

RIVERSIDE COUNTY GLASSY-WINGED SHARPSHOOTER AREA-WIDE MANAGEMENT PROGRAM IN THE COACHELLA AND TEMECULA VALLEYS

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ABSTRACT

Riverside County has two general areas where citrus groves interface with vineyards, the Coachella and Temecula Valleys. The Coachella Valley with 10,438 acres of table grapes in proximity to 12,000 acres of citrus and the Temecula Valley with 2,000 acres of wine grapes in proximity to 1,600 acres of citrus are vulnerable to Pierce's disease (PD), caused by the bacterial pathogen *Xylella fastidiosa*. The grapes in the Coachella and Temecula areas of Riverside County are in jeopardy because of the glassy-winged sharpshooter (GWSS; *Homalodisca vitripennis*), the vector of the PD bacterium, build up in adjacent citrus groves. Citrus is an important year around reproductive host of GWSS in Riverside County, but also one that concentrates GWSS populations over the winter months during the time that grapes and many ornamental hosts are dormant. GWSS weekly monitoring in citrus in grapes began in March 2000 in Temecula Valley and 2003 in Coachella Valley by trapping and visual inspections. Temecula valley GWSS populations in 2008 reached levels not seen prior to the initiation of the area wide GWSS program in 2000. Coachella Valley GWSS populations have decreased dramatically since the treatment program was initiated in 2003.

INTRODUCTION

The glassy-winged sharpshooter (GWSS) vectors a bacterium that causes Pierce's disease (PD). This insect and bacterium are a severe threat to California's 830,000 acres of vineyards and \$30 billion industry. An area-wide GWSS management program was initiated in Temecula in 2000 to prevent this vector's spread into other California grape-growing regions. In Temecula Valley itself, the wine grape industry and its connecting tourist industry generate \$100 million of revenue for the economy of the area. GWSS/PD caused a 30% vineyard loss and almost destroyed the connecting tourist industry. The area wide GWSS management program initiated in the spring of 2000 saved the industry from a 100% loss. Only a continuation of an area-wide GWSS management program will keep the vineyards viable in Temecula. The table grape industry in the Coachella Valley is represented by 10,465 acres of producing vines, which generate fresh market grapes valued at an average of \$110 plus million annually. The GWSS was identified in the Coachella Valley in the early 1990's. Population increases of this insect in Coachella Valley in the last three years have increased the danger of PD occurrence in this area, as has occurred in similar situations in the Temecula and San Joaquin Valleys. In July 2002, the occurrence of *Xylella fastidiosa*, the PD bacterium, was found in 13 vines from two adjacent vineyards in the southeastern part of Coachella Valley. With this discovery, and the increasing GWSS populations, there was and is a real need to continue an area-wide GWSS/PD management program, to prevent an economic disaster to the work forces and connecting small businesses of Mecca, Thermal, Coachella, Indio, etc. that depend upon the vineyards for a big portion of their incomes. Only a continuation of an area-wide GWSS/PD management program will keep the vineyards viable in Coachella. At present, there are no apparent biological or climatological factors that will limit the spread of GWSS or PD. GWSS has the potential to develop high population densities in citrus. Insecticide treatments in citrus groves preceded and followed by trapping and visual inspections to determine the effectiveness of these treatments are needed to manage this devastating insect vector and bacterium. A total of 106 acres of citrus in Riverside County were treated for the GWSS in February through September, 2008 between a cooperative agreement with USDA-APHIS and the Riverside Agricultural Commissioner's Office under the "Area-Wide Management of the Glassy-Winged Sharpshooter in the Coachella and Temecula Valleys".

OBJECTIVES

1. Delineate the areas to be targeted for follow-up treatments to suppress GWSS populations in the Temecula and Coachella Valleys for 2009.
2. Determine the impact of the GWSS area-wide treatments to suppress GWSS populations in citrus groves and adjacent vineyards.

METHODS, RESULTS AND CONCLUSIONS

The programs in Coachella and Temecula were dependent upon grower, pest management consultants, citrus and vineyard manager's participation. The areas encompass approximately 28,000 acres. Representatives of various agencies were involved in the program, they were as follows: USDA-ARS, USDA-APHIS, CDFA, Riverside County Agricultural Commissioner, UC Riverside, UC Cooperative Extension, and grower consultants. Representatives of these agencies meet to review the program. Newsletters are sent to growers, managers, wineries, and agencies with information on GWSS populations and insecticide treatments via e-mail. The information from Temecula is sent weekly, while information from Coachella goes to the various parties monthly.

The GWSS/PD citrus groves and vineyards within the GWSS/PD management areas were monitored weekly to determine the need and effect of insecticide treatments on GWSS populations. In August, because of the lack of GWSS trap catches in Coachella Valley, a bi-weekly schedule was initiated. Yellow sticky traps (7 x 9 inches) were used to help determine GWSS population densities and dispersal/movement within groves and into vineyards (**Figures 1 & 2**). Approximately 1,400 GWSS yellow sticky traps are monitored weekly. Based on trap counts and visual inspection, only 106 acres of citrus were treated in Temecula valley for GWSS. No insecticide treatments were needed in Coachella Valley for the management of GWSS in 2008. In Temecula Valley, treatments for GWSS in citrus were initiated when at least 1-2 GWSS adults were found at the same trap location for two consecutive weeks. In Temecula Valley, only the citrus where the GWSS was found were treated. Because of various reasons, some citrus acreage in Temecula should have been treated that was not. These additional acres were not treated because of one of the following three reasons: uncooperative citrus growers, close proximity to homes and the late time of the season that the GWSS appeared. In Temecula Valley, 93 acres of the 106 citrus acres were treated with Admire Pro (imidacloprid) at the rate of 14 oz./acre. In June, 37 of the 93 acres were treated with Lorsban 4E (chlorpyrifos) at the rate of 7 pts./acre. Thirteen acres were treated with PyGanic 5.0 (1.4% Pyrethrins) at 18 oz./acre. PyGanic was used to treat organically grow citrus. On the 13 citrus acres where PyGanic was used to manage GWSS, a follow-up treatments of PyGanic was applied a month after the first application for two consecutive months.

Total Temecula GWSS Catch per Week for 2008

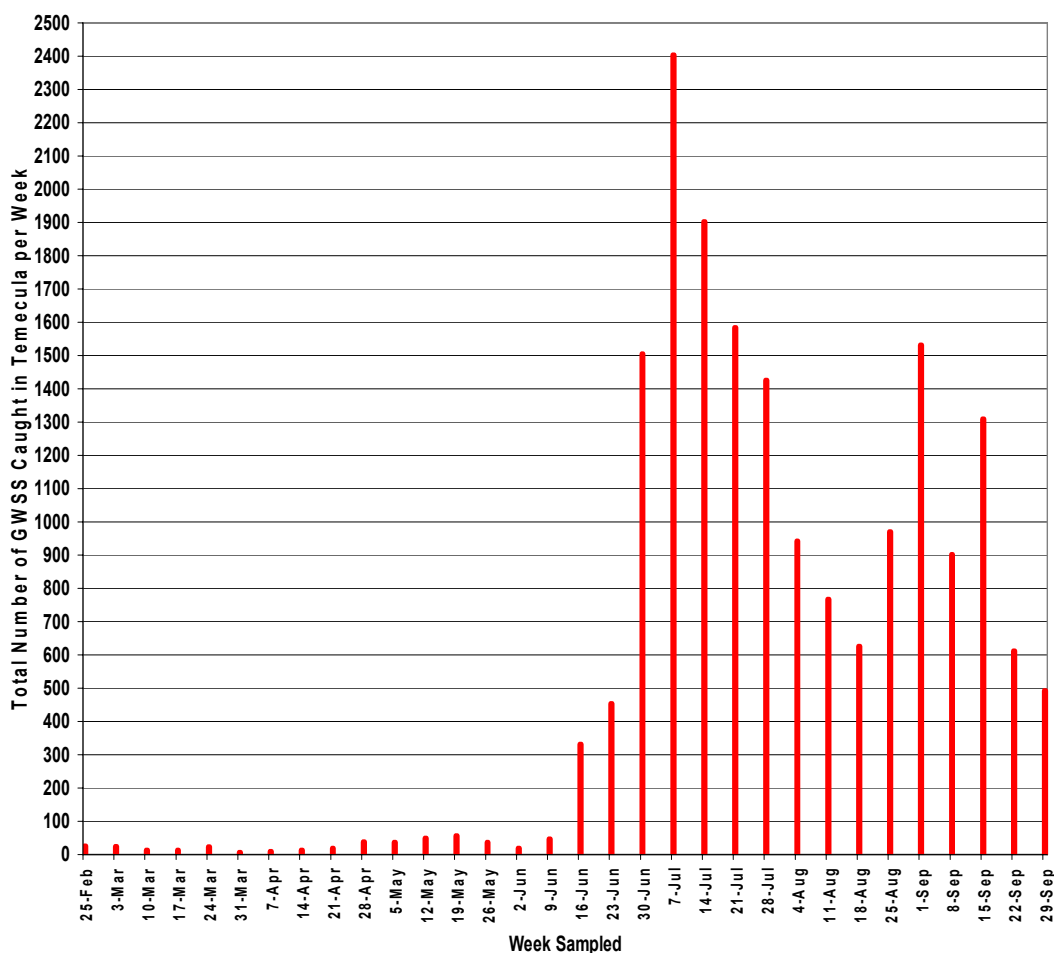


Figure 1. In 2008, high numbers of adult GWSS were caught on the yellow sticky traps in Temecula, with populations peaking in July reaching a total of approximately 2,400 trapped.

Total Coachella GWSS Catch per Week for 2008

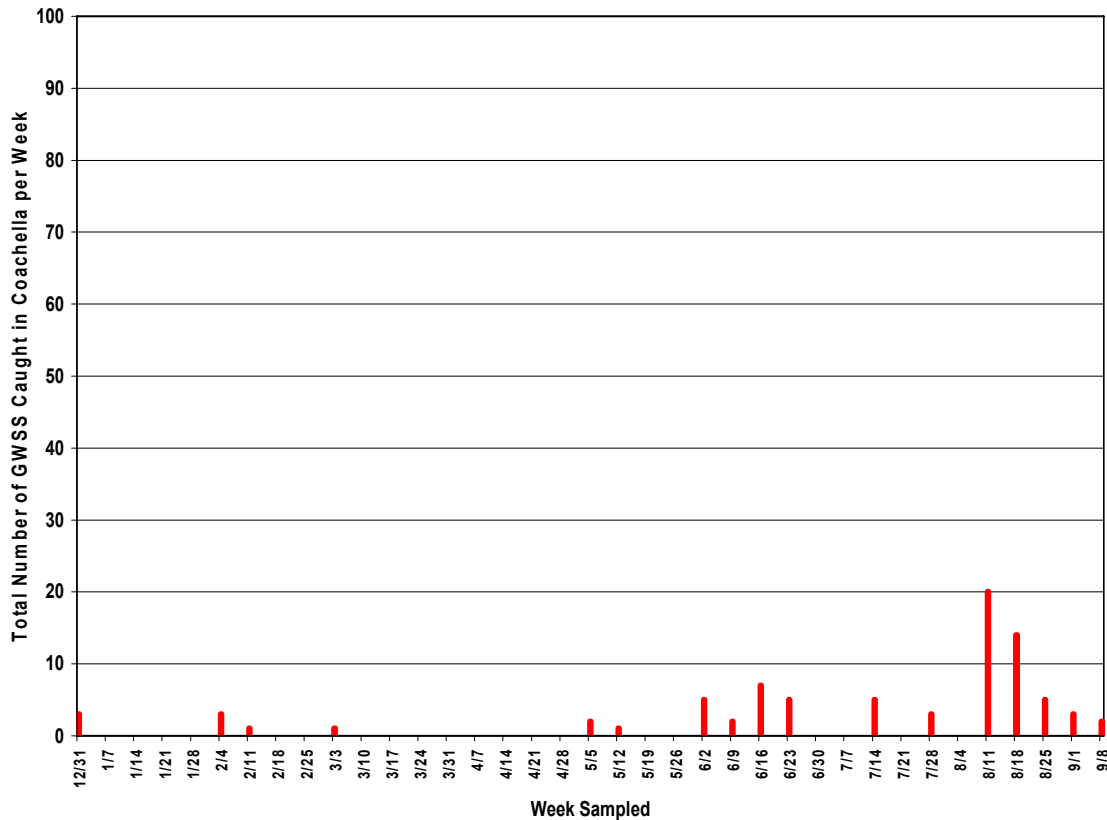


Figure 2. GWSS populations in Coachella Valley peaked in July with a high of 100 trapped.

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