

Public Abstract

First Name:Kelli

Middle Name:Lynn

Last Name:Barr

Adviser's First Name:Georgia

Adviser's Last Name:Davis

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title:ASSOCIATIONS BETWEEN WOLBACHIA, MAIZE AND DIABROTICA VIRGIFERA VIRGIFERA

*Diabrotica virgifera virgifera* which is infected with *Wolbachia*, is the most significant and widespread pest to maize in North America and Europe. *Wolbachia* are obligate intracellular bacteria which seem to be limited to ecdyzoan hosts. Many *Wolbachia* hosts induce or vector serious human diseases resulting in the loss of millions of lives annually. The majority of differentially expressed genes identified in a microarray experiment performed to locate endogenous sources of *D. virgifera virgifera* resistance in maize, *Zea mays* L., are normally involved in microbial defense rather than wounding or insect attack. A second microarray experiment to determine whether *Wolbachia* were influencing the response of maize to *D. virgifera virgifera* attack indicated the presence of *Wolbachia* in the insect can down regulate genes in all plant defense classes. This may contribute to the success of *D. virgifera virgifera* as a maize pest. To further test this idea, assays on *D. virgifera virgifera* larval competitiveness and fertility were performed. Results of the assay suggest *D. virgifera virgifera* and *Wolbachia* share a commensal association.