

**CALIFORNIA CITRUS PEST AND DISEASE PREVENTION PROGRAM
COMMITTEE MEETING**

Meeting Minutes

Wednesday, March 12, 2019

Opening:

The regular meeting of the California Citrus Pest and Disease Prevention Committee (CPDPC) was called to order at 9:00 a.m. on March 12, 2019 in Riverside, California by Committee Chairman Jim Gorden.

CPDPC Members Present:

Craig Armstrong	Ted Grether	George McEwen	Roger Smith
Aaron Dillon	Nick Hill	James McFarlane	Brian Specht
Bob Felts, Jr.	Ted Grether	Etienne Rabe	Keith Watkins
Jim Gorden	Mark McBroom*	Kevin Severns*	

CPDPC Members Absent:

Ed Civerolo	John Gless
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CDFA Staff:

Jonathan Babineau	Gavin Iacono*	Ray Leclerc*	Lea Pereira*
Ryan Fong	Matt Kaiser*	Magally Luque-Williams*	Maegan Salinas
Victoria Hornbaker	Sara Khalid		

Guests:

Price Adams	Holly Deniston-Sheets	Melinda Klein*	Cressida Silvers*
Ryan Arnold	Rick Dunn	Ellen Kragh*	Mathew Strmiska
Bob Atkins	Enrico Ferro*	Leslie Leavens*	Rayne Thompson*
Ameer Atrash*	Colin Flippen*	Brianna McGuire	Joe Viglienzoni
Franco Bernardi	Lisa Finke	Neil McRoberts	Kirk Williams*
Teri Blaser	Adam Francioni*	Jeff Milne	Qijun Xiang
Adrian Chapman	Greg Galloway	Tracy Moehnke	Judy Zaninovich*
Marty Coert	Sara Garcia Figuera	Gabe Olmos*	Sandra Zwaal*
Casey Creamer	Justin Golding	Curtis Pate*	
Tom Delfino	Nathan Hancock	Sylvie Robillard	
John Demshki*	Garff Hathcock	Jason Schwartz*	

*** Participated via Webinar**

Opening Comments:

Jim Gorden welcomed the Committee, staff, and members of the public participating in person and online and stated that there is a quorum for the meeting. He acknowledged that the meeting was being held in compliance with the Bagley-Keene Open Meeting Act.

COMMITTEE BUSINESS & UPDATES

Jim reviewed the consent agenda which contained minutes from the Committee meeting that took place on January 12, 2019.

Motion: To approve the consent agenda that included the January 12, 2019 Citrus Pest and Disease Prevention Committee (CPDPC) meeting minutes.

First: Keith Watkins

Second: Aaron Dillon

Motion passes: All in favor

FINANCE COMMITTEE REPORT

Bob Felts, Jr. stated that the Fiscal Year (FY) 2017-18 budget increased by approximately \$37,000 additional revenue, bringing the assessment total to \$15,138,000. He explained that this total has a shortfall of approximately \$1,300,000 compared to the projected revenue. He noted that expenditures for FY 2017-18 increased in March due to an omission of Citrus Research Board (CRB) charges, bringing the budget to \$33,295,000. He explained that this was \$8,000,000 short of the projected budget. The final closeout should occur prior to the next CPDPC meeting. Revenues for FY 2018-19 increased by \$1,565,000 in January and \$2,380,000 in February, for a total assessment revenue of \$5,359,000. This puts FY 2018-19 slightly ahead of FY 2017-18 during the same time frame. He reminded the Committee that the program also received \$12,500,000 from the general fund and \$12,140,000 from the Citrus Health Response Program (CHRP).

Bob stated that the Finance Subcommittee recommended the projected assessment revenue be lowered by 5,000,000 cartons, equivalent to \$450,000. The crop contains small, overly mature and abandoned fruit, resulting in decreased revenue. Victoria Hornbaker stated that the projected carry-in is \$10,000,000 to \$11,000,000. Bob stated that FY 2018-19 expenditures increased by \$1,800,000 in February to a total \$5,800,000. He explained that CRB and California Department of Food and Agriculture (CDFA) statewide administration, pest exclusion and county contracts, statewide lab diagnostics, treatment contractors and tree removal were big expenditure increases. Victoria noted that the tree removal contracts for Los Angeles and Orange were fully expended and have been replaced by new contracts with higher budgets.

Victoria explained that the budget change proposal was in the governor's budget. Ray Leclerc stated that CDFA staff are in the process of gearing up to hire staff dedicated to the citrus program; six to twelve dedicated citrus positions will be hired in the next couple of weeks. Victoria stated that Ray's old position has been upgraded to a branch chief position to better assist in building a citrus team. The administrative staff will be filled by July 1, 2019. It was requested that Victoria and Ray present the Committee with an updated organizational chart and a running tally of the available budget.

EXECUTIVE COMMITTEE REPORT

Review of New Member Applications

Jim stated that the Committee reviewed two candidate applications for the vacant coastal region.

Motion: To approve Kevin Ball for the vacant coastal CPDPC position.

First: Keith Watkins

Second: Ted Grether

Motion passes: All in favor

Review Progress of the Detector Dog Visits

Victoria stated that the dog teams visited California in early December and February. She explained that CDFA staff provided access to blind test challenges to the dog teams using properties with and without known positives. She noted that data from the challenges was analyzed and has been handed over to the dog teams and Dr. Tim Gottwald. Victoria stated that the dog teams intend to visit twice more through mid-year and will work with CDFA as part of the Huanglongbing (HLB) Multi-Agency Coordination (MAC) funded project.

OPERATIONS COMMITTEE REPORT

Review ACP/HLB Action Plan – Commercial Grove Sampling

Victoria explained that the action plan was created in 2014 and continuously updated with new science and techniques, most recently in December 2018. Dr. Neil McRoberts explained that the original regulatory response was based on the plum pox virus, but that plum pox has a very different epidemiology than HLB. He stated that the Data Analysis and Tactical Operations Center (DATOC), primarily Dr. Mike Dougherty and Dr. Beth Grafton-Cardwell, summarized known information from published and unpublished results with the assistance of Dr. Gottwald's team in order to create a better sampling plan. He explained that rather than a random stratified sample, the new response calls for samples taken along grove edges due to the noted Asian citrus psyllid (ACP) tendency to gather along those edges. The edge effect was confirmed by the MAC-funded sampling and control project. He stated that Dr. Daugherty's work on correlation between annual finds of ACP in Southern California proved that correlation goes out to four kilometers. The current action plan is a compromise between the full extent of potential spread and a manageable area CDFA can inspect. He stated that the current 400-meter sample area is sensible and falls within the dense part of the ACP dispersal, and DATOC is working on a voluntary regulatory plan out to 5 miles. He confirmed that there is a drop-off in detection correlation which is justification for setting delimitation around the sampling point. He explained that Dr. Gottwald's work looked at the proportion of known positives and found that focusing on the outside row of trees in 1 row to 6 rows captures 80 percent of infected trees. He proposed revising sampling using the edge effect rather than the entire orchard.

Motion: To approve revising the commercial grove survey protocol for Huanglongbing.

First: Keith Watkins

Second: McEwen

Motion passes: 13 yays; Ed Civerolo, Aaron Dillon, Bob Felts, Jr., Jim Gorden. Ted Grether, Nick Hill, George McEwen, James McFarlane, Dr. Etienne Rabe, Kevin Severns, Roger Smith, Brian Specht and Keith Watkins and 1 nay; Craig Armstrong

Review Other Bulk Citrus Field Cleaning

Nawal Sharma stated that in February, the pilot program began inspecting nearly 100 percent of shipments. He stated that the number of leaves found per bin was low, barring one or two outliers. He noted that in two shipments from San Diego to Kern on January 30 and 31, only one leaf was observed in 89 bins. He stated that the San Diego team has requested to begin shipping to Fresno County, and the origin and destination Agricultural Commissioners have begun discussing that

issue. The total data from January and February is 2,547 total bins with 1,510 inspected and an average of 1.5 leaves per bin. Approval has been granted to continue the program until the end of March, and Keith Okasaki stated that the Operations Subcommittee wanted to extend the program through May due to poor weather interfering with shipments. It was suggested there may be increased regulatory costs due to more inspections, and projected enforcement costs were requested. It was suggested that CDFA establish a uniform plant material inspection criterion for the county staff. When asked, Nawal noted that the pilot program is open but only the current counties of Monterey, San Diego and Ventura have accepted.

Motion: To approve extending the grate-assisted field cleaning pilot project through the end of May 2019.

First: Keith Watkins

Second: Craig Armstrong

Motion passes: All in favor

SCIENCE COMMITTEE REPORT

Review Bulk Citrus Matrix Results

Etienne Rabe stated that the initial risk matrix proposed by the Neil McRoberts group focuses on bulk citrus movement between different regions. He noted that the current risk model of moving fruit is a dynamic model that is capable of changing in response to new situations. He stated that the Science Subcommittee has considered combining Zones 3 and 4 or dividing Zone 5 into smaller zones, but have not made a recommendation at this time. Sara Garcia-Figuera stated that the main recommendation is to not change regulation because movement between most of the zones would be considered high risk. Victoria explained that the risk model was developed as a tool to evaluate the regional quarantines, movement between those zones, and for any necessary additional risk mitigation. Sara explained that risk is a combination of the probability of HLB being introduced and spreading, and the impact to the receiving county if HLB is introduced.

Motion: To adopt the risk matrix as presented, acknowledging that the dynamic model be updated as needed.

First: Etienne Rabe

Second: Ed Civerolo

Motion passes: All in favor

Etienne stated that the Subcommittee is concerned with the definition of HLB exposure. He stated that the Subcommittee's data is focused primarily on residential areas and data from Texas. Studies show that trees within 20 meters of another HLB-positive tree have a nine percent risk of infection, with more distant trees having less chance of infection. Brianna McGuire explained that the risk of infection may be lower than indicated due to data being skewed by biased sample trees in Hacienda Heights. She stated that the team will focus on areas where HLB is exploding to see if the nine percent figure remains true.

Etienne stated that currently, finding HLB-positive nymphs on a tree does not mark the tree as infected. Victoria stated that the science advisory panel met in 2014 and suggested that a tree where a *Candidatus Liberibacter asiaticus* (CLAs)-positive nymph was collected should be removed,

regardless if the tree tests positive for HLB. Victoria noted that she took a new look at this issue and asked CDFA legal office to determine if a CLas-positive nymph could indicate that a tree has been exposed to HLB. She explained that an ACP nymph can only be infected by the bacteria due to transovarial transmission or feeding on infected host plants. She explained that there are Food and Agriculture code sections that allow CDFA to take action on an exposed plant nuisance due to disease exposure. Victoria stated that CDFA can abate nuisances without declaring a quarantine.

Motion: To accept the protocol proposed to allow CDFA to take nuisance abatement action on a tree where a *Candidatus Liberibacter asiaticus* positive nymph is found.

First: Roger Smith

Second: Keith Watkins

Motion passes: All in favor

Etienne stated that Science Subcommittee recommended the Committee adopt a protocol to remove an area from an ACP regional quarantine zone in the event of no ACP found being found in two years. Neil McRoberts stated that the Subcommittee chose a timeline of two years in order to include two fall flushes. Psyllid population size tends to be small in spring, and so the fall flush is the best measure of ACP. Victoria noted the San Benito, Madera and Merced Counties would be on track to benefit from this change. She stated a map can be posted and a county administratively removed from quarantine, with the public having ten days to question the change. If the public has concerns, those concerns can be addressed and given another ten days.

Motion: To accept protocol for moving an area out of an active Regional Quarantine Zone to Quarantine Zone 1 if the area is Asian citrus psyllid-free for two years post detection.

First: Aaron Dillon

Second: Ed Civerolo

Motion passes: 13 yays; Ed Civerolo, Aaron Dillon, Bob Felts, Jr., Jim Gorden, Ted Grether, Nick Hill, George McEwen, James McFarlane, Dr. Etienne Rabe, Kevin Severns, Roger Smith, Brian Specht, and Keith Watkins and 1 nay; Craig Armstrong

Etienne stated that Dr. Spencer Walsh and Dr. Beth Grafton-Cardwell have written a report establishing the science behind Ethyl formate, showing a 99 percent kill rate when applied to ACP and mites. He explained that Jim Cranney reported on the process going forward, and the toxicology package for Ethyl formate should be available by fourth quarter 2019 and the Environmental Protection Agency has one year to review it. He stated that the product should be ready by summer of 2020 or no later than fourth quarter 2020.

Updates on CDFA Sampling and Laboratory Techniques

Luci Kumagai explained that the CDFA Plant Pest Diagnostic Center is composed of five labs: plant pathology, entomology, seed, botany and nematology. She explained that the lab's biggest project is the HLB project, started in 2008 after the first ACP was detected in San Diego County. She explained that the program has catalogued 1,135 infected residential trees to date, primarily in Orange County and Los Angeles County. She stated that when she came onto the project, the CDFA lab was testing 2,000 plant samples a month but swiftly needed to increase sampling. She explained that the first improvement was to scale up the testing capacity of the lab and to collaborate with the United States Department of Agriculture (USDA) to develop and validate a

high-throughput method over the course of approximately one and a half years. She stated that the high-throughput method requires robotic liquid handlers to reduce manual work and avoid staff injuries. High throughput allows the CDFA lab to process 500 Polymerase Chain Reaction (PCR) samples per hour. She explained that this high-throughput method enabled CDFA to scale up from 84 DNA extractions per person per day to 736 DNA extractions per person per day. She stated that from 2012 to 2018, the lab has seen a 500 percent increase in plant samples and a 229 percent overall increase. The lab is projected to handle 138,000 plant samples for 2019, while CRB has taken over ACP testing.

Luci mentioned that the PCR test has also been improved from the broad 16S primers to Ribonucleotide Reductase (RNR) primers for increased sensitivity and specificity. The 16S primers amplified non-HLB bacteria, while RNR improved retesting, DNA samples and field sample follow-ups. She explained that in 2016 there was a publication on primers developed by Jen-Shi Chen in collaboration with researchers at South China Agriculture University. The CDFA lab collaborated with USDA to develop and validate the RNR qPCR assay for plant samples. She explained that validating the new primers requires challenging them using thousands of environmental samples. She noted that the new RNR assay detects five gene copies of the RNR gene in the CLas genome compared to three copies of the 16S gene resulting in the RNR assay being three times more sensitive. The RNR assay produces one to two Cts lower compared to the 16S, with a higher cut off for q positive Ct (38 versus 36.99), and no cross amplifiers. Comparatively, there were eight frequently seen genera amplified by the 16S assay. She explained that RNR reduced the non-specific amplifications by 58 percent and 100 percent correlation with confirmed positives, detected low titer infections and increased specificity. The RNR was approved by USDA in November 2018.

Luci stated that CDFA also improved sampling through more intensive quadrant sampling on select trees at high risk of being infected starting August 2018. Quadrant sampling requires testing 20 leaves per tree quadrant for a total of 80 leaves per tree. She explained that when an HLB-positive tree is found, that tree is removed, and all remaining trees on the find site and on adjacent properties are quadrant sampled. When a CLas-positive ACP is found, all trees on the find site and adjacent sites are quadrant sampled. When a tree tests inconclusive, that tree is quadrant sampled. She noted that inconclusive results were three percent with the 16S primer but are at less than 0.1 percent with the RNR primer. She stated that quadrant samples are responsible for detecting 37 percent of HLB-positive trees, 14 percent of which were detected only in one of the four quadrants sampled. She noted that since routine quadrant sampling has been adopted, CDFA has seen a 28 percent increase in HLB-positive trees detected.

Luci summarized that through the development of a high-throughput method, testing efficiency has increased from 2,000 to 11,000 samples per month, costs were cut by 50 percent and repetitive motion injuries significantly decreased. She explained that a high-throughput method, validating the RNR HLB qPCR test for screening plant samples and adopting selective quadrant sampling is key to enhancing detection, lowering the inoculum level in the field and protecting commercial citrus from HLB.

OUTREACH COMMITTEE REPORT

Strategic Priority 5 – Outreach and Education

Mark McBroom stated that a Task Force was formed to disseminate a list of voluntary actions for growers to take in the event of an HLB find. DATOC assisted with the list which will be finalized during a meeting in April. He stated that the list of voluntary actions will be sent out for public comment and come before the Committee in May.

Price Adams stated that the outreach contract with Nuffer Smith Tucker was in year two and requested a one-year extension through September 2020.

Motion: To extend the Nuffer Smith Tucker outreach contract for one year.

First: Keith Watkins

Second: Aaron Dillon

Motion passes: all in favor

CCM (California Citrus Mutual) Report

Casey Creamer stated that the HLB MAC received a bump to \$8,500,000 for the next FY. He explained that the CHRP increased to \$61,500,000, and CCM expected California to receive a \$1,000,000 increase over last FY. He stated that Joel Nelsen, Sunkist and Wonderful Citrus received positive feedback on two workshops.

CRB Report

Franco Bernardi stated that the CRB research department is still reviewing 36 research projects funded this year, and the research projects for next year have been released. He noted that CRB staff organized the International Organization of Citrus Virologists and International Research Conference on HLB. He stated that the CRB search committee identified the search firm that will be looking for the new CRB President.

Closing Comments and Adjournment

Jim Gorden adjourned the meeting at 11:52 a.m. The next CPDPC meeting will be held in Ventura, California on May 8, 2019 at 9:00 a.m.