Citrus Pest and Disease Prevention Committee (CPDPC)
Science and Technology Subcommittee Meeting

Meeting Minutes
March 4, 2022

There was a quorum of the Science Subcommittee and the following were in attendance:

Science Subcommittee Members Present:

Franco Bernardi	Dr. Subhas Hajeri	Dr. Etienne Rabe
Brad Carmen	Nick Hill	Dr. Ram Uckoo
Jim Gorden	Dr. Melinda Klein	

CDFA Staff:

Karina Chu	Anmol Joshi	Lydia Rodriguez
Kiana Dao	Alex Muniz	Briana Russell
Paul Figueroa	Zachary McCormack	Jennifer Willems
David Gutierrez	Keith Okasaki	Amelia Wright
Victoria Hornbaker		

Other Attendees:

Maria Acevado	Dr. Jonathan Kaplan	Tony Patino
Teri Blaser	Dr. Weiqi Luo	Dr. Drew Posny
Ed Civerolo	Mark McBroom	Dr. Heather Scheck
Natalie DeAngelo	Dr. Neil McRoberts	Cressida Silvers
Maria Delgadillo	Dolores Molina	Cindy Thomas
Rick Dunn	Mia Neunzig	Karen Westerman
Lisa Finke	Dr. Sandra Olkowski	Judy Zaninovich
Dr. Beth Grafton-Cardwell	Curtis Pate	Sandra Zwaal

All attendees participated via webinar.

Opening Comments

Dr. Etienne Rabe called the meeting to order at 10:02 am. The Science Subcommittee slide deck will be presented to the science advisory panel (SAP) the week of April 20th-22nd, 2022

HLB Risk-based Survey Evaluation

Dr. Weiqi Luo and Dr. Drew Posny presented their evaluation of California's huanglongbing (HLB) risk-based survey (RBS) model and the HLB epidemic in southern California. Factors considered in the model include census travel, Asian citrus psyllid (ACP) density, HLB detections, citrus transportation corridors, nursery and big box store locations, packinghouse and farmers market locations, host density, and climate

suitability. The patterns and effects learned from each risk factor are used to refine the next state-wide RBS survey design.

Dr. Luo explained that HLB positivity rate is increasing and recommended the Citrus Pest and Disease Prevention Division (CPDPD) prioritize sampling in high-risk areas to improve survey efficiency. The rationale for each factor used in the model to predict the risk of introduction of ACP and HLB in residential areas was explained as follows:

- Census travel may artificially introduce ACP and HLB to new areas.
- ACP density and detection patterns.
- Historical HLB detections.
- Nurseries and big box stores may present a higher risk of future introduction of ACP and HLB. The citrus transportation corridor or citrus production movement may lead to increased detections.
- Packinghouses will be high-risk locations if HLB is detected in commercial groves.
- ACP and HLB will more likely be found at farmers' markets due to minimal market regulations.

According to Dr. Luo, the next cycle of risk-based survey maps will be ready in May 2022, shortly after the current cycle two is complete.

HLB Positivity Rate Discussion

Reducing the HLB delimitation radius around detections has increased the HLB positivity rate. Dr. Neil McRoberts and the Data Analysis and Tactical Operations Center (DATOC) prepared an analysis of the HLB positivity rate over time in relation to changes in the delimitation radius. The HLB positivity rate is determined by dividing the number of detections by the number of samples. The delimitation area surrounding an HLB-positive tree detection has been reduced over time from 800 meters to 400 meters in 2018, and to 250 meters in 2020. The detection rate has consistently increased in response to the delimitation area reduction. Dr. McRoberts also looked at HLB positivity rates through the Section Township Range (STR) square metric to show the increased positivity rates and outliers in specific areas of southern California, especially Orange County. The data indicated a lack of consistent patterns, and the detection rate has decreased between 2020-2021.

Dr. McRoberts explained that 80 percent of all known HLB positive trees are detected within a 400-meter radius, and a 250-meter radius does not capture more than 80 percent of HLB-positive trees. The current 250-meter radius shows HLB-infected trees distributed in a scattered pattern throughout the area which indicates RBS is the best tool to find HLB infections that are randomly scattered throughout the landscape. Dr. McRoberts reiterated that re-expanding the radius to 400 meters would not provide marginal gain relative to the increased work. However, the 2020 data is skewed due to

COVID-19 and a decreased sampling rate. Dr. McRoberts explained that STR grids surrounding historical HLB detections is most effective. Jim Gordon suggested DATOC analyze RBS and delimitation survey activities separately and then complete a combined survey data analysis to determine the HLB positivity rates. Dr. Rabe suggested the Science Subcommittee use Dr. Luo and Dr. McRoberts' presentations as supporting data for the SAP.

Scientific Review of the Citrus Pest and Disease Prevention Program (CPDPP)
Keith Okasaki facilitated review of the CPDPP slide deck which includes an overview of the current CPDPP, background information, strategic priorities, and data on program activities. Raw data will be maintained separately and supporting documentation or presentations will be provided to the SAP as requested. Dr. Rabe recommended that the committee develop questions for the SAP that include topics surrounding the program budget and scientific justification of program activities.

Committee members provided feedback on the slide deck and agreed that the activities listed should continue to reflect the strategic priorities of the program. Dr. Melinda Klein suggested the budget slides be separated by funding for each priority and displayed as line graphs. Dr. Klein also suggested summarizing each strategic priority to provide the progress status or limitations for the advisory panel. Dr. McRoberts suggested excluding the budget slides because they do not provide scientific value. Another suggestion included creating a slide dedicated to activities with grower liaisons and other coordinated activities. Mr. Okasaki and his team will make the suggested edits and provide it to the Science Subcommittee for further review. The subcommittee will request guidance from the SAP before it is formally presented for review.

Other Items and Adjournment
The next Science Subcommittee meeting will focus on creating questions for the SAP. Dr. Rabe adjourned the meeting at 12:04 p.m.