

GLASSY-WINGED SHARPSHOOTER EXCRETA PRODUCTION AND EGG MATURATION ON GRAPEVINES

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Reporting Period: The results reported here are from work conducted June 2010 to current.

ABSTRACT

To better understand glassy-winged sharpshooter (GWSS) movement and reproduction in vineyards, studies evaluating GWSS feeding (as measured by excreta production) and egg maturation on grapevines were conducted. In 2010, studies compared excreta production and egg maturation of female GWSSs on self-rooted grapevines (cv. Chardonnay) that were inoculated with *Xylella fastidiosa* (Xf) or water. For reference, excreta production and egg maturation was simultaneously evaluated on cowpea. The mean number of eggs matured per female on each test plant was determined by confining females to plant stems, allowing females to feed but discouraging them from ovipositing. After five days, each female was dissected to determine egg load (number of mature eggs carried in the abdomen). A subset of females was dissected prior to the start of the experiment (referred to as baseline), so that the mean number of eggs matured during the test could be determined. Females held on cowpea produced 3.6 times more excreta and carried 3.6 times more eggs than females held on grapevines, regardless of whether the grapevines were inoculated with Xf. Further, egg loads of females held on grapevines for five days were not significantly greater than egg loads of females that were dissected prior to the start of the experiment, suggesting that females on grapevines did not mature any eggs during the test. Two studies were completed in 2011, both using grapevines (cv. Chardonnay) grafted on a 101-14mg rootstock. The first study in 2011 compared excreta production and female preference for Xf inoculated versus water inoculated grapevines. While females on water inoculated grapevines produced more excreta than females on Xf inoculated grapevines the difference was not significant. Nonetheless, in choice tests females were most frequently observed on water inoculated versus Xf inoculated grapevines. The second study in 2011 compared excreta production and egg maturation of females on non-inoculated grapevines and cowpea. Similar to tests in 2010, egg maturation was evaluated by comparing egg loads of females after one week of feeding on test plants to egg loads of females dissected prior to the start of the test. While females on cowpea produced 1.5 times more excreta and 1.4 times more eggs than females on grapevine, the relative differences in excreta production and egg maturation between cowpea and grapevine were smaller in 2011 than in 2010. Further, whereas females on grapevine in 2010 did not produce significantly more eggs than baseline females, females on grapevine during tests in 2011 carried 2.3 times more eggs than baseline females. Accordingly, excreta production and egg maturation of females on grapevines in tests in 2011 appeared to be greater than that of females on grapevines in 2010. One possible explanation for this observation is that tests in 2010 used self-rooted Chardonnay whereas tests in 2011 used Chardonnay grafted on a rootstock. Tests in 2012 will directly compare GWSS performance on self-rooted Chardonnay versus Chardonnay grafted on a rootstock.

FUNDING AGENCIES

Funding for this project was provided by USDA Agricultural Research Service appropriated project 5302-22000-008-00D.

ACKNOWLEDGEMENTS

We thank Sean Uchima and Donal Dwyer for assisting with experiments.

Section 2:

Vector

Management



