

**CALIFORNIA CITRUS PEST AND DISEASE PREVENTION PROGRAM**  
**Statewide Quarantine Working Group Conference Call**

Meeting Minutes  
Monday, April 27, 2015

**Opening:**

The conference call of the Statewide Quarantine Working Group was called to order at 10:00 a.m. on April 27, 2015 Victoria Hornbaker.

**Working Group Members Present:**

Bob Atkins	Gus Gunderson*	Marilyn Kinoshita
Richard Bennett	Victoria Hornbaker	

**Working Group Members Absent:**

John Gless	Kevin Olsen	Helene Wright
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***Interested Parties:***

Laura Arellano*	Charla Hollingsworth*	Thomas Roberts*
Judith Arroyo*	Gary Justice*	Bob Rodriguez*
Ruben Arroyo*	Ed King*	Sylvie Robillard
Merilee Banks*	Shirley Kirkpatrick	David Sanford*
Jill Barnier*	Ricarda Kupper*	Martin Settevendemie*
David Bartels*	Jason Leathers	Cressida Silvers*
Dan Bernaciak*	Cynthia LeVesque*	Roger Smith
Franco Bernardi*	Robert LoBue*	Brian Specht*
Stephen Brown	Rudy Martel*	Stephanie Stark*
Ed Civerolo*	Mark McBroom*	Brian Taylor*
Scott Cornett*	Don McCoon*	Rayne Thompson*
Joe Deviney*	Brian McGrew*	Nastaran Tofangsazi*
Christina Devorshak*	Neil McRoberts*	Debbie Trupe*
Don Dillon*	Megan Moore*	Connie Valenzuela*
Dan Dreyer*	Joseph Morse	Paul Van Leer*
Rick Dunn*	Tom Mullholland	Kim Wilenius*
Travis Elder*	Colleen Murphy	Roberta Willhite*
Kurt Floren*	Milton OHaire*	Jack Williams*
Jim Gordon	Bill Osterlein*	Scott Woods*
Tim Gottwald*	Karen Overstreet*	Les Wright
Beth Grafton-Cardwell	Mary Palm*	Eric Wylde*
Subhas Hajeri*	MaryLou Pollek	Judy Zaninovich*
Susan Halbert*	Manish Poudel*	Bob Zuckerman*
Nancy Holland*	Helena Roberts*	

## **Opening Comments**

Victoria Hornbaker welcomed everyone participating in person and on the webinar.

## **Introduction of Current State and Federal Quarantine Regulations**

Stephen Brown, CDFA presented a PowerPoint that discussed the USDA and CDFA quarantine requirements for the movement of bulk citrus and citrus nursery stock into, within, and from ACP quarantine areas. These include the Federal domestic quarantine, Code of Federal Regulations § 301.76; the USDA protocol DA-2012-49: “Interstate Movement of Citrus and Other Rutaceous Plants for Planting” and the State interior quarantine, California Code of Regulations § 3435. The CDFA regulations must be parallel to the USDA regulations, but it was noted that CDFA can be more restrictive than USDA but not less restrictive. The following establishments are regulated under these requirements; nurseries (production and retail), bulk citrus (growers, harvesters, haulers), cut flowers/cut greens producers, green waste receivers, yard maintenance operations and swap meets/farmers markets. There was a question about the regulation of green waste and Stephen explained that dried or composted green waste can be moved under a permit to a receiving facility that is also under compliance, but green waste that has not been processed cannot move out of the quarantine.

Stephen discussed the prohibitions on the intrastate movement of citrus nursery stock, stating that nursery stock is prohibited from moving within or out of the quarantine area. However, there are permits that can be issued to allow movement of nursery stock under certain conditions. Stephen reviewed those with the group. A permit can be issued to allow nursery stock to move within a quarantine if it is treated with an approved systemic and foliar treatment every 90 days and tagged with a CDFA-issued tag, which prohibits movement out of the quarantine. If a nursery outside of the quarantine wants to ship into the quarantine, a pre-shipment treatment option is available to allow the trees to move into the quarantine. Stephen noted that plants with expired treatments at production nursery locations will be placed on hold until they can be retreated. If ACP is detected at any nursery, the plants will be placed on hold pending treatment and re-inspection, in lieu of re-treatment, the plants on hold may be voluntarily destroyed by the nursery. He also discussed the movement of nursery stock from a quarantine, in this case the nursery must follow the USDA protocol for movement to all U.S. states which includes growing stock in an approved structure from source material that is from the “State Certified Clean Stock Program,” the nursery stock and shipments must be inspected and treatments are required in compliance with the USDA-approved treatment of a systemic 30-90 days prior to shipment, and foliar within 10 days prior to shipment. The shipment must be accompanied by a USDA-issued Certificate (or state-issued CQC for shipment within CA). If the nursery stock is moving from one quarantine area to another, but transecting a non-quarantine area, it must be in a sealed enclosed conveyance. Plants must meet equivalent requirements as outlined in the USDA protocol for movement to non-citrus producing states or to areas in other states already quarantined and the shipment must be accompanied by a state-issued CQC. Stephen also discussed permits for Movement of budwood and for nursery trees for direct planting.

Bulk citrus fruit in bulk containers or any citrus fruit with stems and leaves attached are prohibited from moving out of the quarantine area. There are no movement restrictions for bulk citrus within the contiguous quarantine area. Movement from the ACP quarantine area to a non-quarantine area for packing can be done under a compliance agreement if the grower certifies

that the shipment is free from ACP, which is achieved by either; removing all stems and leaves by field cleaning, or treating with an ACP effective chemical no more than 14 days prior to harvest and load is tarped during shipment. Stephen also stated that appliances and equipment used to harvest, plant, prune, move, or process any regulated host are prohibited from moving out of the ACP quarantine area unless treated and/or cleaned in such a manner to remove all live life stages of ACP.

### **Overview of Arizona Activities**

Brian McGrew, AZDA presented an update on the activities. The Arizona ACP quarantine covers 22,706 sq. mi. in the counties of: La Paz, Maricopa, Mohave, Pima, Santa Cruz, Yavapai and Yuma. The AZDA requires treatment in commercial groves and nurseries if ACP is detected. Citrus production nurseries in the quarantine participate in the Arizona Clean Citrus Stock Program. The AZDA conducts residential trapping and survey in the non-quarantine areas and commercial, nursery and packinghouse trapping and survey statewide. They are also conducting outreach activities for growers and urban residents.

Brian reported that the AZDA is conducting an ACP biocontrol program in Yuma and Lake Havasu City. AZDA obtained a permit to release *Tamarixia radiata* and is obtaining the biocontrol agent from UC Riverside. In 2014 there were 8 release sites in Yuma and in 2015 it was increased to 24 sites in Yuma and 8 sites in Lake Havasu City. There have been some signs of parasitism observed but Brian reports that more data needed to evaluate efficacy.

AZDA is conducting a survey for HLB following the Dr. Gottwald Model. The AZDA is working with USDA-APHIS on the survey activities and the University of Arizona has been secured as the primary testing laboratory for HLB samples. There have been no HLB detections in Arizona.

### **Overview of Mexico Activities**

Victoria presented a PowerPoint on behalf of USDA. USDA is actively trapping in the states of Baja California and Sonora. The cities that are being trapped in Baja California are Tijuana with 570 traps, Tecate with 160 traps, Rosarito with 60 traps, Ensenada with 153 traps and Mexicali with 393 traps. The response to finds in these areas is a 200 meter treatment. In Sonora and Norte de Senora, there are 433 traps total and response along the border is a 400 meter treatment around finds. She also reported that Mexico is releasing biocontrol agents along the border as well.

### **Spatial Point Pattern Analysis of ACP Samples**

Dr. David Bartels with USDA presented a PowerPoint regarding spatial point pattern analysis of diagnostic Ct-values of ACP samples. Dr. Bartels discussed HLB diagnostic testing and stated that a reaction must surpass a set threshold to be considered positive. The threshold is set at 32 for psyllid samples and 37 for plant samples, which means that Ct- values below those thresholds would indicate a suspect positive and Ct-values between the threshold and 40 are considered inconclusive. Dr. Bartels analyzed the Ct-values in the inconclusive range to see if there was a pattern to the samples. If Ct-values above threshold are a result of random noise or errors in the qPCR reaction, then these samples would also have a random spatial distribution. The objective

is to analyze the spatial pattern to determine any underlying biological process and to provide information to target plant tissue surveys.

Dr. Bartels gave some background on the survey efforts and Ct-value results that were processed in Texas from 2010 to 2014. The Hot Spot Cluster analysis compares the local mean and the global mean of the data set using spatial statistics and determines areas of high and low Ct-values. Dr. Bartels has received 33,867 samples in 2013 and 22,707 samples in 2014 from CDFA and the CRB lab. Unlike the Texas study, there is little overlap with the sample sites over the past few years in California. 43 percent of the 2014 samples are within 1km of the 2013 samples tested in Southern California. Dr. Bartels reviewed Ct-values from samples taken in 2013 versus 2014 in the Hacienda Heights area and the 5 mile quarantine area. 2013 had slightly higher Ct-values however both years have a similar Ct-value range. The samples ranged from 34 to 40. Ranges 37, 38 and 39 seem to cluster around ranges lower than 37. The spatial pattern and history seems to indicate that there is a biological process involved.

### **Results and Implications of the Florida Psyllid Testing Project**

Dr. Susan Halbert discussed a cooperative project that was done with Dr. Manjunath Keremane, Chandrika Ramadugu, and Richard Lee from Riverside CA. In this study they sampled psyllids taken from a variety of venues. They noted that HLB symptoms were found nine months after positive psyllids were detected. Dr. Halbert worked with Jo Ann Lee, Jed Keesling, and Burt Singer to develop a Florida psyllid testing project predictive mathematical model. The model was tested and proven in the laboratory by Bill Dawson and his team.

Dr. Halbert reviewed the process of infection, the vector infects a plant and after a latent period the plant becomes a source for another generation of psyllids. New psyllids acquire pathogens and transmit them to another plant. The disease cycle is at least 6 months in the field. A lab study was conducted using 3-10 small healthy plants in a cage. Psyllids were added (50 adult psyllids) that were 20-70 percent positive for *Ca. Las.* All of the adult psyllids were removed after 2 weeks, but their progeny (nymphs) were left on the plants. The progeny were tested at 30 days (adults by then) and 5-83 percent were CLAs positive. It was noted that not all of the plants in the cage were colonized, but those that were ( $\frac{1}{3}$  to  $\frac{1}{2}$  total plants) nearly always eventually developed symptoms. Dr. Halbert discussed the idea of an “Infective colonization event,” where a flush sprout is infected by an adult psyllid that lays its eggs there and when they hatch, the feeding nymphs also become infected.

She warned the group about long range dispersal of the CLAs through the movement of nursery stock and fruit trucks, stating “Human-assisted movement of even a single positive female Asian citrus psyllid can have serious consequences.” She encouraged the program to continue collecting and testing psyllids for CLAs. She reminded the group that the best management for ACP is maintaining clean nursery stock, keeping ACP populations low and quickly removing infected trees.

### **Risk-Based HLB Survey**

Dr. Tim Gottwald gave an update on the HLB/ACP risk based survey. He reviewed the number of parcels visited in each county and the total number of samples that have been collected so far for each county. There was a map presented showing CDFA’s sample area and where ACP has

been found when surveying. There have been a total of 159,420 sites surveyed so far. There was another map presented showing the evaluation of initial risk model. There has been improved estimation for the number of dooryard citrus. 30 to 60 percent of residents have at least one citrus tree in their yard, and below 20 percent of residents have more than 5 trees in their yard the southern California area. There is more residential citrus grown in Riverside County than other counties. Dr. Gottwald presented a chart of the citrus host type distribution by county. Oranges and lemons are the two most common in residential areas. There were maps shown presenting the sampling density in southern California and the psyllid count from 2013 to current. The manpower and sampling efficiency is what determines how many sites are visited per day and over a 6 month period. Dr. Gottwald presented the new HLB/ACP risk layer and the proposed sampling STR areas for the first and second cycle. The first cycle covers different areas than the second cycle however some areas are overlapped and some sites will be revisited at least 2 times per year. Each cycle requires about 6 months. Dr. Gottwald went over total STR's and the number of STR's sampled for each region in 2014. There was a question regarding the ACP cluster analysis coincide with the demographic risk hot spots. Dr. Gottwald stated that it will be examined.

Dr. Tim Gottwald reviewed the improved design for California commercial citrus. There was a map of the Central Valley presented showing commercial citrus in STR spatial areas. He explained how the residential HLB/ACP risk-based survey influenced the survey for commercial citrus areas and maps were presented. A map was shown presenting the survey and non-survey sites based upon the manpower available for the Central Valley. Dr. Gottwald went over the additional risk factors for commercial and residential citrus surveys. The first risk is census travel, second is Dr. Bartels ACP cluster analysis and last is the demographics and species/cultivar preference.

### **California Citrus ACP Issues**

Dr. Beth Grafton-Cardwell presented a series of maps that showed the progression of the ACP infestation in Southern California. She explained that the goal for the program is to suppress ACP and buy time for scientists to find a cure for HLB. The main management technique for growers is area-wide management and the use of season-long ACP-effective insecticides. The growers should do 2 treatments with ACP effective pesticides a pyrethroid and a neonicotinoid. Homeowner properties in the buffer area or in areas where the program is still responding to finds should be treated with ACP effective pesticides and in generally infested areas, biocontrol agents would be best. The hope is that the parasitoid can reduce the psyllid population in the urban areas and at least help to delay the spread of the disease. There is a natural barrier to psyllid movement in the form of mountains between southern and central California and a man-made barrier in the form of quarantine boundaries. Quarantines are in place that prevent the movement of nursery stock and require that mother and increase trees be grown in protected structures. Field trees are rapidly going under screen. Within the quarantine nursery stock must be treated with a foliar and a systemic neonicotinoid insecticide prior to shipment. Green waste must be processed and a compliance agreement must be in place to allow it to leave a quarantine area. Bulk citrus must be field cleaned (free of twigs and leaves) or treated prior to harvest with an insecticide that will disinfest the grove.

## **Discussion**

Beth Grafton-Cardwell stated movement of fruit should be limited to avoid moving ACP. At the very least mandatory tarping should be enforced. There was discussion about how to effectively change the movement of fruit. In 2012 fruit was moved from southern California to the Central Valley if it was brushed had stems and leaves removed. In 2013, spray and move was enforced. Stephen Brown stated that participation from the industry is crucial in this process. Beth stated that ACP has been limited and pretty well kept in southern California shows that the quarantines in place and the methods being used are helping to reduce the spread of the psyllid and will also help if HLB is found. It was suggested that more loads be inspected when coming from Mexico in to California because loads coming in cannot be inspected by the local level, currently. Charla from USDA stated that Texas had the same fear as California: that ACP would spread from Mexico however, HLB is not along the border and fruit brought north toward the border is required to be packing house treated. Charla also stated that a study in Texas determined that ACP's preference is a plant versus fruit. It is now required that any fruit coming from Mexico must first go through the packing house procedure and be washed and waxed.

Victoria presented a matrix for discussion which listed 3 options: to maintain current interior state quarantine, to deregulate the interior state quarantine, or an alternate a control program. Beth stated that the focus should be on preventing HLB, not more suppressing of ACP because that is already currently ongoing in every county. There was further discussion regarding the movement of bulk citrus, plants and green waste. Jim Gorden stated this is a work in progress and a performance base standard should be put in place. He stated that enforcing the quarantine right away might lead to people being uncooperative. Richard Bennett stated that the growers need to be informed of how bad the ACP population is and the serious risks of HLB. It was stated that the grower seminars that are coming up summer 2015 are including an ACP element and a lot of the information from this meeting can be presented at those seminars. There was also discussion about condensing the information and presentations shared at the International HLB conference into an article and have the article be published in the *Citrograph* magazine. There have already been some ideas thrown around for pictures and titles of the magazine issue to catch the grower's attention. Beth stated that it should be assumed every region has a high ACP population because in the near future, all regions will. It was requested the next Statewide Quarantine Working Group meeting have no presentations, just discussion. Victoria stated the next meeting will involve the SAP with a proposal but it was decided to have another intermediates SQWG meeting for discussion only.

## **Additional comments received after the meeting**

- A disadvantage is that untreated groves are a proven means to spread ACP.
- Fruit imported from Mexico needs to be inspected upon arrival for ACP.

Marilyn Kinoshita, Tulare County Ag Commissioner provided the following information:

- For Nurseries the disadvantage would be for Duarte, Four Winds and any other nursery who is not currently under the quarantine. Four Winds has a large facility under construction.

- For bulk citrus, the advantage is for large growers in Mexico, Arizona and southern Calif, who don't want to treat. They are more apt to be able to afford replanting every 15 years when we get HLB.
- We'll have a free for all movement of ACP introductions from south of the grapevine.
- Our Tristeza regulations are terribly out of date, but I like the idea of different rules for heavy populations.

Les Wright, Fresno County Ag Commissioner provided the following information:

- A move to deregulate the areas to the South of Fresno County will result in the free movement of ACP into non-infested areas of the state. Citrus nurseries in the current non-quarantined areas are not currently prepared by having their screen houses and exclusion equipment up to standard. This will result in monetary losses for them.
- The quarantine regulations currently offer a good degree of protection to keep ACP out of our counties. The problems that we seem to be having are the illegal movement of plant material by a sector of our population who are adverse to compliance. If anything I feel that there should be a tightening of enforcement to prevent the spread of ACP. Without ACP there won't be HLB.
- We know that we have to prepare for the emergence of HLB. At this stage the state and the industry is not properly prepared to deal with the disease.