferrin D., Hollier C., Pollet, D. and Strahan R. 2009. New invertebrate, plant disease and weed detections in Louisiana from 2007 to 2009. 2<sup>nd</sup> National Plant Diagnostics Network Meeting. Miami, FL. Dec 6-9. (*Poster*)
- 1.20. Hodges A., Bambara S., Bensen E., Bográn C., Day E., Douce K., Hale F., Ray C., Layton B., Pollet D., **Hummel N.**, Segarra A., and Jenkins D. 2009. SPDN: Educational Efforts to Enhance Regional Entomology Diagnostics. 2<sup>nd</sup> National Plant Diagnostics Network Meeting. Miami, FL. Dec 6-9. (*Poster*)
- 1.21. Hodges A., Harmon C., Beck H., Brown R., Hoenisch R., Dobesh S., Snover-Clift K., Bloem S., Cain S., Call J., Clement D., Douce K., LaForest J., Draper M., Hoffman B., **Hummel N.**, Ruhl G., Roberts P., Silagyi A. and Waters H. 2009. NPDN: Delivering first detector training through eLearning. 2<sup>nd</sup> National Plant Diagnostics Network Meeting. Miami, FL. Dec 6-9. (*Poster*)
- 1.22. Hoenisch R., Hodges A., Harmon C., Beck H., Brown R., Dobesh S., Snover-Clift K., Bloem S., Cain S., Call J., Clement D., Douce K., LaForest J., Draper M., Hoffman B., **Hummel N.**, Ruhl G., Roberts P., Silagyi A. and Waters H. 2009. NPDN: Delivering first detector training through workshops, webinars, and wiki web page content for master gardeners. 2<sup>nd</sup> National Plant Diagnostics Network Meeting. Miami, FL. Dec 6-9. (*Poster*)
- 1.23. **Hummel N.A.**, Vaughn A. and Ferrin D. 2009. An update on the ACP/HLB situation in Louisiana. Citrus Huanglongbing and potato zebra chip conference: status of diseases and research opportunities. McAllen, TX. Nov 17. (*Invited oral presentation*).
- 1.24. **Hummel N.A.**, Hodges A.C. and Beck H.W. 2009. The NPDN First Detector Training Program: Reaching Audiences through Traditional and Multimedia Platforms. National Agricultural County Agents Association Annual Meeting. Portland, OR. Sept 22.
- 1.25. **Hummel N.**, McCown T., Stout M., Burns D., Courville B., Daniels G., Eskew C., Fontenot K., Gauthier S., Lee D. and Levy R. 2009. LSU AgCenter rice water weevil demonstration test. Rocky Mountain Conference of Entomologists. Silverton, CO. Aug 3.
- 1.26. **Hummel N.**, McCown T., Stout M., Burns D., Courville B., Daniels G., Eskew C., Fontenot K., Gauthier S., Lee D. and Levy R. 2009. LSU AgCenter rice water weevil demonstration test. Louisiana County Agricultural Agents Association Annual Meeting and Professional Improvement Conference (LCAAA AM/PIC). Scott, LA. Jun 1. (*Poster*)
- 1.27. **Hummel N.**, McCown, T., Stout, M., Daniels, G., Eskew, C., Gauthier, S., and Levy, R. 2009. Demonstration of Dermacor X-100 rice seed treatment in commercial rice fields in Louisiana. Southeastern Branch of the Entomological Society of America Annual Meeting. Montgomery, AL. Mar 8.
- 1.28. **Hummel N.A.**, Stout M.J., Reagan T.E., Laird B. and Hard, T. 2008. Invasive alien invertebrates that threaten Louisiana rice. Entomological Society of America Annual Meeting. Reno, NV. Nov 19. (*Poster*)
- 1.29. **Hummel N.A.** 2008. The panicle rice mite, a new pest of rice in the United States. Rocky Mountain Conference of Entomologists. Woodland Park, CO. Jul 27-31.
- 1.30. **Hummel N.A.**, Stout M.J., Reagan T.E., Laird B. and Hardy T. 2008. Invasive invertebrates to watch for in Louisiana rice. LCAAA AM/PIC. Baton Rouge, LA. Jun 3. (*Poster*)

- 1.31. **Hummel N.A.** 2008. The Panicle Rice Mite: A new pest of rice in the United States. Southeastern Branch of the Entomological Society of America Annual Meeting. Invasive Species Symposium. Jacksonville, FL. Mar 4.
  - 1.32. **Hummel N.A.** 2008. The Panicle Rice Mite: A new pest of rice in the United States. 32<sup>nd</sup> Rice Technical Working Group. San Diego, CA. Feb 18-21.
  - 1.33. **Hummel N.A.**, Li A.Y. and Witt C.M. 2007. Immunocytochemical detection of biogenic amines in the central nervous system of three Ixodid tick species. Entomological Society of America Annual Meeting. San Diego, CA. Dec 11. (*Poster*)
  - 1.34. **Hummel N.A.** 2007. High Consequence Insects in Agriculture. Plant Biosecurity Symposium. Southern University. Baton Rouge, LA. Nov 06. (*Invited oral presentation*).
  - 1.35. **Hummel N.A.**, Zalom F.G., and Peng, C.Y.S. 2007. Seasonal patterns of female *Homalodisca coagulata* (Say) reproductive physiology in Riverside, California. Southwestern Branch Entomological Society of America Annual Meeting. Corpus Christi, TX. Feb 19-22. (*Invited oral presentation*).
  - 1.36. Li A.Y. and **Hummel N. A.** 2006. Problem acaricide resistance presents for the control and eradication of *Boophilus microplus*. Entomological Society of America Annual Meeting. Indianapolis, IN. Dec 10-13 (*Invited oral presentation*).
  - 1.37. **Hummel N.A.**, Zalom F.G. and Peng C.Y.S. 2005. A histological description of the reproductive system and seasonal reproductive activity of female *Homalodisca coagulata* (Say) in southern California. Pacific Branch Entomological Society of America Annual Meeting. Monterey, CA. Feb 27-Mar 2. (*Invited oral presentation*).
  - 1.38. **Hummel N.A.**, Zalom F.G., and Peng C.Y.S. 2004. The reproductive biology and physiology of the female Glassy-winged Sharpshooter, *Homalodisca coagulata* (Say). University of California, Cooperative Extension, Pest Management Conference, Integrated Pest Management of the Glassy-winged Sharpshooter and the disease it vectors workgroup meeting. Riverside, CA. Nov. (*Invited oral presentation*).
  - 1.39. **Hummel N.A.**, Zalom F.G., Peng C.Y.S. and Leal W.S. 2004. "Electrophysiological recordings and scanning electron microscopic study of the anal stylus of *Homalodisca coagulata*". Pacific Branch Entomological Society of America Annual Meeting. Bozeman, MT. Jun 20-24 (*Invited Graduate Student Symposium*).
2. **Clientele Targeted Presentations (100)** *Presentations are given at the request of County Agents, Crop Consultants and other stakeholders. The goal of these presentations is to educate the audience about IPM and encourage the adoption of LSU AgCenter recommended best management practices.*
- 2.1. **Hummel N.A.** 2010. General Entomology and IPM for fruit and nut crops. Master Gardener Training. Covington, LA. Aug 19.
  - 2.2. **Hummel N.A.** 2010. Rice insect pest management. Northeast Research Station Field Day. St. Joseph, LA. Jul 20.
  - 2.3. **Hummel N.A.** 2010. IPM for fruit and nut crops. Master Gardener Training. Baton Rouge, LA. Jul 15.
  - 2.4. **Hummel N.A.** 2010. Northeast LA Rice/Soybean Field Day. Rayville, LA. Jul 14.
  - 2.5. **Hummel N.A.** 2010. Water Seeded Rice Water Weevil Control Plots. Vermilion Rice & Soybean Field Tour Farm Field Day. Jul 13.
  - 2.6. **Hummel N.A.** 2010. Rice water weevil and rice stink bug scouting and management. East Carroll Parish rice school. Tallulah, LA. Jul 9.

- 2.7. **Hummel N.A.** 2010. Rice water weevil demonstration test at Lawson Farm Results. Horizon Ag Field Day. Crowley, LA. Jul 6.
- 2.8. **Hummel N.A.** 2010. Rice insect pest management. Rice station field day. Crowley, LA. Jul 1.
- 2.9. **Hummel N.A.** 2010. Rice water weevil demonstration results and introduction to online id guide. Rice agent training. Jun 30.
- 2.10. **Hummel N.A.** 2010. Rice insect update and RWW demonstration data at Hoffpauir test plot. Rice and Soybean Field Day, South Farm. Rayne, LA. Jun 16.
- 2.11. **Hummel N.A.** 2010. Rice insect update and rww evaluation data at Pousson test plot. Southwest rice tour. Welsh, LA. May 26.
- 2.12. **Hummel N.A.** 2010. Dermacor, Cruiser plotwork, colaspis & weevil control. Evangeline Parish rice field day. Mamou, LA. May 25.
- 2.13. **Hummel N.A.** and Stout M.J. 2010. Nipsit Inside EUP process. Valent NipsitInside Mini-Tour. Crowley, LA. May 11.
- 2.14. **Hummel N.A.** and Morgan A. 2010. Vegetable pest management. Lake Charles Garden Show. Lake Charles, LA. Mar 27.
- 2.15. **Hummel N.A.** 2010. Insect lifecycles and internal anatomy. Advanced Entomology Training. Crowley, LA. Mar 1.
- 2.16. **Hummel N.A.** 2010. Insect Management in Rice. Madison Parish Ag Day. Richmond, LA. Feb 17.
- 2.17. **Hummel N.A.** 2010. Invasive species and NPDN training resources. Louisiana Agricultural Technology & Management Conference. Alexandria, LA. Feb 12. (*Invited oral presentation*)
- 2.18. **Hummel N.A.** and Davis J. 2010. Management of grape colaspis and scouting methods in Louisiana. Louisiana Agricultural Technology & Management Conference. Alexandria, LA. Feb 12. (*Invited oral presentation*)
- 2.19. **Hummel N.A.** 2010. Louisiana rice insects symptomology. 3<sup>rd</sup> Annual Louisiana Crops Symptomology Symposium. Alexandria, LA. Feb 10.
- 2.20. **Hummel N.A.** and Stout M.J. 2010. Insect control/problems encountered in 2009. St. Martin Parish Rice Meeting. Breaux Bridge, LA. Feb 9.
- 2.21. **Hummel N.** 2010. Citrus Integrated Pest Management. Café Hope Citrus & Fruit Trees - Field & Planting Day. Marrero, LA. Feb 1.
- 2.22. **Hummel N.** and Stout M. 2010. Rice Water Weevil Control. Concordia Parish Crop Production Meeting and Pesticide Recertification. Monterrey, LA. Jan 29.
- 2.23. **Hummel N.** and Stout M. 2010. Rice Insect Control. Aerial Applicators Recertification at the Louisiana Aerial Applicators Association Annual Meeting. Lake Charles, LA. Jan 27.
- 2.24. **Hummel N.** and Stout M. 2010. Rice Insect Control. Avoyelles & Rapides Parish Rice Production Clinic. Bunkie, LA. Jan 15.
- 2.25. **Hummel N.** and Stout M. 2010. 2009 Rice Water Weevil Demonstration Test. Pesticide Applicator Cat 1 and Cat 10 recertification meeting. Alexandria, LA. Jan 13.
- 2.26. **Hummel N.** and Stout M. 2010. Rice Water Weevil Demonstration Test, 2009 Results. 37<sup>th</sup> Annual Vermilion Rice School. Kaplan, LA. Jan 8.
- 2.27. **Hummel N.** and Stout M. 2010. Rice Insect Control. Acadia Parish Rice & Soybean Producers Meeting, Crowley, LA. Jan 7.
- 2.28. **Hummel N.** and Stout M. 2010. Rice Insect Management. Evangeline & St. Landry Parish Rice & Soybean Producers Meeting. Ville Platte, LA. Jan 6.
- 2.29. **Hummel N.** and Stout M. 2010. Rice Water Weevil Management. Southwest Louisiana Rice and Soybean Forum, Welsh, LA. Jan 5.

- 2.30. **Hummel N.A.** and Stout M.J. 2009. Extension Program Development and Demonstration Trials for Improving Integrated Pest Management in Louisiana Rice Production. Louisiana rice research board meeting. Crowley, LA. Nov 10.
- 2.31. **Hummel N.A.** 2009. Basic Entomology. Master Gardener Training. Hammond, LA. Oct 1.
- 2.32. **Hummel N.A.** 2009. Rice Insects. Northeast LA Rice/Soybean Tour. Rayville, LA. Jul 15.
- 2.33. **Hummel N.A.** 2009. Rice water weevil demonstration & rice insect update. Concordia Rice and Soybean Tour. Ferriday, LA. Jul 14.
- 2.34. **Hummel N.A.** 2009. Rice water weevil demonstration. Vermilion Rice and Soybean Tour. Gueydan, LA. Jul 7.
- 2.35. **Hummel N. A.** and Davis J. 2009. Rice field Day pre-tour agent training. Crowley, LA. Jun 30.
- 2.36. **Hummel N.A.** 2009. Rice water weevil demonstration. South Farm Rice/Soybean Tour. Rayne, LA. Jun 18.
- 2.37. **Hummel N.A.** 2009. Citrus and fruit tree insect control. Master Gardener Training. Baton Rouge, LA. Jun 4.
- 2.38. **Hummel N. A.** and Davis J. 2009. LSU AgCenter Training: How to scout for grape colaspis in Louisiana rice. Crowley, LA. May 28.
- 2.39. **Hummel N.A.** 2009. Rice insects update. Southwest Louisiana Rice Tour. Fenton, LA. May 26.
- 2.40. **Hummel N.A.** 2009. Citrus and fruit tree insect control. Master Gardener Training. St. Francisville, LA. May 8.
- 2.41. **Hummel N.** 2009. Pecan IPM-PIPE Program (Casebearer Project). Pecan Station Workshop. Shreveport, LA. Apr 30.
- 2.42. **Hummel N.** 2009. What's eating my garden? New Orleans Botanical Garden Spring Educational Series. New Orleans, LA. Apr 15. (*Invited oral presentation*).
- 2.43. **Hummel N.A.** 2009. Recognizing new citrus pests and resulting damage. Plaquemines Parish Citrus Trade School. Belle Chasse, LA. Mar 5.
- 2.44. **Hummel N.A.** 2009. What's that bug eating my citrus tree? St. James Parish Citrus Meeting. Vacherie, LA. Mar 4.
- 2.45. **Hummel, N.A.** 2009. Citrus and fruit tree insect control. Master Gardener Training. Houma, LA. Feb 18.
- 2.46. **Hummel N.A.** 2009. MRB, insect control Recommendations for 2009. Breaux Bridge rice production school. Breaux Bridge, LA. Feb 17.
- 2.47. **Hummel N.A.** 2009. Invasive species. LATMC. Alexandria, La. Feb 13. (*Invited oral presentation*).
- 2.48. **Hummel N.A.** 2009. Rice Water Weevil Management Using Current Technology. Louisiana Agricultural Technology and Management Conference. Alexandria, LA. Feb 12.
- 2.49. **Hummel N.A.** 2009. Insect identification and management. Feliciana's spring seminar series – home grounds. Jackson, LA. Feb 10.
- 2.50. **Hummel N.A.** 2009. Rice Weevil & Insect Control. Concordia Parish Corp Production Meeting – Soybeans, Feed Grains, Rice. Monterey, LA. Jan 29.
- 2.51. **Hummel N.A.** 2009. Rice Insect Control. Avoyelles Parish Rice Clinic. Bunkie, LA. Jan 15.
- 2.52. **Hummel N.A.** 2009. Insect problems in Louisiana Commodities – Rice. Pesticide Applicator Conference. Pineville, LA. Jan 14.
- 2.53. **Hummel, N.A.** 2009. Control of Rice Insects in 2009. 37<sup>th</sup> Annual Vermillion Parish Rice School. Kaplan, LA. Jan 09.
- 2.54. **Hummel N.A.** 2009. Rice Insect Control. Acadia Parish Rice & Soybean Producers Meeting. Crowley, LA. Jan 08.

- 2.55. **Hummel N.A.** 2009. Rice Insect Management; Dermacor Update. Evangeline & St. Landry Parish Rice & Soybean Producers Meeting. Ville Platte, LA. Jan 07.
- 2.56. **Hummel N.A.** 2009. Rice Water Weevil Seed Treatment. Southwest Louisiana Rice Forum. Welsh, LA. Jan 06.
- 2.57. **Hummel N.A.** and Ferrin D.M. 2008. The Asian Citrus Psyllid and Greening Disease in Louisiana: a situational overview. LDWF Aquatic Nuisance Species Task Force Meeting. Baton Rouge, LA. Dec 13. (*Invited oral presentation*).
- 2.58. **Hummel N.A.**, Pollet D., Ferrin D.M. and Sanders D. 2008. Invasive species and Louisiana: The AgCenter's response. Annual Conference. Baton Rouge, LA. Dec 16.
- 2.59. **Hummel N.A.** and Ferrin D.M. 2008. The Asian Citrus Psyllid and Greening Disease in Louisiana: a situational overview. Deep South Fruit and Vegetable Growers Conference. Mobile, AL. Dec 4.
- 2.60. **Hummel N.A.** 2008. Extension program development and demonstration trials for improving integrated pest management in Louisiana Rice Production. Louisiana Rice Research Board Meeting. Crowley, La. Nov 6.
- 2.61. **Hummel N.A.** 2008. Basic Entomology – insect pests of fruits. Master Gardener Training. Tangipahoa Parish. Hammond, LA. Sept 18.
- 2.62. **Hummel N.A.** 2008. The panicle rice mite, a new pest of rice in the United States. 2008 Missouri Rice Research Farm Field Day. Glennonville, MO. Aug 27. (*Invited oral presentation*).
- 2.63. **Hummel N.A.** 2008. The asian citrus psyllid. Citrus Meeting. Raceland, LA. Jul 22.
- 2.64. **Hummel N.A.** 2008. Rice Insects. Northeast LA Rice Field Day. Rayville, LA. Jul 21.
- 2.65. **Hummel N.A.** 2008. Rice Insect Control. Acadia Rice and Soybean Field Day. Crowley, LA. Jul 11.
- 2.66. **Hummel N.A.** and Ferrin D. M. 2008. County agent training on Asian Citrus Psyllid and Greening Disease. Metairie, LA. Jul 10.
- 2.67. **Hummel N.A.** 2008. Rice Insect Control. Vermillion Rice Field Day. Kaplan, LA. Jul 8.
- 2.68. **Hummel N.A.** 2008. Dermacor X-100. Southwest Louisiana Rice Tour. Welsh, LA. Jul 8.
- 2.69. **Hummel N.A.**, Stout M.J., Reagan T.E., Laird B. and Hardy T. 2008. Invasive invertebrates to watch for in Louisiana rice. Annual Rice Field Day, Rice Research Station, Crowley, LA. Jul 2. (*Poster*)
- 2.70. Stout M.J. and **Hummel N.A.** 2008. Rice Insect Control. Annual Rice Field Day, Rice Research Station. Crowley, LA. Jul 2.
- 2.71. Saichuk J. and **Hummel N. A.** 2008. Rice field Day pre-tour agent training. Crowley, LA. Jul 1.
- 2.72. **Hummel N.A.** and McCown T.J. 2008. Rice water weevil control. Horizon Ag 2008 Clearfield Rice Super Plot Field Day. Eunice, LA. Jul 1.
- 2.73. Saichuk J. and **Hummel N. A.** 2008. 2008 rice research verification agent field tour. Parishes: Acadia, Vermillion, Jeff-Davis, Calcasieu, St. Landry, Concordia, Madison, LA. Jun 11-12.
- 2.74. **Hummel N.A.** 2008. Agent training on how to sample rice roots for rice water weevil larvae. Madison Parish, LA. Jun 12.
- 2.75. **Hummel N.A.** 2008. Insect update in rice, rice water weevil control and exotic invasive channeled apple snail. Evangeline Parish Rice Field Tour. Mamou, LA. May 20.
- 2.76. **Hummel N.A.**, Pollet D. and Johnson S. 2008. Pest Management of Insects in Home Citrus Production. Southwest Louisiana Garden Show. Lake Charles, LA. Mar 29.
- 2.77. **Hummel N.A.** 2008. New rice insect pests and management strategies. Northeast Region Agriculture and Natural Resources (ANR) faculty meeting. Winnsboro, LA. Mar 20.
- 2.78. **Hummel N.A.**, Pollet D. and Johnson S. 2008. Citrus insect pest management. Plaquemine Parish Citrus Trade School. Belle Chasse, LA. Mar 13.

- 2.79. **Hummel N.A.** and Stout M. J. 2008. Insect Pest Management in Rice – 2008. Rice School - St. Martin Parish. Breaux Bridge, LA. Feb 14.
- 2.80. **Hummel N.A.** 2008. New Insecticides in Rice. Louisiana Agricultural Technology and Management Conference. Alexandria, LA. Feb 7.
- 2.81. **Hummel N.A.** 2008. The panicle rice mite: identification, scouting and possible management options. Louisiana Agricultural Technology and Management Conference. Alexandria, LA. Feb 7.
- 2.82. **Hummel N.A.** 2008. Update on Panicle Rice Mite. Rice Breeders Association Meeting. Calhoun Research Station. Calhoun, LA. Feb 7.
- 2.83. Way M.O., Espino L., Nunez M.S., Pearson R.A. and **Hummel N.A.** 2008. Entomology Rice Research Highlights in 2007. Jefferson Co. Rice Symposium. Beaumont, TX. Jan 29. (*Invited oral presentation*).
- 2.84. Way M.O., Espino L., Nunez M.S., Pearson R.A. and **Hummel N.A.** 2008. Rice Insect Management Highlights for 2007. Western Rice Belt Production Conference. El Campo, TX. Jan 23. (*Invited oral presentation*).
- 2.85. **Hummel N.A.** and Stout M.J. 2008. Insect Pest Management in Rice – 2008. Pesticide Applicator Certification and Training, Alexandria, LA. Jan 23.
- 2.86. **Hummel N.A.** and Stout M.J. 2008. Insect Pest Management in Rice – 2008. Avoyelles & Rapides Parish Rice Clinic. Bunkie, LA. Jan 14.
- 2.87. **Hummel N.A.** and Stout M.J. 2008. Insect Pest Management in Rice – 2008. Vermillion Parish Rice School. Kaplan, LA. Jan 11.
- 2.88. **Hummel N.A.** and Stout M.J. 2008. Insect Pest Management in Rice. Acadia Parish Rice and Soybean Producers Meeting. Crowley, LA. Jan 10.
- 2.89. **Hummel N.A.** and Stout M.J. 2008. Insect Pest Management in Rice - 2008. Evangeline and St. Landry Parish Rice & Soybean Producers Meeting – 2008. Ville Platte, LA. Jan 09.
- 2.90. **Hummel N.A.** and Stout M.J. 2008. Insect Pest Management in Rice – 2008. Southwest Louisiana Rice Forum. Welsh, LA. Jan 08.
- 2.91. **Hummel N.A.** 2007. Rice Panicle Mite Situation. ACE conference, Rice ACE Group Meeting. LSU AgCenter. Baton Rouge, LA. Dec 18.
- 2.92. **Hummel N. A.** and Saichuk J. 2007. Agent Training Session: How to identify PRM. LSU AgCenter Rice Research Station. Crowley, LA. Dec 13.
- 2.93. Way M.O. and **Hummel N.A.** 2007. Panicle Rice Mite Detected in Texas in 2007. Texas Plant Protection Conference. College Station, TX. Dec 4-5.
- 2.94. **Hummel N.A.** 2007. Update on section 18 applications for 2008 production season and Panicle Rice Mite (PRM). Vermillion Parish Rice Advisory Meeting. Abbeville, LA. Nov 16.
- 2.95. **Hummel N.A.** 2007. Update on section 18 applications for 2008 production season and Panicle Rice Mite (PRM). Rice Seed Growers Association Meeting. Crowley, LA. Nov 15.
- 2.96. **Hummel N.A.** 2007. Proposal Defense. Rice Research Board Proposal Defense. Crowley, LA. Nov 13.
- 2.97. **Hummel N.A.** 2007. Update on section 18 applications for 2008 production season and Panicle Rice Mite (PRM). Jefferson-Davis Rice Advisory Meeting. Jennings, LA. Nov 18.
- 2.98. **Hummel N. A.** and Cormier H. 2007. Panicle Rice Mite Identification Workshop. Kaplan, LA. Sept 19.
- 2.99. **Hummel N.A.** 2007. The Panicle Rice Mite. Vermillion Parish Rice Board of Directors Meeting. Abbeville, La. Sept 12.

2.100. **Hummel N. A.** 2007. Workshop on how to identify, monitor and manage Rice stink bugs. East Carroll Parish, Jul 26.

3. **Seminars (6)**

3.1. **Hummel N.A.** and Ferrin D.M. 2008. A new pest/disease complex of Louisiana citrus. LSU Entomology Department Seminar Series. Baton Rouge, LA. Oct 24.

3.2. **Hummel N.A.** and Ferrin D.M. 2008. A new pest/disease complex of Louisiana citrus. LSU Plant Pathology and Crop Physiology Department Seminar Series. Baton Rouge, LA. Sept 24. (*Invited oral presentation*).

3.3. **Hummel N.A.** 2007. The Panicle Rice Mite, *Steneotarsonemus spinki* Smiley: a new pest of rice in the United States. Louisiana State University Department of Entomology Seminar Series. Baton Rouge, LA. Oct 12. (*Invited oral presentation*).

3.4. **Hummel N.A.** 2006. Serotonin-like immunoreactivity in the synganglion of the southern cattle tick (*Boophilus microplus*) and other ixodid tick species. USDA-ARS-KBUSLIRL Laboratory Seminar. Kerrville, TX. Aug 14. (*Invited oral presentation*).

3.5. **Hummel N. A.** 2006. The reproductive biology and physiology of female *Homalodisca coagulata*. UC Davis Entomology Department Seminar Series. Davis, CA. Feb 8. (*Exit Seminar*)

3.6. **Hummel N. A.** 2006. The reproductive biology and physiology of female *Homalodisca coagulata*. UC Riverside Entomology Department Seminar Series. Riverside, CA. Feb 6. (*Invited oral presentation*).

## **PROFESSIONAL ORGANIZATIONS/COMMITTEES**

## ***PARTICIPATION IN AND LEADERSHIP OF PROFESSIONAL ORGANIZATIONS/COMMITTEES***

### **1. Participation in Professional Meetings:**

- 1.1. XIII International Congress of Acarology. Recife, Pernambuco, Brazil. Aug 22-27, 2010.
- 1.2. North American Blueberry Research and Extension Workers Conference. Kalamazoo, MI. Jul 25-28, 2010.
- 1.3. Louisiana Farm Bureau Federation (LFBF) Annual Convention. New Orleans, LA. Jun 24-27, 2010.
- 1.4. National eXtension Workshop. Austin, TX. Jun 6-9, 2010.
- 1.5. Southwestern Branch of the Entomological Society of America (ESA) Annual Meeting. Cancun, MX. Apr 11-14, 2010.
- 1.6. 33<sup>rd</sup> Rice Technical Working Group (RTWG). Biloxi, MS. Feb 22-25, 2010.
- 1.7. S-1029 Regional Project Meeting. Biloxi, MS. Feb 21, 2010.
- 1.8. Louisiana Agricultural Technology and Management Conference (LATMC). Alexandria, LA. Feb 10-12, 2010.
- 1.9. Southern Division, American Society of Horticultural Sciences Meeting. Orlando, FL. Feb 7-8, 2010.
- 1.10. Southern Blueberry/Small Fruit Workers Meeting. Orlando, FL. Feb 6, 2010.
- 1.11. Louisiana Aerial Applicator Association Annual Meeting. Lake Charles, LA. Jan 24-27, 2010.
- 1.12. ESA Annual Meeting. Indianapolis, IN. Dec 13-16, 2009.
- 1.13. Citrus Huanglongbing and potato zebra chip conference: status of diseases and research opportunities. McAllen, TX. Nov 16-18, 2009.
- 1.14. First National eXtension Meeting. St. Louis, MO. Oct 20-23, 2009.
- 1.15. Louisiana Agricultural Consultants Association (LACA) Fall Planning Retreat. Marksville, LA. Oct 1-2, 2009.
- 1.16. National Agricultural County Agents Association Annual Meeting and Professional Improvement Conference (NACAA AM/PIC). Portland, OR. Sept 21-24, 2009.
- 1.17. Landis International Rice Entomology Investigators Meeting. New Orleans, LA. Sept 17-18, 2009.
- 1.18. Rocky Mountain Conference of Entomologists (RMCE). Silverton, CO. Aug. 3-4, 2009.
- 1.19. LFBF Annual Convention, New Orleans, LA. Jun 26-27, 2009.
- 1.20. Louisiana County Agricultural Agents Association Annual Meeting and Professional Improvement Conference (LCAAA AM/PIC). Scott, La. May 31-Jun 3, 2009.
- 1.21. Southeastern Branch ESA Annual Meeting. Montgomery, AL. Mar 8-10, 2009.
- 1.22. Valent Rice Seminar. San Antonio, TX. Feb 23-25, 2009.
- 1.23. S-1029 Regional Project Meeting. San Antonio, TX. Feb 23, 2009.
- 1.24. LATMC. Alexandria, LA. Feb 11-13, 2009.
- 1.25. Deep South Fruit and Vegetable Growers Conference. Mobile, Al. Dec 2-4, 2008.
- 1.26. ESA Annual Meeting, Reno, NV. Nov 16-19. 2008.
- 1.27. Southern Plant Diagnostic Network Meeting. Auburn University, Auburn, AL. Oct 20-23, 2008.
- 1.28. RMCE. Woodland Park, CO. Jul 27-31, 2008
- 1.29. NACAA AM/PIC, Greensborough, NC. Jul 12-18, 2008.
- 1.30. LFBF Annual Convention, New Orleans, LA. Jun 27-28, 2008.
- 1.31. LCAAA AM/PIC. Baton Rouge, LA. Jun 2-4, 2008.
- 1.32. Southeastern Branch ESA Annual Meeting. Jacksonville, FL. Mar 2-5, 2008.
- 1.33. 32<sup>nd</sup> Rice Technical Working Group. San Diego, CA. Feb 18-21, 2008.
- 1.34. LATMC. Alexandria, La. Feb 6-8, 2008.

- 1.35. ESA Annual Meeting. San Diego, CA. Dec 9-12, 2007
- 1.36. Plant Biosecurity Symposium. Southern University. Baton Rouge, LA. Nov 6, 2007.
- 1.37. LACA Fall Retreat. St. Francisville, LA. Sept 27-28, 2007.
- 1.38. Southwestern Branch ESA Annual Meeting. Corpus Christi, TX. Feb 19-22, 2007.
- 1.39. ESA Annual Meeting. Indianapolis, IN. Dec 10-13, 2006.
- 1.40. Pacific Branch ESA Annual Meeting. Pacific Grove, CA. Feb. 27-Mar 2, 2005.
- 1.41. University of California, Cooperative Extension, Pest Management Conference. Riverside, CA. Nov 2004.
- 1.42. Pacific Branch ESA. Bozeman, MT. Jun 20-24, 2004.
- 1.43. Pierce's Disease Research Symposium. Coronado, CA. Dec 7-10, 2004.
- 1.44. Pierce's Disease Research Symposium. Coronado, CA. Dec 8-11, 2003.
- 1.45. Pierce's Disease Research Symposium. Coronado, CA. Dec 15-18, 2002.
- 1.46. Pierce's Disease Research Symposium. Coronado, CA. Dec 5-7, 2001.

## 2. Popular, Producer-Oriented and Other Meetings

- 2.1. Evangeline Parish Farm Bureau Meeting. Ville Platte, La. Aug 2, 2010.
- 2.2. Syngenta Field Tour. Alexandria, LA. Jun 17, 2010.
- 2.3. CAPS meeting with LDAF. Baton Rouge, La. May 17, 2010.
- 2.4. Valent Nipsit Inside Mini-tour. Crowley, LA. May 11, 2010.
- 2.5. Louisiana Rice Growers Association Meeting and Louisiana Rice Council Meeting. Crowley, LA. Jan 26, 2010
- 2.6. Guest Lecturer. Insects in the environment. Baton Rouge, LA. Aug 31, 2009.
- 2.7. Diaprepes response planning meeting with LDAF. Baton Rouge, LA. Aug 25, 2009.
- 2.8. Dupont representative tour of rice water weevil demonstration. Crowley, LA. Jul 2, 2009.
- 2.9. MRB meeting with Louisiana rice growers. Vinton, LA. Jan 30, 2009.
- 2.10. MRB response planning meeting with LDAF. Baton Rouge, LA. Jan 13, 2009.
- 2.11. LSU AgCenter Rice Research Station Field Day. Crowley, LA. Jun 28, 2007.
- 2.12. LSU AgCenter Vermillion Parish Rice Field Tour. Kaplan, LA. Jul 2, 2007.
- 2.13. LSU AgCenter Jeff-Davis Rice Field Tour. Welsh, LA. Jul 3, 2007.
- 2.14. LSU AgCenter Northeast Louisiana Rice Field Tour. Rayville, LA. Jul 12, 2007.
- 2.15. LSU AgCenter Dean Lee Research Station Field Day. Alexandria, LA. Aug 23, 2007.
- 2.16. LSU AgCenter Mexican Rice Borer in Sugarcane and Rice Field Tour. Ganado, TX. Sept 10-11, 2007.

## 3. Membership in Professional Organizations/Committees:

- 3.1. Alpha Alpha Chapter (LSU) of Epsilon Sigma Phi, 2007 to present.
- 3.2. American Society of Horticultural Science, 2010 to present.
- 3.3. Entomological Society of America (ESA), 2001 to present.
  - Member, National ESA Standing Committee on Membership, 2007 to 2009.
  - Appointed Member, ESA Presidential Special Committee for young professionals and students, 2007 to 2009.
  - Appointed Member, SEB Nominating Committee, 2010 to present.
- 3.4. Florida Entomological Society, 2009 to 2010.
- 3.5. Louisiana Agricultural Consultants Association, Affiliate member, 2009 to present.
  - Member, Program Planning Committee, 2009 to present.

- Technical support for Rice Session, 2008 to present.
  - 3.6. Louisiana Agricultural Science Association, 2008 to present.
  - 3.7. Louisiana County Agricultural Agents Association, 2007 to present.
    - Member, Membership Committee, 2009 to 2010.
  - 3.8. National Plant Diagnostics Network (Southern Region), 2008 to present.
    - Member, National Diagnostics Committee, 2008 to present.
    - Member, National Training and Education Committee, 2008 to present.
4. **Leadership Roles in Professional Organizations/Committees:**
- 4.1. Chair, National ESA Standing Committee on Membership, 2008 to 2009.
  - 4.2. Chair, Public Policy and Leadership Committee for Alpha Alpha Chapter ESP, 2008 to present.
  - 4.3. Chair, Southern Plant Diagnostic Network (SPDN) Training and Education Committee, 2008 to present.
  - 4.4. Vice Chair, National ESA Standing Committee on Membership, 2007 to 2008.
  - 4.5. Vice Chair, Rocky Mountain Conference of Entomologists, 2008 to 2010.

**CONTINUED COURSEWORK, IN-SERVICE TRAINING, SABBATICALS, PROFESSIONAL IMPROVEMENTS**

***CONTINUED COURSEWORK, IN-SERVICE TRAINING, SABBATICALS, PROFESSIONAL IMPROVEMENTS.***

**1. Continued coursework**

- 1.1. HRE 7720, "Evaluation Methods", audited, Louisiana State University, Baton Rouge, LA. Fall Semester, 2007.

**2. In-Service Training**

- 2.1. USDA-CSREES Grantsmanship Seminar. Washington, D.C. Sept 29 to Oct 2, 2008.
- 2.2. LSU AgCenter IT and Communications Training, Red River Station, Shreveport, LA. Nov 13-14, 2008.
- 2.3. SPDN scale identification workshop. Auburn University, Auburn, AL. Oct 20, 2008.
- 2.4. SPDN mite identification workshop. University of Florida, Gainesville, FL. Jul 17-20, 2008.

**3. Sabbaticals**

- 3.1. None to date.

**4. Professional Improvements**

- 4.1. Graduate of LSU AgCenter Internal Leadership Program Class III, Baton Rouge, LA. Sept 2009 to Jul 2010.

## **PARTICIPATION IN PUBLIC POLICY AND COMMUNITY ISSUES**

## **PARTICIPATION IN PUBLIC POLICY AND COMMUNITY ISSUES**

### **1. Regulatory meetings** (invited to participate as an expert):

- 1.1. USDA-APHIS Huanglongbing Technical Working Group Meeting, New Orleans, LA. Aug. 6-8, 2008  
(*appointed member of technical working group*)
- 1.2. Multi-state panicle rice mite meeting. Invited 4 USDA specialists, and 2 Texas A&M specialists to Louisiana to discuss panicle rice mite, regulatory response, observe field infestations, and write review paper. Baton Rouge and Crowley, LA. Oct. 1-4, 2007
- 1.3. Louisiana panicle rice mite response meeting. Meeting with USDA-APHIS, SITC and LDAF about panicle rice mite regulatory response. LSU AgCenter Rice Research Station, Crowley, La. Sept. 5, 2007

### **2. Community Issues**

**ACP area-wide management program.** The presence of the Asian citrus psyllid was reported by a homeowner in Algiers, LA in late May of 2008. This identification was confirmed by USDA-APHIS in early June and the lime tree from which the psyllid was first collected was confirmed to be infected with the bacterium that causes huanglongbing (or greening) shortly thereafter. This introduction prompted an immediate response by USDA-APHIS and LDAF to conduct a comprehensive survey of all citrus producing regions of the state. Simultaneously, it prompted a response by members of the LSU AgCenter to inform and educate AgCenter personnel (county agents) and the public regarding this new threat to Louisiana citrus production. As a team, we prepared/organized extension educational materials (4 numbered publications & 5 websites), extension educational meetings with producers and homeowners (7 presentations/workshops), a county agent training on ACP and greening, press releases(3), newspaper stories(1), television(5) and radio(2) stories, press conferences(2), a video on how to scout for ACP and greening, and also developed recommendations for asian citrus psyllid control in commercial citrus production (organic and conventional), nurseries and backyards. We successfully obtained two 24c labels for the use of commercial insecticides by homeowners to manage ACP in backyard citrus. We will now begin a verification program to verify that the control measures recommended will successfully manage the psyllids. I was also appointed to the USDA-CPHST Huanglongbing Technical Working Group.

#### 1.1. Agencies involved and media outlets:

- Agencies: LDAF, USDA-APHIS, USDA-CPHST, and Plaquemines Parish government.
- Media outlets: WWL TV (New Orleans), LPB, KTIB (640AM), KLRZ (100.3FM), KLEB (1600AM) and Louisiana Farm Bureau.

#### 1.1. Extent to which educational objectives and major activities were achieved

- Educational Objective 1: to increase knowledge level of county agents, AgCenter personnel and LDAF personnel with respect to the Asian citrus psyllid (ACP) and greening (HLB).
  - ◆ Conducted a county agent training in Jefferson Parish which included speakers from LSU AgCenter, LDAF and USDA-APHIS. A program from this training is included in the award nomination packet supporting documents. This training was also offered via distance education and recorded. If you would like to view the recorded training, it can be accessed at: [http://130.39.185.168/General\\_Use](http://130.39.185.168/General_Use). Once in the website, search for citrus and select the training video.

- Educational Objective 2: to increase public awareness of the threat posed by ACP and HLB to citrus in Louisiana.
  - ◆ Developed pest alerts, id cards and door hangers that were distributed to the public through parish offices and state inspectors.
  - ◆ Updated La Home Citrus guide to include the asian citrus psyllid and greening disease.
  - ◆ Interviewed for media stories, and wrote press releases about ACP and HLB.
  - ◆ Developed and posted websites to inform public about ACP and HLB.
- Educational Objective 3: to develop research-based educational materials related to ACP and HLB for use by AgCenter and LDAF personnel.
  - ◆ Developed pest alerts, id cards, door hangers, presentations, a “how to scout” DVD, and websites.
- Educational Objective 4: to increase communication between the LSU AgCenter, LDAF, USDA-APHIS and other land grant universities.
  - ◆ Met with LDAF and USDA-APHIS staff at 3 advisory meetings. Also participating in a technical working group meeting that was coordinated by USDA-APHIS-CPHST to develop state-wide response. Invited LDAF and USDA-APHIS leaders to speak at county agent training. This initiated more extensive dialogue across agencies.
  - ◆ Developed initial extension publications from examples provided by USDA-APHIS and University of Florida. Subsequent to discovery of asian citrus psyllid in Louisiana, it was also found in Alabama, Georgia, Mississippi, and South Carolina. Entomologists from Alabama requested permission to use AgCenter publications to develop their own publications. This request was granted and files were shared between institutions.
  - ◆ Texas A&M and University of Florida Extension Entomologists were also contacted for advice on how to respond to introduction of ACP and HLB into Louisiana.
- Educational Objective 4: Develop recommendations for control of asian citrus psyllid in commercial production groves, nurseries and homeowner yards.
  - ◆ Recommendations were developed after consulting with Texas A&M and University of Florida extension entomologists.
  - ◆ All labels were approved by LDAF before the recommendations were released and distributed to the public and agents via meetings and presentations.
  - ◆ Section 24C labels were approved for use of Bayer products CoreTect and Merit 2F in backyard citrus. Prior to the approval of these labels, there were no effective insecticides available to control ACP on backyard citrus.
  - ◆ Worked with Plaquemines Parish government to implement an area-wide management program.

## **AWARDS AND RECOGNITION**

#### ***AWARDS AND RECOGNITION***

1. LSU AgCenter Denver T. and Ferne Loupe Extension Team Award. Member of Rice Research Verification Program Team. Baton Rouge, LA. Dec 14, 2009.
2. State Winner. Search for Excellence Award. The National Association of County Agricultural Agents. Portland, OR. Sept 21, 2009.
3. Second Place Linnean Games Team. Southeastern Branch Entomological Society of America, Montgomery, AL. Mar 2009. *Co-coach*.
4. Second place poster. LCAAA AM/PIC. Scott, LA. Jun 2009.
5. First place poster. LCAAA AM/PIC. Baton Rouge, LA. Jun 2008.

## **MULTI-INSTITUTION, AGENCY, AND STATE COLLABORATION**

## **MULTI-INSTITUTION, AGENCY, AND STATE COLLABORATION**

*Additional cooperative efforts can be found in EXTERNAL FUNDING, MATERIAL SUPPORT AND GRANTS on page 48.*

### **1. Multi-institution and multi-state collaboration**

- 1.1. Invited to participate as a technical expert on a grant proposal submitted by LSU AgCenter International Program titled "Modernizing Extension Advisory Services (MEAS)". Submitted to the US Agency for International Development's Bureau of Economic Growth, Agriculture and Trade (USAID/EGAT). submitted to the US Agency for International Development's Bureau of Economic Growth, Agriculture and Trade (USAID/EGAT). Grant proposal was submitted in July 2010. Total funds requested: \$8,998,575.
- 1.2. Rice Technical Working Group, Member
- 1.3. National Plant Diagnostic Network (NPDN)
  - State (LA) Coordinator for First Detector Training
- 1.4. CSREES Multistate Research Project, S1029, "Improved methods to combat mosquitoes and crop pests in rice fields."
  - Co-Secretary, 2010
  - Co-Chair, 2009, coordinated the 2009 meeting in San Antonio, TX.
  - Co-Secretary, 2008
- 1.5. Member of Regional Pecan IPM-Pipe Project which is directed by Marvin Harris (Texas AgriLife), "Taking Pecan Pest Management to the Next Level- Beltwide, Real-Time Predictions of Pecan Nut Casebearer Activity to Improve Producer Economics and the Environment - Real-time prediction of *Acrobasis nuxvorella* Neunzig (Lepidoptera: Pyralidae) to Improve Pecan IPM via IPM-PIPE (an IPM Concept)".
- 1.6. Southern Region IPM Center. Submitted priority requests (11/07) related to PRM in rice, leaf-footed bug in Satsuma, and citrus blackfly in citrus. Priorities are used to direct allocation of funds for future projects in the region.

### **2. Agency collaboration**

- 2.1. Appointed Member of USDA-APHIS Citrus Greening Technical Working Group (2008 to present). In this capacity, I provided expert advice to USDA in the preparation of guidelines for response to the detection of asian citrus psyllid and greening disease in Louisiana.
  - Appointed Member, Extension, Education, Outreach and Coordination Technical Working Group, 2008 to present.
  - Appointed Member, Psyllid control Technical Working Group. 2008 to present.
- 2.2. Appointed Member of USDA-APHIS Panicle Rice Mite Technical Working Group (2007 to present). In this capacity I provided expert advice to USDA and LDAF in preparation of guidelines for response to the detection of PRM. I also assisted in the survey design process for a national survey for PRM.

**OTHER SCHOLARLY OR CREATIVE ACTIVITIES OR OTHER CONTRIBUTIONS TO THE  
PROFESSION**

## ***OTHER SCHOLARLY OR CREATIVE ACTIVITIES OR OTHER CONTRIBUTIONS TO THE PROFESSION***

### **1. Symposia**

- 1.1. Co-organized a symposium at the Southwestern Branch ESA Annual Meeting in Cancun, MX. Apr 11-14, 2010. Symposium titled: "From the genome to the field: global impacts of insect transmitted plant pathogens."

### **2. Hosted visiting scientists**

- 2.1. Co-Hosted with M. Stout a visiting Professor from China – Dr. Huang – who is a rice/citrus entomologist. Toured state citrus and rice production regions.
- 2.2. Co-hosted with S. Johnson a visiting scientist from Ecuador – Sandra Garces – who came to learn about leaf-footed bug on citrus.
- 2.3. Hosted Dr. Dan Strickman, USDA-ARS National Program Leader as a distinguished lecturer.

### **3. Organizations Advised**

- 3.1. Provided expert advice to LDAF and USDA-APHIS in their response to the Panicle rice mite, asian citrus psyllid and greening disease, diaprepes root weevil, and Mexican Rice Borer in Louisiana. Provided guidance about IPM practices and survey methods. Also provide advice to Louisiana Master Gardener's association and the Louisiana Rice Growers Association as needed.

### **4. Recruitment of Students and Faculty**

#### **4.1. Students**

- Recruitment Booth at Southern University, Plant Biosecurity Symposium. Baton Rouge, LA. Nov 06, 2007
- Recruitment booth at ESA Annual Meeting. Reno, NV. Dec 2008

#### **4.2. Faculty**

- Department of Entomology Search Committee Member. Assistant Specialist/ Assistant Professor – Turf/ Ornamental/ Sugarcane/ Honeybee Search Committee (May 2010 to present).
- Participated by actively interviewing candidates for both the Soybean Entomologist & Forest Entomologist searches.

## **UNIVERSITY SERVICE**

## **UNIVERSITY SERVICE**

### **1. Departmental Service**

#### **1.1. Committee Service**

- Department of Entomology Search Committee Member. Assistant Specialist/ Assistant Professor – Turf/ Ornamental/ Sugarcane/ Honeybee Search Committee (May 2010 to present).
- Department of Entomology Seminar Committee (2010) – member.
- Department of Entomology Web Committee Chair (2007 to 2009) – appointed.

#### **1.2. ESA Linnean Games Team Co-Coach (2008 to 2009).**

#### **1.3. Marching Faculty**

- Summer Commencement ceremony for LSU Campus. Aug 6, 2010.
- Winter Commencement ceremony for LSU College of Agriculture. Dec 21, 2007.

#### **1.4. Advise students on insect physiology questions as requested**

### **2. University-wide Service (LSU AgCenter)**

#### **2.1. Building Public Value Team Member (2009 to present) – appointed.**

- Crops & Crop Production Systems – member.

#### **2.2. Faculty Council Representative (2009 to 2012 term) – elected.**

- Sponsored Programs Advisory Council Faculty Council Representative – appointed.
  - ◆ Database subcommittee – member.

#### **2.3. Chancellor's Formula Funding Committee Member (2009 to present) – appointed.**

### **3. Graduate Student Advisor**

3.1. Committee Co-Chair with M. Stout (Ph.D.) – Jaspreet Sidhu, Dept of Entomology

3.2. Committee Co-Chair with M. Stout (Ph.D.) – Bryce Blackman, Dept of Entomology

3.3. Committee Member (Ph.D.) – Katherine Parys, Dept of Entomology

3.4. Committee Member (Ph.D.) – Srinivas Lanka, Dept of Entomology

3.5. Committee Member (Ph.D.) – Jarrod Hardke, Dept of Entomology

3.6. Committee Member (M.S.) – Josh Copes, Dept of Entomology (Graduated 2010)

3.7. Dean's Rep and committee member (Ph.D.) - Arun Iyer, College of Veterinary Medicine (Graduated in 2008)

## **PROFESSIONAL SERVICE**

## **PROFESSIONAL SERVICE**

1. **Professional association service**
  - 1.1. Board Member, LCAAA, 2008 to present.
  - 1.2. Judge, student competition at ESA Annual Meetings.
    - ESA Annual Meeting – 2009
    - SEB ESA Annual Meeting – 2009
    - ESA Annual Meeting – 2008
    - SWB ESA Annual Meeting – 2007
    - Head Judge, ESA Annual Meeting – 2006
  
2. **Manuscript reviewer (30 articles)**
  - 2.1. *Annals of the Entomological Society of America* (1)
  - 2.2. *Crop Protection* (3)
  - 2.3. *Entomological Research* (1)
  - 2.4. *Environmental Entomology* (10)
  - 2.5. *Hort Science* (2)
  - 2.6. *Insect Science* (1)
  - 2.7. *Journal of Applied Entomology* (1)
  - 2.8. *Journal of Cotton Science* (1)
  - 2.9. *Journal of Economic Entomology* (1)
  - 2.10. *Journal of Medical Entomology* (2)
  - 2.11. *NACAA Journal* (4)
  - 2.12. *Open Entomology Journal* (2)
  - 2.13. *Psyche* (1)
  
3. **Grant Proposal Reviewer**
  - 3.1. Southern Region SARE Research & Education Grant Competition – Dec 2009.
  - 3.2. Pierce's Disease Grant Competition – Jan 2009
  
4. **Manuscript reviewer for colleagues**
  - 4.1. Reviewed manuscript for M. Stout (Feb. 2008)
  - 4.2. Reviewed Arthropod Management Test article for W. Akbar and G. Reagan (Dept. of Entomology)
  - 4.3. Reviewed manuscript for M. Sisterton, USDA-ARS, Parlier
  - 4.4. Reviewed manuscript for W. Akbar (Dept. of Entomology)
  - 4.5. Reviewed manuscripts for colleague in Mexico – S. Sanchez (2)
  - 4.6. Reviewed manuscripts for B. Bextine, UT Tyler (2)
  
5. **Reviewed LSU AgCenter Hatch Project (Feb 2009).**

## **OTHER EXTERNAL AND COMMUNITY SERVICE**

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**1. 4-H**

- 1.1. Judge, 4-H University Entomology Demonstration. Jun 18, 2008, Jun 24, 2009 and Jun 23, 2010.
- 1.2. Assisted 4-H members (Madalyn and Marcus Pousson, 13 years old) in Welsh, La (Jeff-Davis Parish) on an independent project. They monitored pheromone traps for Pecan Nut Casebearer in a pecan orchard. They also learned to make a field notebook, identify insects, and record data. Summer 2008.

**2. LSU AgCenter AgMagic Volunteer**

- 2.1. Department of Entomology (2008, 2009, 2010).