USDA-ARS
Southeast 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

Integrated Insect Pest and Resistance Management on Corn, Cotton, Sorghum, Soybean, and Sweet Potato

PROJECT INVESTIGATORS

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

Innovative Strategies for Insect Resistance Management in Bt Cotton

PROJECT INVESTIGATORS

- Clint Allen
- Nathan Little
- Randall Luttrell
- **OP Perera (Project Leader)**

2015 Back to School Cookout

When: Tuesday-August 4, 2015

Where: First floor conference room

Time: 11:00 a.m.

2015 Back to School Cookout

Outreach

United State Agriculture Leadership group visited USDA Stoneville, MS

NEW PUBLICATION
CONGRATULATION
Dr. O.P. Perera

Unique synteny and alternate splicing of the chitin synthases in closely related heliothine moths

Paul D. Shirk, Omaththage P. Perera, Kent S. Shelby, Richard B. Furlong,
Eric D. LoVullo, and Holly J.R. Popham

Gene(2015), http://dx.doi.org/10.1016/j.gene.2015.08.001

ABSTRACT: Chitin is an extracellular biopolymer that contributes to the cuticular structural matrix in arthropods. As a consequence of its rigid structure, the chitinous cuticle must be shed and replaced to accommodate growth. Two chitin synthase genes that encode for chitin synthase A (ChSA), which produces cuticular exoskeleton, and chitin synthase B (ChSB), which produces peritrophic membrane, were characterized in the genomes of two heliothine moths: the corn earworm/cotton bollworm, Helicoverpa zea (Boddie) (Lepidoptera: Noctuidae) and the cotton bollworm, Helicoverpa armigera (Hübner) (Lepidoptera: Noctuidae). In both moths, the two genes were arranged in tandem with the same orientation on the same strand with ChSB located 5′ of ChSA. Sequence comparisons showed that the coding sequences were highly conserved with homologues from other species but that the tandem juxtaposed genomic arrangement of the two genes was unique in these insects. The mechanism that has led to this arrangement is unclear but is most likely a recent recombinational event. Transcript mapping of HzChSB and HzChSA in H. zea demonstrated that both transcriptswere differentially spliced in various tissues and larval stages. The identification of the HzChSB–E12b alternate spliced transcript is the first report of alternate splicing for the ChSB group. The importance of this splice form is not clear because the protein producedwould lack any enzymatic activity but retain themembrane insertion motifs. As for other insects, these genes provide an important target for potential control through RNAi but also provide a subject for broad scale genomic recombinational events.

AUGUST BIRTHDAYS CELEBRATION

- Katherine (August 15th)
- Chris (August 15th)
- Mathew (August 22nd)
- Kyle (August 29th)