Cooperative Extension, University of California

San Joaquin Valley Entomology News

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Exotic pests of Grapes and Citrus- Updates on the efforts against Glassy-winged Sharpshooter, Vine Mealybug and Citrus Peelminer in the San Joaquin Valley

Introduction

The recurring introduction of exotic agricultural pests into the San Joaquin Valley serves as a constant reminder that we live in a day of global markets and commodity trading. Unfortunately, the same shipping and transportation that allows local products to be sold throughout the world also accommodates the movement of insect pests. Just when it seems like we are on top of a certain pest complex, and have our IPM strategies in place, along comes another player to the table.

Some of the greatest concerns over exotic pests in the last few years have been felt by the citrus and grape industries. Pests like the glassy-winged sharpshooter, vine mealybug, and citrus peelminer have tipped many scales in favor of the pests as farmers join with personnel from UC, CDFA, USDA and local Ag Commissioner's offices to develop exclusion and management programs for these pests.

Glassy-winged sharpshooter update

Overall, the areawide programs established in the San Joaquin Valley have been very successful at curtailing populations of GWSS. Growers and researchers have come a long way in GWSS management from the early days of this pest. Many can remember seeing the General Beale region of Kern County with hundreds of GWSS per citrus tree, whitewashed fruit from GWSS excrement, and sticky-trap catches in the dozens to over one hundred adult GWSS per week. Now, as a result of regional control measures in 2001, the GWSS populations in the General Beale area have been decimated. In fact, no treatments for GWSS were needed in that region during the entire 2002 season, and low trap catches in 2003 have remained promising.

There have been several key factors resulting in the success of the program. The first has been the great assembly of program leaders put together by the USDA, CDFA, Ag Commissioners and the University of California. In fact, the areawide program, under the direction of Lloyd Wendel, recently received the most prestigious award offered by the US Secretary of Agriculture for its organization, cooperation, and successful efforts to

Note: *The Kern-Tulare Glassy-winged Sharpshooter Task Force provides a free, weekly newsletter that highlights current activities against the glassy-winged sharpshooter in Kern and Tulare Counties. This free newsletter can be sent by e-mail (preferred) or by fax.*

To subscribe, contact Cathy Merlo at (661) 588-0561 or cmm55@aol.com

solve issues relating to GWSS and PD on a regional basis.

The primary reason for the success of the program has been the ability to treat GWSS on a regional basis, not field by field. Doing so has prevented the movement of GWSS back and forth across property lines. Regions treated under the areawide protocols with systemic insecticides have seen low GWSS populations even into the second year after treatments. Anything less than a regional approach would likely have failed in its early stages.

Pre-harvest treatments in citrus have also helped keep down GWSS populations. Due to the combined efforts of growers in the tri-county area of Kern, Tulare and Fresno County, only 26 citrus loads were rejected out of a total of 63,502 yellow-tagged loads coming out of areas within the quarantine (data through April).

Kern County agricultural areas

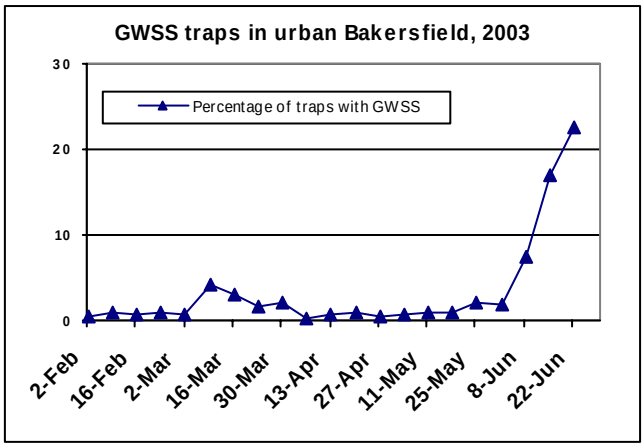
The Kern County Areawide Management Program has expanded from the General Beale area and now encompasses the entire county. The program uses traps (set up in a ¼-mile grid throughout citrus and grape-growing regions of the county) to identify regions infested with this pest, and to monitor changes in infested zones over time. These traps have been used extensively to document the success of applications in fields treated last year, and to determine the need for treatments this year.

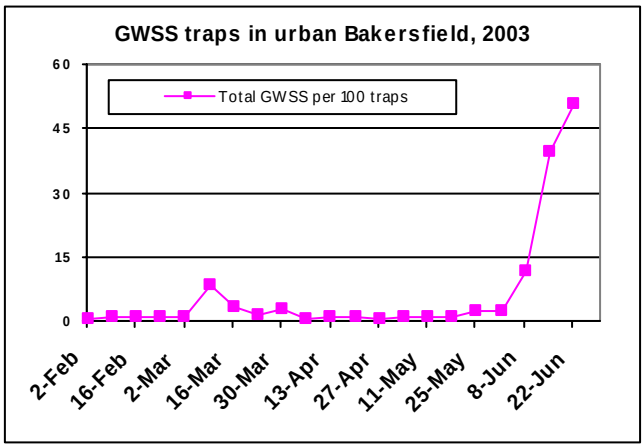
Last year, citrus in about half of Kern County was treated with systemic insecticides against GWSS. This year, treatments focused on the 'western' and 'Highway 65' regions of the county that were not treated last year. Treatments were made based on cumulative trap catches from sticky-cards in the region. As an example of these efforts, approximately 32 percent of the citrus between Seventh Standard Road and the Kern-Tulare County line east of the Porterville-Famoso Highway were sprayed this year.

Program leaders are now keeping track of the second generation of GWSS to determine the need for spot treatments this upcoming fall.

Kern County urban areas

Based on the successes of trapping for GWSS in agricultural areas, CDFA has contracted with the Kern County Ag. Commissioner's office to set up a monitoring program in urban Bakersfield. Thus far, nearly 700 sticky-card traps have been positioned in an approximate ¼ mile grid throughout the city. Traps are hung on primary hosts of GWSS, such as citrus and crepe myrtle, and are retrieved weekly by survey crews.





Traps during the first generation of GWSS showed very low levels of infestation in urban areas. Even during the week of peak adult activity, only 4.3% of the traps (25 out of 580) caught adult GWSS, and of those, 21 out of the 25 only had a single adult. Of the 4 traps with multiple catches, three (with a total of 25 GWSS) were near the intersection of Stockdale Highway and Highway 99. It is hot-spots like these that spawn debates over the need to implement augmentative biological or insecticidal control strategies in these selected areas.

The surprise has been the second generation of adults that have emerged in June. The most recent data available from the end of June showed positive catches in nearly 25% of the traps, with total GWSS collected reaching over 50 per 100 traps per week.

It is not understood why such low densities in the spring have led to such a high summer population. It is probably an underestimation of the number of GWSS in the spring generation. This could largely be explained by the relative inactivity of adults in the cool spring season. It is information like these that are helping researchers learn the effectiveness of sticky-cards as monitoring tools during different parts of the year.

Now that high GWSS populations in urban areas are a summer reality, researchers will be monitoring egg masses to evaluate how effective egg parasitoids in urban areas will prove to be.

Tulare County agricultural areas

Based on the successes in Kern County, Tulare County is currently in the process of augmenting its areawide trapping and treatment program for GWSS.

Note: *Maps of GWSS catches throughout the eastern San Joaquin Valley can be downloaded for free to anybody with an internet connection.*

Maps are updated weekly, and can be downloaded from the following web site: http://www.cdfa.ca.gov/gwss. Just click on the link for 'maps' and then on the regional maps of interest to you.

The trapping stages of the program have now been established. This consists of a ¼-mile grid of traps in grape- and citrus-growing regions from the Kern County line in the south to the Fresno County line in the north. The purpose of these traps is to define the current infested zones and delineate its spread. So far, traps have detected low to moderate populations of GWSS throughout the southern half of Tulare County. The most significant numbers continue to be those adjacent to northern Porterville and the groves south of Ducor and east of Highway 65. So far, traps have not detected a broad infestation of GWSS north of the Strathmore area, though several hotspots are being treated.

The agricultural trapping program will be backed by $2.34 million in funding (pending some final stamps of approval) to reimburse citrus growers for pesticide applications required under the areawide plan. Leaders of the management program are optimistic that funding will be secured in time to reimburse growers for pre-harvest treatments of this year's navel crop.

Tulare County urban areas- Porterville

As has been done in the past, survey crews have been out looking for GWSS populations in urban Porterville. These crews focus on properties in regions of the city that are close to the agricultural-urban interface. When infestations have been found, landscape plants in the vicinity have been treated with Merit. As of June 20th, crews had surveyed 1450 properties, of which 155 had positive finds of GWSS. To date, approximately 800 properties have been notified about treatments, of which 717 have been treated. There are plans to continue surveys throughout the summer.

The goal of this program is to reduce the threat of GWSS leaving the urban areas, possibly loaded with Pierce's Disease, and entering the surrounding grapes and citrus. Urban treatments will compliment those that are proposed for surrounding agricultural lands in order to tighten the noose around this nasty pest.

Pesticide applications this year are also anticipated in Terra Bella, Ducor and parts of Strathmore.

New Bill to Construct Pest Control Districts

A new bill, SB 633, is currently making its way through the state legislative process. This bill, sponsored by the Fresno-based California Grape and Tree Fruit League, would create pest control districts in California to combat the glassy-winged sharpshooter and Pierce's Disease.

These districts would be created and function similar to those established for Tristeza virus in citrus. Districts that opted into the program would

be authorized to assess table grape growers not more than $15 per acre to support research and aggressive treatment projects involving GWSS and PD. The big advantage of this program is that these districts will allow for GWSS to be handled at a local level within the industry, and not be placed on the backs of federal and state government-based programs currently in place.

So far, the bill has passed through several sub-committees and the senate without a single no vote. If it continues this way through the assembly, the bill would need to be signed by the governor before October 12th to go into effect this year. If approved, an urgency clause contained within the bill would allow it to be effective immediately.

Vine MealybugUpdate

Vine mealybug continues to be a concern for grape-growers throughout the San Joaquin Valley and State. In addition to counties known to have infestations (Riverside, Kern, Fresno, San Luis Obispo, and El Dorado Counties), this pest was able to spread in 2002 to at least 7 new counties where it was previously undetected (Madera, Monterey, Napa, Sacramento, Sonoma, and Stanislaus Counties). Once established, this pest can quickly take over a vineyard, primarily being spread by people and equipment. Preventative measures for managing this pest are much more effective than trying to constantly suppress an in-field population.

There are several precautions that growers and nurserymen should take to stop the spread of this pest. The first step is to ensure that vineyards are planted with clean nursery stock. This means vigilance from the nursery industry to provide clean stock, and effort on the grower's side to inspect any materials they purchase.

Currently, nurseries in Kern County are using a three-pronged attack to provide clean nursery materials. First, they are using pheromone traps for vine mealybug to ensure that this pest has not entered fields of rootstock or scion wood. Second, nurserymen are treating mother blocks with insecticides such as Lorsban and or Admire to remove any insects that may have entered the fields undetected. This intense insecticide program also provides protection against GWSS. Lastly, all dormant cuttings are being treated at least once with a hot water dip. Materials sold as dormant benchgrafts receive a second hot water dip the following dormant season after they are dug. Initial studies have shown this treatment to be very effective against vine mealybug, and research is currently underway to refine treatment protocols.

Mealybug-infested vineyards in Kern County are on the rise, as this pest can be found in both the southern and northern parts of the county. Thus far, it has not been reported from Tulare County. It is our hope that vigilance on the part of all involved will keep it where it is, and not allow it to spread as occurred in 2002.

Guidelines for managing this and other mealybugs can be found at your local cooperative extension office and on-line at http://vinemealybug.uckac.edu. This web site includes information on monitoring with pheromone traps, chemical and biological controls, and general life cycle and biology information. This site is updated frequently as new information is developed by researchers at the University of California.

Citrus Peelminer

There are still many questions that need to be answered about citrus peelminer, including information on its biology, conditions that cause it to reach damaging levels, and the best ways to manage it. Research is currently under way in both Kern and Tulare Counties to answer some of these questions.

Peelminer densities in 2002 were very location-dependent. Kern County, after high densities in 2001, saw very little damage from peelminer in 2002. Tulare County, on the other hand, remained frustrated with attempts to control this pest. Several research projects have documented the inability of a wide range of insecticides to control peelminer.. Efforts now are centered at identifying the conditions that promote damaging pest densities (i.e., proximity to other crops like cotton, etc.).

It is still too early to tell what kind of year it is going to be for peelminer. The best way to monitor for this pest is by sampling the suckers at the base of the tree. This lush growth near the ground is highly attractive to this pest. The difficult thing is that even if the pest is detected, there is not a whole lot a grower can do. Hopefully this will change in the future as we learn more about this pest.

Other Grape Pests

Weather patterns this spring have been optimal for ten-lined sphinx moths. Larvae of these moths, commonly called hornworms, have been reported in larger-than-normal numbers. Larvae can quickly defoliate grapevines if left uncontrolled.

The two primary products used for hornworm control are Bt and Lannate. Bt has the advantage of being reduced-risk, but needs to be timed at small larvae to be effective. Growers using Lannate should be sure to watch for outbreaks of secondary pests as the season progresses.

Western grapeleaf skeletonizer also seems to be on the return. While the virus that commonly controls this pest is present, it has seemed to lose some ground. We are currently working with some growers on a way to augment the amount of virus within vineyards, and to make it available to growers in vineyards where it is not found.

Other Citrus Pests

There are several exotic insect species that have the potential to become pests in the San Joaquin Valley, many of which are already in California. These include the citrus leafminer (not to be confused with the peelminer), diaprepes weevil, and Mexican fruit fly. Growers should be extremely vigilant to ensure that they do not have a role in the spread of these pests.

Information on these, and other citrus pests can be found at your local cooperative extension office or by visiting one of the web sites at the end of this article.

Web sites of interest to grape and citrus growers

CDFA Glassy-winged Sharpshooter web site
Information on the biology and spread of this pest throughout the state.
Click on the link for 'MAPS' to download weekly reports of GWSS catches throughout Kern and Tulare Agricultural and Urban areas.
http://www.cdfa.ca.gov/gwss

Beth Grafton-Cardwell's Citrus Entomology web site
Information on insect pests and research results on citrus pests in the SJV.
http://citrusent.uckac.edu/

UC Pest Management Guidelines
Information on managing pests on major crops grown in the SJV
http://ucipm.ucdavis.edu

CDFA Biocontrol web site
Fact sheets on citrus peelminer, citrus leafminer, and diaprepes weevil
http://www.cdfa.ca.gov/phpps/ipc/biocontrol/83bc-citruspests.htm

Vine Mealybug web site
Information on mealybug species found in grapes, including information on identification and control.
http://vinemealybug.uckac.edu

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Enclosed in this mailer is the first issue of the San Joaquin Valley Entomology News. This newsletter will be produced periodically to inform agricultural stakeholders in the San Joaquin Valley of entomology issues that don't stop at County lines. In particular, I hope to keep growers, PCAs, and others who deal with these pests informed on the status of efforts to manage the onslaught of exotic pests that have entered the Valley in the past few years.

Sincerely,

David Haviland
Entomology and Pest Management Farm Advisor
Kern, Tulare and Kings County

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