## SUSCEPTIBILITY OF HELICOVERPA ZEA (BODDIE) TO THE DIAMIDES IN THE MID-SOUTH Andrew Adams Jeff Gore Angus Catchot Fred Musser Don Cook Mississippi State University Mississippi State, MS

## **Abstract**

Since their introduction, the diamide insecticides have played a crucial role in bollworm management in the Mid-South. A laboratory bioassay was developed for testing bollworm populations for resistance surveys to the diamide insecticides flubendiamide and chlorantraniliprole. The bioassay allows for the determination of  $LC_{50}$  and  $LC_{90}$  values by feeding known concentrations of the insecticide to neonate bollworm larvae in a meridic diet. Field populations of bollworm from 14 locations in the Mid-South were tested with the concentration mortality bioassay for dose responses to flubendiamide and chlorantraniliprole in 2013 and 2014. Among populations and locations there was an observed 2.14 and 1.81 fold measure of variability for the  $LC_{50}$  values for flubendiamide and chlorantraniliprole, respectively. These values ranged from 0.014-0.030 ppm and 0.0026-0.0041 ppm with flubendiamide and chlorantraniliprole, respectively. Among populations and locations there was an observed 1.58 and 2.30 fold measure of variability for the  $LC_{90}$  values for flubendiamide and chlorantraniliprole, respectively. Among populations and locations there was an observed 1.58 and 2.30 fold measure of variability for the  $LC_{90}$  values for flubendiamide and chlorantraniliprole, respectively. Among populations and locations there was an observed 1.58 and 2.30 fold measure of variability for the  $LC_{90}$  values for flubendiamide and chlorantraniliprole, respectively. Among populations and locations there was an observed 1.58 and 2.30 fold measure of variability for the  $LC_{90}$  values for flubendiamide and chlorantraniliprole, respectively. These values ranged from 0.021-0.038 ppm and 0.0043-0.0099 ppm with flubendiamide and chlorantraniliprole, respectively. These data collected in both years with both insecticides will provide a basis for comparison to determine changes in susceptibility in future resistance monitoring studies.