PROGRESS REPORT FOR CDFA CONTRACT NUMBER 00068753

IMPROVED DETECTION, MONITORING AND MANAGEMENT OF THE GLASSY-WINGED SHARPSHOOTER

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Reporting Period: The results reported here are from work conducted in early 2009.

ABSTRACT
Efficient and precise methods for detection of new colony infestations and for monitoring glassy-winged sharpshooter, *Homalodisca vitripennis* (Germar) (GWSS) population dynamics on a temporal and spatial basis for IPM related decision-making are lacking. This proposal provides an approach that will address the detection and monitoring needs as well as develop a new strategic approach to management of GWSS.

INTRODUCTION
The GWSS as a vector of *Xylella fastidiosa,* remains a threat to grapes, almonds, stone fruit and oleander and impacts citrus and nursery crops throughout much of California. It remains an important quarantine pest for the Napa and Sonoma Valleys and other uninfested areas. Due to the unique biology and behavior of the xylophagous GWSS which is driven by plant xylem chemistry and nutrition, conventional detection and monitoring approaches may not provide the necessary statistical precision needed by the regulatory and producer community for management decisions. This proposal provides an approach that will address the detection and monitoring needs as well as develop a new strategic approach to management of GWSS.

5. OBJECTIVES
Overall: To determine the most efficient and cost effective trapping system to detect and monitor *Homalodisca vitripennis* Germar (GWSS) population dynamics and the potential to manage GWSS populations.

1. Evaluate and summarize previous sampling and trapping efforts for GWSS.
2. Trap configuration and number: Determine the potential and optimize the number of traps that are most efficient and cost effective in detecting and estimating GWSS populations.
3. Determine the effects of host plants in combination with traps: Determine the potential and the optimization of a combination of GWSS host plants in sentinel plots to detect, estimate and manage GWSS population dynamics.

RESULTS AND DISCUSSION

We have completed Objective 1 which was discussed in the October report and the prose will be updated as new literature appears and will become part of the likely two-three manuscripts that will result from the project. We are awaiting the field season to begin the remainder of the project's field work.

Since the October report we have published or developed and submitted several manuscripts dealing with various aspects of GWSS and PD biology and behavior as follows:

1. Mizell, R. F., C. Tipping, P. C. Andersen, B. V. Brodbeck, T. Northfield and W. Hunter. 2008. Behavioral model for the glassy-winged sharpshooter, *Homalodisca vitripennis* (Hemiptera: Cicadellidae): optimization of host plant utilization and management implications. Environ. Entomol. (Forum) 37:1049-62.
2. Andersen, P., R. Mizell and B. Brodbeck. 2008. Abundance and feeding rate of *Homalodisca vitripennis* Germar on *Prunus persica* and *Prunus salicina*. J. Entomol. Sci. 43:394-407.
3. Andersen, P., B. Brodbeck and R. Mizell. 2008. Assimilation efficiency of free and protein amino acids by the glassy-winged sharpshotter, *Homalodisca vitripennis* (Germar) (Hemiptera: Cicadellidae: Cicadellinae) feeding on *Citrus sinensis* and *Vitis vinifera*. Fla. Entomol. Fla. Entomol. 92:116-122.

4. Northfield, T., R. Mizell, T. Riddle, P. Andersen and B. Brodbeck. 2009. Dispersal, patch leaving and aggregation of the glassy-winged sharpshooter, *Homalodisca vitripennis* (Hemiptera: Cicadellidae). Environ. Entomol. 38:183-191.
5. Northfield, T. R. F. Mizell, T. C. Riddle and P. C. Andersen. 2008. Landscape level geospatial distribution of glassy-winged sharpshooter *Homalodisca vitripennis* (Hemiptera: Cicadellidae) in north Florida. Environ. Entomol. (Submitted).

CONTRIBUTE TO SOLVING THE PD PROBLEM IN CALIFORNIA

Management of the vector and PD is contingent on the availability of efficient sampling field methods. This proposal aims to improve upon the current methods.

FUNDING AGENCIES

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