

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

NEW PUBLICATION CONGRATULATION Dr. O.P. Perera

Temporal and Spatial Genetic Variability Among Tarnished Plant Bug (Hemiptera: Miridae) Populations in a Small

Geographic Area

OMATHYTHAGE P. PERERA, JEFF GORE, GORDON L. SNODGRASS, RYAN E. JACKSON, KERRY C. ALLEN, CRAIG A. ABEL, AND RANDALL G. LUTTRELL

Ann. Entomol. Soc. Am. 1–12 (2015); DOI: 10.1093/aesa/aat016

ABSTRACT: The tarnished plant bug, *Ligys lineolaris* (Pallot de Beauvois), is an important pest of cotton that also feeds on other crops and many wild hosts. In the mid-South, where tarnished plant bugs in cotton are controlled exclusively with synthetic insecticides, infestations resulted in >25% of all yield loss attributed to insect damage and the control costs exceeded USD\$10 per acre in 2013. They have developed resistance to the most commonly used insecticides. Estimations of gene flow and migration are important to understand the spread of resistance in tarnished plant bug populations. Here, we sampled tarnished plant bugs collected from July to September, 2006, to estimate population genetic parameters using 13 microsatellite markers. Our data indicated that tarnished plant bug populations in the study area had undergone a population bottleneck and all loci deviated from Hardy-Weinberg equilibrium in one or more collections. Bayesian simulations and factorial correspondence analysis indicated the presence of two genetic clusters in the tarnished plant bug populations in the study area. Proportions of insects separated into the two genetic clusters changed from July to September. Genetic differentiation and reduced gene flow between populations were also observed. We postulate that while random genetic drift and gene flow may have contributed to the seasonal variations observed in the study populations, selection by insecticide sprays in cotton during 2005–2006 as well as other unknown factors could also have played a significant role in the temporal variation in genetic structure observed in the tarnished plant bug populations.

Thank you

To my SIMBU family,

I would like to express my appreciation for your outpouring of support for me and my family during our time of loss. Thank you for the plant, prayers, calls, and words of encouragement during this difficult time.

Sincerely,
Nathan Little & family

FEBRUARY BIRTHDAYS CELEBRATION

- Lou (Feb. 2)
- O.P. (Feb. 8)
- Sakinah (Feb. 16)

