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

Meeting Minutes
February 9, 2023

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

Science Subcommittee Members Present:

Brad Carmen	Dr. Subhas Hajeri	Dr. Etienne Rabe
Aaron Dillon	Dr. Melinda Klein	Dr. Ram Uckoo

CDFA Staff:

Sebastian Albu	Victoria Hornbaker	Keith Okasaki
Karina Chu	Laura Irons	Briana Russell
Kiana Dao	Lucita Kumagai	Michael Soltero
David Gutierrez	Alex Muniz	Nilan Watmore

Other Attendees:

Rick Dunn	Jasmine Lopez	Cressida Silvers
Samuel Ferris	Marcy Martin	Karen Westerman
Doug Hill	Joey Mayorquin	Judy Zaninovich
Jessica Leslie	Mia Neunzig	Sandra Zwaal

All attendees participated via webinar

Opening Comments
Dr. Etienne Rabe called the meeting to order at 1:05 p.m.

Review Science Advisory Panel (SAP) Recommendations
Commercial/Residential Risk Based Survey (RBS)
Victoria Hornbaker reviewed SAP Work Plan items A(1)(2)(3)(4), focusing on commercial and residential RBS. The SAP recommended splitting the RBS into two models. In Southern California where *Candidatus* Liberibacter asiaticus (*C*Las) has been detected, RBS should be refocused to survey commercial properties rather than residential. However, delimitation surveys around residential detections would continue. In the Central Valley and northern regions of California, RBS should continue to focus on the interface between residences commercial citrus groves, as well as Asian citrus psyllid (ACP) detections. If and when *C*Las is detected in the Central Valley, the RBS model would be modified to be similar to Southern California. Dr. Weiqi Luo will present the RBS models at the joint Operations and Science Subcommittee meeting on March 8th, 2023. Both subcommittees will be able to evaluate and provide input to determine the weight factors.

Action item: Request the commercial and residential risk-based survey weight factors from Dr. Luo and distribute to Science Subcommittee members for review prior to the next meeting on March 8th, 2023.

No-Mess Traps

The next topic of focus on the SAP Work Plan was item B(9), no-mess traps. Ms. Hornbaker summarized that the California Department of Food and Agriculture (CDFA) is conducting a comparison of the low viscosity adhesive (no-mess) traps and the sticky yellow panel traps in Central and Southern California. ACP are more easily removed from no-mess traps and can be analyzed for *C*Las, however the field life of the trap is limited to a few weeks. 3D-printed traps were previously tested in Southern California but were not comparable to the current yellow panel traps. CDFA also tested cylindrical traps for one year to account for California seasonal weather and determined the traps capture 70-80% of psyllids compared to the current yellow panel traps. Dr. Chandrika Ramadugu's traps utilize antifreeze which would require CDFA to conduct a risk assessment and edit the Program Environmental Impact Report. CDFA began testing no-mess traps in November 2022, will continue through March 2023, and will prepare a report of their efficacy.

Action item: CDFA will provide a comprehensive report on the efficacy of all ACP trap types.

HLB Genotyping

The next topic of focus on the SAP Work Plan was item D(10), HLB genotyping. Lucita Kumagai presented a review of the United States Department of Agriculture (USDA) data for characterizing *C*Las isolates from California. 169 isolates in this study represent HLB-positive trees detected in 2012 and 2015-2021 in 32 cities and five counties throughout Southern California. Isolates from novel detections in new areas, and detections with high titer, were analyzed by USDA. Isolates were characterized at the USDA Center for Plant Health Science and Technology Lab using markers such as single nucleotide polymorphisms, microsatellites, and prophage inserts to obtain a genetic profile for each isolate. The results identified six distinct genotypes of *C*Las throughout the state, implying multiple introductions. *C*Las Type 1 had a 69% incidence, is the dominant isolate in Los Angeles (LA) and Orange Counties and has been detected in all five counties. *C*Las Type 1 may have been introduced into California first. All six variants have been detected in LA County. Studies are being conducted to determine the importance of the variations in isolates in reference to HLB disease virulence, inoculation timelines, host symptoms, host susceptibility, psyllid population size, etc. The Hacienda Heights *C*Las Type 6 isolate highly resembles *C*Las isolates from Asia. Ms. Kumagai suggested Dr. Ramadugu used *C*Las Type 1 to experiment with HLB-resistant trees. Dr. Klein noted that results may differ between greenhouse grown hosts and field grown citrus. The subcommittee will consider the practical differences between the various *C*Las strains at the next meeting.

Action item: Request Dr. Ramadugu conduct research with *C*Las Type 1 and consider the practical differences between the various strains at the next meeting.

Mass Grove Sampling

The next topics of focus on the SAP Work Plan were items B(6)(7)(8), mass grove sampling. Keith Okasaki explained the goal of massively increasing leaf tissue collection to help detect *C*Las. This would encourage Southern California citrus growers to voluntarily submit additional leaf samples for testing which would require the establishment of non-regulatory laboratories under permit. Dr. Subhas Hajeri summarized a grove sampling proposal from Douglas Hill. Dr. Hajeri and Doug Hill conducted independent leaf tissue sampling and yielded different results. If Mr. Hill's method is to be used for mass sampling for HLB, it would need to be approved by regulators. Ms. Hornbaker noted that moving regulated material throughout the state already requires a permit per the regulations. Aaron Dillon added that HLB composite pretesting of four trees per sample is already a USDA protocol for nurseries. The next step would include coordinating with Ms. Kumagai's laboratory and CDFA to validate mass sampling.

Mr. Hill previously presented this sampling protocol to Citrus Research Board (CRB) but was not granted funding since the procedure deviated from the USDA-approved work instruction. Ms. Hornbaker stated that validation would need to come from USDA. CDFA offers a non-regulatory lab permit based on criteria including laboratory inspections, testing procedures comparable to CDFA, and passing an HLB-testing proficiency test administered by CDFA every two years. The science subcommittee needs a protocol for mass sampling via Dr. Klein and CRB. Dr. Klein will review the mass sampling process and report at the next meeting. Mr. Hill's sampling protocol tests up to 64 trees at a time and costs $2.20 per tree or $150 per composite sample.

Action item: Dr. Klein to review Mr. Hill's presentation.

HLB Regulatory Issues

The next topic of focus on the SAP Work Plan was item H(36), HLB Regulatory Issues. The SAP suggested creating a working group to address regulatory issues. Any changes to restrictions must be equally restrictive as the federal standards. Items addressed include:

- Develop an exit strategy to remove counties from ACP quarantine. USDA may consider removing counties if a better detection method is adopted.
- Provide scientific validation for regulations such as tarping and bulk citrus mitigations.
- Alternatives to spray and harvest and the impact on organic operations.
- Clarification and scientific validation to the nursery screenhouse breach policy.
- Formation of a nursery working group to focus on allowing nursery stock shipments to an HLB quarantine area.

Dr. Rabe agreed with the idea of creating a working group focused on these HLB regulatory issues. Mr. Okasaki will work with Brad Carmen to form and lead a working group. Mr. Okasaki is also working with Aaron Dillon to establish a working group to establish nursery-related regulatory issues.

Action item: Form a working group focusing on the HLB regulatory issues.

Other Items and Adjournment
The meeting was adjourned at 2:49 p.m.