

**USDA-ARS  
Mid South Area  
SOUTHERN INSECT  
MANAGEMENT RESEARCH UNIT**

**Mission**

- *The mission of the Southern Insect Management Research Unit (SIMRU) is to generate new knowledge of arthropod pest biology, ecology and management and integrate this knowledge into contemporary farming systems that will promote economical and environmentally stable pest management practices for the southern U.S.*
- *The vision of SIMRU is to be a recognized center of innovation for negating agricultural pest problem through deployed scientific knowledge of pest biology, ecology and management options.*

**CRIS PROJECT**

**Insecticide Resistance Management and New Control Strategies for Pests of Corn, Cotton, Sorghum, Soybean, and Sweetpotato**

**PROJECT INVESTIGATORS**

- **Clint Allen (Project Leader)**
- Randall Luttrell
- Katherine Parys
- OP Perera
- Yu Cheng Zhu

**CRIS PROJECT**

**Control of Tarnished Plant Bugs by Biocontrol and Other Methods**

**PROJECT INVESTIGATORS**

- Randall Luttrell
- **Maribel Portilla (Project Leader)**

## CRIS PROJECT

Effect of Resistance on Insect Pest Management in Transgenic Cotton

### PROJECT INVESTIGATORS

- Clint Allen
- Nathan Little
- Randall Luttrell
- Katherine Parys
- **OP Perera (Project Leader)**
- Maribel Portilla

## USDA Career Information Sessions (Students and Recent Graduates)

2 sessions will be offered per month:  
(Feb., Mar., and Apr.)

Sessions will be held:  
1:00 p.m. to 3:00 p.m. (EST)

Register at:

<https://www.surveymonkey.com/s/USDAInfoSessionsRegistration2014>

For questions contact:  
wenny.carrasco@dm.usda.gov



## NEW PUBLICATION CONGRATULATION Dr. Nathan Little

### Correlation between infection by ophiostomatoid fungi and the presence of subterranean termites in loblolly pine (*Pinus taeda* L.) roots

John J. Riggins<sup>1</sup>, Nathan S. Little<sup>1</sup> and Lori G. Eckhardt<sup>2</sup>  
*Agricultural and Forest Entomology* (2014), DOI: 10.1111/afe.12053

**Abstract:** 1 Observations of subterranean termites feeding in pine sapwood containing ophiostomatoid fungi prompted the present study aiming to investigate the effect of infection by *Leptographium* fungi on the probability of encountering subterranean termites in loblolly pine (*Pinus taeda* L.) roots.  
2 Root samples were collected from 2350 loblolly pine trees in Alabama, Texas, Louisiana and Mississippi using hand tools. The presence or absence of subterranean termites in the roots was recorded. Samples were placed on malt extract agar and cycloheximide-streptomycin malt agar and incubated to determine which, if any, fungal species were present.  
3 The presence of *Leptographium procerum*, *Leptographium terbrantii* or both was significantly associated with an increased presence of subterranean termites in loblolly pine roots.  
4 The results obtained in the present study indicate that complex ecological interactions may exist between ophiostomatoid fungi, as carried by root-feeding bark beetles, and subterranean termites.  
**Keywords:** Blue-stain fungi, *Leptographium*, loblolly pine roots, ophiostomatoid, *Pinus taeda* L., subterranean termites.

## NEW PUBLICATION CONGRATULATION Dr. Yu Cheng Zhu

### Comparative gut transcriptome analysis reveals differences between virulent and avirulent Russian wheat aphids, *Diuraphis noxia*

Radhika Ananthakrishnan, Deepak K. Sinha, Marimuthu Marungan, Kun Yan Zhu, Ming-Shun Chen, Yu Cheng Zhu & C. Michael Smith  
*Arthropod-Plant Interactions* (2014) 8:79-88 DOI 10.1007/s11829-014-9293-4

**Abstract:** The Russian wheat aphid, *Diuraphis noxia*, is a destructive pest of cereal crops that exhibits virulence to D. *noxia* resistance genes in wheat. Therefore, it is important to identify D. *noxia* virulence factors. The insect gut, the primary site of defense to ingested toxins, is also a likely site of differential gene expression in virulent insects. Comparative analyses of gut transcriptomes from virulent and avirulent D. *noxia* can improve our understanding of aphid gut physiology and may reveal factors critical to compatible D. *noxia*-wheat interactions. A total of 4,600 clones were sequenced from gut cDNA libraries prepared from virulent (biotype 1) and avirulent (biotype 2) D. *noxia* feeding on biotype 1-resistant wheat. A majority of the sequences (64 % in biotype 1, 64 % in biotype 2) matched those from the NR database. BLASTx analysis of sequences with the highest E-values revealed that 59 % of the biotype 1 sequences matched those of the pea aphid, *Acyrtosiphon pisum*. However, only 17 % of the biotype 2 sequences were similar to those of A. *pisum*. RT-qPCR expression analyses confirmed that the biotype 2 gut transcriptome differs significantly from that of biotype 1. A transcript coding the tRNA-Leu gene was significantly upregulated in the biotype 2 transcriptome, strongly suggesting that leucine metabolism is a critical factor in biotype 2 survival. Many more transcripts encoding protease inhibitors occurred in the avirulent biotype 1 gut than in the gut of virulent biotype 2. However, more protease transcripts occurred in the biotype 2 gut than in the biotype 1 gut, suggesting that the avirulent biotype produces protease inhibitors in response to plant proteases. The virulent biotype 2 produces trypsin-like and chymotrypsin-like serine protease counter-defenses to overcome biotype 1-resistant plants.

**Keywords:** Biotype, *Diuraphis noxia*, Phloem feeder, Plant resistance, Buchnera, Transcriptome analysis

Congratulations Calvin Pierce  
On Five Years of Service



Congratulations Les Price  
On Fifteen Years of Service



Congratulations Clint Allen  
On Five Years of Service



Congratulations Phil Powell  
On Ten Years of Service



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February 4, 2014

**SUBJECT:** Mid South Area (MSA) Area Diversity Policy Statement  
**TO:** Mid South Area Employees  
**FROM:** Dan R. Upchurch *DRU*  
Acting Area Director

The Mid South Area (MSA) Office is committed to providing a workplace that is inclusive and reflects the Nation's diversity. The Agricultural Research Service (ARS) top priorities include successfully managing diversity in the workplace and creating and maintaining an environment where all ARS employees are valued, respected, and free to develop and perform to their fullest potential. In accordance with Secretary Vilsack's Cultural Transformation Initiative, the ARS is charged with creating a work environment as diverse as our customers.

Diversity is not only the right thing to do, it is the smart thing to do; diversity positively impacts each ARS employee which enhances our ability to take full advantage of multicultural viewpoints, ideas, and backgrounds.

The MSA is the most diverse Area in ARS. Regardless, we must continue to build on this diversity by embracing, managing, and leveraging diversity through our employment decisions in attracting, promoting, training, and rewarding personnel.

The MSA Office sponsors the Workplace Diversity Committee, which is chaired by Dr. Deepak Khanna, a Research Leader at the SRRC in New Orleans, LA. Mr. Jimmy McAlpine is the Outreach, Diversity and Equal Opportunity Manager for the MSA. I encourage any of you having EEO issues and concerns to talk with him, as well as your supervisor. I support and encourage those of you with EEO issues to utilize the Cooperative Resolution Program as an alternative dispute resolution. It is in all our best interest to settle disputes at the earliest stage of conflict and resolve issues and concerns.

Please ensure that all MSA employees receive a copy of this memorandum and that it is prominently displayed in all Location Administrative Offices. My office number is 979-2566-7347, and Mr. McAlpine's office number is 662-686-3634. The ARS Office Outreach, Diversity, and Equal Opportunity's number is 202-720-6161.

**Please provide this memorandum to all employees of the Mid South Area and prominently display it in offices.**

Area Office  
Mid South Area, James H. Justice, Jr. State Research Center  
147 Experiment Station Drive, Box 214  
Birmingham, AL 35276-0219  
USDA is an Equal Opportunity Employer

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February 4, 2014

**SUBJECT:** Mid South Area (MSA) Equal Employment Opportunity Statement  
**TO:** Mid South Area Employees  
**FROM:** Dan R. Upchurch *DRU*  
Acting Area Director

The Mid South Area is fully committed to Equal Employment Opportunity and to attracting, retaining, developing, and promoting the most qualified employees regardless of race, gender, national origin, religion, sexual orientation, gender identity, age, disability, veteran status, or any other characteristics prohibited by Federal law. Discrimination in MSA workplaces is an unacceptable employment practice.

The MSA is committed to maintaining a work environment that is free of discrimination, harassment, and retaliation. Managers and supervisors must continually monitor the workplace to ensure an environment free of unfair discrimination, hostility, intimidation, reprisal, or harassment. The agency's commitment includes taking swift and appropriate disciplinary action against individuals who engage in retaliatory and harassing behavior. Furthermore, the ARS supports the rights and freedom of individuals who exercise their rights under EEO anti-discrimination statutes.

Behavior by any employee or contractor that may be considered offensive, demeaning, or degrading to persons or groups will not be tolerated. When a conflict occurs, it is critical for MSA Managers and Supervisors to address the issue and resolve it as a first course. To ensure employees can address concerns without fear of retaliation or retribution, the MSA Administration provides several complaint channels. Should an employee feel that you have been unfairly treated or have any questions regarding the employment practices of the MSA, please feel free to contact management or supervisors.

The No Fear Act reaffirms the MSA Administration policy commitment to ensure that all Federal employees feel free to come forward with allegations of discrimination, wrongdoing, or misconduct, by making sure that Federal employees are aware of their rights. The EEO complaint process consists of the informal process, and the formal process. If you wish to file an EEO complaint, you must figure with the informal process. (How to file a complaint: [http://www.ars.usda.gov/comp/land\\_files.html](http://www.ars.usda.gov/comp/land_files.html))

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February 4, 2014

**SUBJECT:** Mid South Area (MSA) Area Sexual Harassment Policy Statement  
**TO:** Mid South Area Employees  
**FROM:** Dan R. Upchurch *DRU*  
Acting Area Director

Eliminating discrimination and sexual harassment and fostering a respectful environment requires an ongoing, demonstrated commitment from all employees of the Mid South Area. The official Mid South Area Policy concerning sexual harassment in the Workplace is "Zero Tolerance." Sexual Harassment is by law a form of sex discrimination that clearly violates Title VII of the Civil Rights Act of 1964.

All managers/supervisors are directed to take steps necessary to prevent sexual harassment from occurring. They should clearly communicate to employees that sexual harassment will not be tolerated in any form. If such harassment happens to occur, it is the responsibility of all parties involved to be helpful and to inform the harasser directly that the conduct is unacceptable and must stop. Any employee who feels that their rights have been violated should contact your supervisor, Research Leader, and/or Central Director/Laboratory Director. My office also is open to your complaints/grievances and can be contacted at 662-686-3268.

The U.S. Supreme Court has simplified matters somewhat by explaining that there are two basic types of unlawful sexual harassment.

The first type involves harassment that results in a tangible employment action. An example would be a supervisor who tells a subordinate that he or she must be sexually cooperative with the supervisor or he or she will be adversely affected. This imposition often is referred to as quid pro quo.

A second type of unlawful sexual harassment results in creation of a hostile environment. Unlike a quid pro quo, which is usually imposed by a supervisor, a hostile environment can result from the gender-based unwelcome conduct of supervisors, co-workers, customers, vendors, or anyone else with whom the victimized employee interacts on the job. Behaviors that have contributed to a hostile environment have included some of the following:

- unfulfilled threats to impose a sexual quid pro quo;
- discussing sexual activities;

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Mid South Area Employees 2

- telling off-color jokes;
- unnecessary touching;
- commenting on physical attributes;
- displaying sexually suggestive pictures.

Any Mid South Area employee who believes that they have been subjected to conduct that violates this policy may seek assistance from their supervisor, human resource manager, or other managers at their location. The Area Administration strictly prohibits any employee to be subjected to any form of retaliation or reprisal for reporting alleged violations of this policy by the Federal Employee Anti-Discrimination and Retaliation Act of 2002 (No Fear Act 107-174).

**Please provide this memorandum to all employees of the Mid South Area and prominently display it in offices.**



## Developing a Strategic Plan for Your Life

If a strategic plan can help your organization focus on its purpose and goals, why shouldn't it work for you? Since you can't do everything, you need to identify the most important aspects of your life and center your efforts on them. Doing so will benefit your organization as well as yourself, because you'll be investing your time and energy wisely. Here's how to develop your own strategic plan:

1. **Start a personal strategic-planning notebook.** Begin by writing down your responses to the following exercises. Write in the present tense.
2. **Picture yourself three years from now** reflecting on your most significant accomplishments over that time. Write down what you see. Figure out what will have to happen to make you happy with your progress. Are the things you're doing now taking you where you want to go? Which things should you be doing more of? Which things could you let go of? Write down your answers.
3. **List the six or seven areas of your life** that are extremely important to you. For example, you might name family, health, work, spirituality, and so on.
4. **For each area, develop a clear vision** of where you're going. Write down what it looks like when you're living your best expectations in each of the areas.
5. **Keep your notebook** near at hand, and refer to it when you're wondering which tasks to concentrate on and which to set aside.

## MARCH BIRTHDAYS CELEBRATION

Leslie and Larry