Insecticide Resistance of Tarnished Plant Bugs

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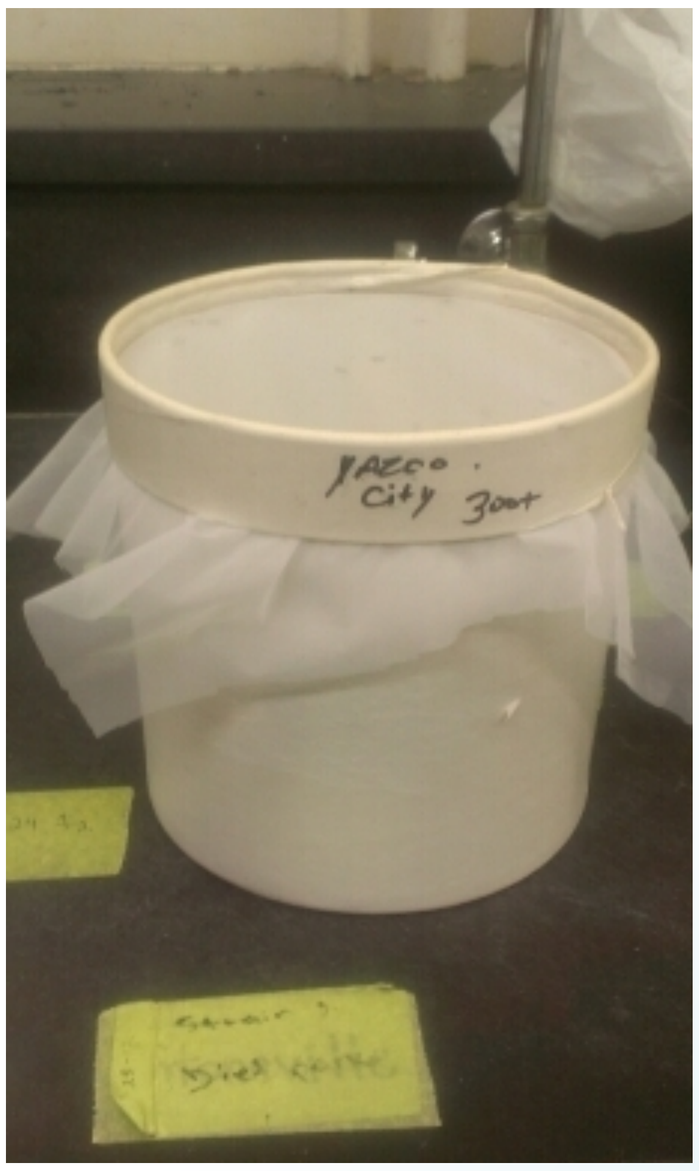
INTRODUCTION:
I worked in the laboratory for Dr. Gordon Snodgrass and Mr. Arnell Patterson during the summer of 2013. The research project that I worked on was designed to monitor insecticide resistance in the tarnished plant bug (TPB) to thiamethoxam (Centric). Centric is an insecticide that is widely used in the mid-South to control TPB in cotton. Over the past 25 years TPB have become resistant to insecticide found in the carbamate, organophosphate, and pyrethroid classes. Centric is a newer class of insecticide (neonicotinoid) extensively used for TPB control and is a very important insecticide in cotton.

MATERIALS AND METHODS:
Resistance to Centric was monitored using a glass-vial bioassay. In the bioassay, adult TPB were fed different amounts of Centric (doses) by dissolving it in honey-water and pipetting it onto a piece of floral foam inside a 20-ml glass vial. The floral foam held the solution without leaking and TPB will feed on the foam and obtain the insecticide. One adult was used per vial and for most populations a check and four other different doses were tested. For the check and each dose, thirty adults (1 pr vial) were tested. Mortality was determined after 24 hours and results were used to calculate an LC_{50} for each test population. The LC_{50} is the dose that will kill 50% of the adults in a population. They allow us to compare different population in the current year and from previous years to see how resistance is changing. Adults from 23 populations found in the mid-South will be tested.



RESULTS AND DISCUSSION:
Tests with adults from the different locations are still being conducted. Results from the completed tests show that resistance to Centric is low and has changed little from previous years.

REFERENCES:
Snodgrass, G.L., C. A. Abel, R.E. Jackson, and J. Gore. 2008. A bioassay for determining resistance levels in tarnished plant bug populations to neonicotinoid insecticides. Southwest. Entomol. 33: 176-180.

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