Kern-Tulare
GWSS Update

A project of the Glassy-winged Sharpshooter Task Force of Kern and Tulare Counties. Participants: Agricultural Commissioner Offices of Kern and Tulare Counties, California Department of Food and Agriculture, University of California-Cooperative Extension, U.S. Department of Agriculture (APHIS and ARS Divisions).

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Studies show severe pruning won't eliminate PD

Removing suspect vines still the only way to reduce PD inoculum in grapes

Severe pruning won't eliminate Pierce's Disease (PD) from the remaining grapevine at rates that are more profitable than removing and replanting, according to results of a study by Dr. Alexander Purcell of the University of California at Berkeley.

Purcell reported his findings at the Pierce's Disease Research Symposium Dec. 5-7 in San Diego.

Purcell's studies were conducted between 1998 and 2001 in several commercial Napa Valley vineyards. Ed Weber of UC-Cooperative Extension in Napa was a collaborator.

"Severe pruning is not reliable or effective enough for programs that aim to reduce the amount of inoculum for vine-to-vine spread of PD," says Purcell. "Removing suspect vines as soon as possible is currently the only method to reduce PD inoculum levels in grapes."

Purcell's studies found that severe pruning of category one vines — those with light PD symptoms — eliminates production for two years from all severely pruned vines. Over half of those will recover with normal dormant pruning.

Grape varieties used in Purcell's studies were Cabernet sauvignon, Merlot, Pinot noir, Chardonnay and Cabernet franc.

In his quest to determine if severe pruning could eliminate PD from grapevines with the disease's symptoms, Purcell noted that early results were promising. Results of severe pruning during the winter of 1998-99 appeared to demonstrate the feasibility of regenerating healthy vines from those with PD more quickly by severe pruning rather than by pulling and replanting the vines.

"But the results the following year drastically changed that conclusion," Purcell says.

Vines in categories two and three —those with moderate and severe PD symptoms — showed signs of the disease in 2000.

"It is possible that severe pruning in summer months may be a more effective approach, but this has yet to be tested," says Purcell.

He also says the success of severe pruning in eliminating PD probably is influenced heavily by grape variety. More susceptible varieties support faster movement of the causal bacterium.

"Pruning may also be more successful in climates in which the bacteria move more slowly and have lower over-winter survival rates," he adds.

— Catherine Merlo

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One year later: Comparison of management efforts

Field sampling efforts within citrus in the General Beale Road Pilot Project show a marked decline in GWSS adult numbers since this period of time last year. Very few adult GWSS were collected during our sampling of citrus in January.

Figure 1 **(***right***)** shows the average number of adults collected per sample using the beat net method. Only three of the 33 groves within the pilot project area have detectable levels of GWSS. Those groves with detectable levels of GWSS are averaging one or less than one adult per ten trees sampled. Adults are the only life-stages being collected at this time.

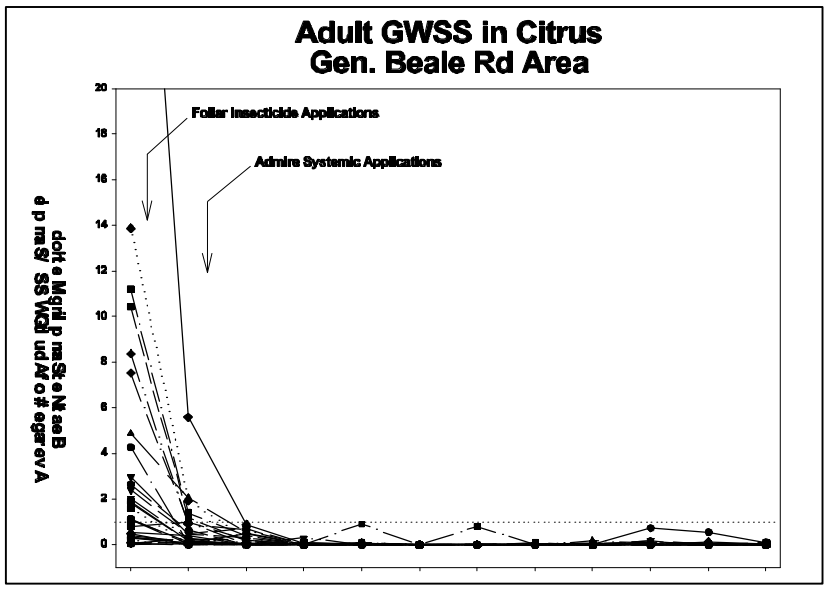
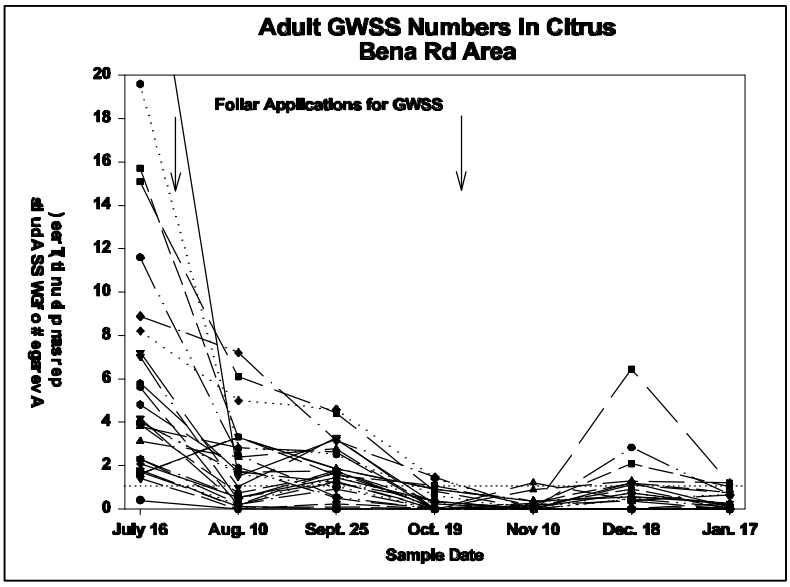


Figure 2 (*page 3*) shows the average number of GWSS adults collected per sample in the Bena Road area using the same sampling method. Overall, GWSS numbers here are considerably higher than those found within the Beale Road area. Twenty-five of the 45 individual citrus parcels sampled still show detectable levels of GWSS adults.

The graph shows a curious population trend, increasing in December and then declining in January. Sticky trap captures during the same time period do not show comparable increase in numbers. Several factors, however, including temperature, have been shown to influence trap captures.

Comparisons of the control efforts between the two growing areas can be made based on the two graphs, even though they received very different treatment approaches. The early season (foliar application) control efforts implemented in the General Beale Road area prevented the over-wintering adult population from laying an abundance of eggs, and thus prevented the first generation from reaching outbreak proportions. Without a large first generation buildup, and through control by the systemic imidacloprid application, the second generation (i.e., over-wintering generation) was effectively prevented.



Control efforts in the Bena Road area began in late July when the first generation adults were actively laying eggs. The second foliar application in October was targeted at controlling late instar nymphs and adults prior to becoming the over-wintering generation, and prior to citrus harvest.

The control efforts used in the General Beale Road area with both foliar and systemic applications provided more consistent long-term population suppression, with less variability in numbers among groves, than just the foliar applications used in the Bena Road area.

— USDA Scientists

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