Manuel Gullatt, Jr., Environmental Science

University: Haskell Indian Nations University
Year in School: Senior
Hometown: Carson City, Nevada
Faculty Mentor: Dr. Tom Coudron, BCIRL and Plant Sciences

Funding Source: U.S. Department of Agriculture-Agriculture Research Service Internship

Dead or alive: What effect does the prey condition have?

Manuel Gullatt, Jr. and Tom Coudron

The effect of rearing the predatory bug, Perillus bioculatus on live versus coddled prey, Trichoplusia ni, (T. ni) was examined in four separate experiments to address the question: In what way does live T. ni improve the development of P. bioculatus? Survival and the rate of development were recorded from a series of tests where various combinations of live and coddled prey were fed to the insects in the presence and absence of antibiotics1. Developmental time from second instar to adult eclosion was shortest for those insects fed live T. ni in the second instar with water containing antibiotics and longest for those insects that were able to visualize but not contact their prey. Additionally, the highest level and rate of mortality was recorded with insects that were able to visualize but not contact live prey. In contrast, immature survival to the 4th instar was highest for insects fed coddled T. ni in containers pre-exposed to live T. ni, in both groups with and without antibiotics. Adult survival was highest for insects fed live T.ni in the second instar with antibiotics and was lowest for those insects that were able to visualize but not contact live prey. Highest female to male ratio of 1.16 was achieved by the insects fed coddled T. ni in containers pre-exposed to live T. ni. Overall, the best combination of food and antibiotics was obtained with insects fed live T. ni in the second instar and water containing antibiotics. These results support the concept that live prey may provide micronutrients not available in coddled larvae, and that antibiotics in the alimentary canal are advantageous to the development and survival P. bioculatus under these rearing conditions. Further tests include fecundity, adult longevity, micronutrient determination in live versus coddled T. ni and the analysis of bacteria in the alimentary canal under different rearing regimes.