Jana' Slay

While working for SIMRU, I have not only obtained knowledge about what USDA does, but also gained first hand experiences on insect management. SIMRU stands for Southern Insect Management Research Unit and we are determined on "improving the safety and efficiency of pest control for cotton, maize, soybean, sweetpotato and other row crops." My scientist, Ryan Jackson, is a group leader of a project that focuses on understanding how different landscapes for crops affects the resistance developments of various insects as well as focusing on how to control these pest in order to increase productivity of mid-South row crops.

During the summer, our crew focused on two main crops: corn and cotton. The two pests that affect these crops are the tarnished plant bug and bollworms. One of my personal focal points was tarnished plant bug testing. We ran various tests to see what chemicals worked efficiently on terminating the plant bugs.

In the article *Acephate Resistance in Populations of the Tarnished Plant Bug (Heteroptera: Miridae) From the Mississippi River Delta* it is stated, "that tarnished plant bug populations highly resistant to pyrethroid insecticides were still susceptible to organophosphates, especially acephate. This is no longer true for tarnished plant bugs populations in the delta." This is why our research is important; we help delta farmers try to control these pests.

The Dose Morality Vial Test with plant bugs can establish baseline measurements of susceptibility for an insecticide. The insecticide used was Diamond. This test gives us something to refer back to and test years later. After about 5 years, when the test is ran again, it can be determined if the population is resistant or susceptible.

We test assorted chemicals to see which ones are most effective on killing the bugs. We catch plant bugs from an assortment of locations around the delta area, as well as "the hills" of Mississippi. We allow them to grow and multiply, making colonies. After a few generations, we start a test by soaking vials with the chemicals; we then allow the chemical to air dry within the vial and place the bugs into the vial. After two hours of the bugs being surrounded with the chemical, they are then placed individually into plastic cups with food suitable for survival. The test is then rated by observing the bugs for death as well as switching out their food if they managed to survive. After rating the test three times, it is normally finished and data is collected and stored.

We also have an Adult Vial Test with Bollworms. The insecticide used for this test is a pyrethroid. Moths are placed in vials coated with the insecticide and are held there for two or more hours. The survivors, the ones that are able to fly afterwards, are called "resistant" and the dead ones are called "susceptible". If a high proportion of insects tested are resistant (30-70%), then the population may cause problems when treated in the field. This test can also be used to monitor for resistance development over time.

Working for SIMRU has been a wonderful experience. Not only did I gain a greater appreciation for what the USDA does but also I managed to learn something along the way. I now know farming techniques and I am now a grade A bug collector. I also now know how to create and maintain colonies of plant bugs if ever needed.