

CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.
Research Management Committee Meeting
Minutes
Tuesday, February 21, 2023

A meeting of the Research Management Committee of the Citrus Research and Development Foundation, Inc. was held on Tuesday, February 21, 2023, at 11:00 a.m. in The Hampton Inn & Suites Conference Room, 22900 Hwy 27, Lake Wales, FL 33859. The meeting was properly noticed and recorded. The meeting was called to order at 11:10 a.m. by Chairman John Updike. Roll was called and a quorum was present. Committee members participating were Bobby Barben, Holly Chamberlain, Steve Farr, Ned Hancock, Aaron Himrod, Tom Obreza, Pat Ouimet, Morgan Porter, Daniel Scott, Wayne Simmons, Buddy Strickland, and John Updike.

Also participating were Mike Aerts, Ute Albrecht, Rick Dantzler, Bill Dawson, Gary England, Stephen Futch, Fred Gmitter, Jim Graham, Jeanna Mastrodicasa, Matt Mattia, Audrey Nowicki, Brandon Page, Lorenzo Rossi, Erin Rosskopf, Jim Syvertsen, Barbara Thompson, and Rosa Walsh.

Mr. Updike noted the minutes of the January 20, 2023, Research Management Committee meeting were included with the meeting materials. Mr. Dantzler noted edits relative to the identity of the virus that needed to be made as well as grammatical edits that had not made their way into the version before them. The minutes with said edits included were moved by Mr. Himrod. The motion was seconded by Ms. Porter and passed unanimously.

Mr. Updike continued with the discussion of the seventeen Gamechanger pre-proposals coming before the committee. He noted that the Scientific Advisory Board met earlier in February; their comments are included in the summary for each of the projects as part of the materials:

1. Deng-1, Zhanao – *Evaluating novel gene-edited Duncan grapefruit mutants for resistance to huanglongbing (HLB)*. While genes have been edited for canker resistance, he believes it could be resistant to HLB as well. Mr. Himrod made a motion to request a full proposal with a one-year laboratory study only and request a thorough explanation of why it is believed the canker knockouts will have an impact on HLB. The motion was seconded by Mr. Hancock and passed unanimously.
2. Grosser, Jude W. – *Demonstrating commercial level sustainable production of high-quality sweet oranges and blending hybrids for all harvesting seasons in HLB-endemic Florida*.

Mr. Hancock questioned whether it would be appropriate to have proposals such as this assigned to the CRAFT board for merit and whether CRAFT could change its model to accept new trees without existing data. It was stressed that we don't have time to spend fifteen more years to go through the traditional plant breeding and evaluation model to advance new rootstocks and varieties. Maybe the traditional model could be replaced by a model incorporated by CRAFT to advance new varieties quicker. Mr. Hancock made a motion for CRDF to have a discussion with CRAFT regarding the acceleration of new varieties while providing compensation for growers to plant these new scions and/or rootstocks. The motion was seconded by Mr. Himrod and passed unanimously.

Following that motion, Mr. Himrod made a motion to not advance this pre-proposal. The motion was seconded by Ms. Morgan and passed unanimously.

3. Martini, Xavier – *Multimodal repellent system to control Asian citrus psyllid*. It was noted that this project did not appear to help with ACP management with mature trees, which was a concern. A motion was made by Mr. Barben to not advance this pre-proposal. It was seconded by Mr. Himrod and passed unanimously.
4. Qureshi, Jawwad – *Maximizing HLB suppression and grove sustainability through oxytetracycline trunk injections integrated with established crop protection and horticultural strategies*. A concern was that this project was looking at a study in 6–8-year-old trees and should have been looking at older trees for the mature tree portion of the study. Mr. Updike asked if there was a motion to request a full proposal. Mr. Himrod moved to advance this pre-proposal. The motion was seconded by Ms. Porter and passed unanimously.
5. Wang, Nian – *Optimization of the non-transgenic citrus genome editing technology to generate HLB resistant/tolerant citrus cultivars*. After some discussion and input from Dr. Dawson about the proposal, a question was raised about how other methods would be any better than the current method. The first objective is long-term. It was noted that Dr. Wang has NIFA and CRDF funding already, but that those funds are committed to other projects. Mr. Himrod moved to request a full proposal with the caveat that the proposal address Dr. Dawson’s question about the ability to use adult scion material and its impact on juvenility of a CRISPR generated tree. The motion was seconded by Mr. Hancock and passed with one opposing vote.
6. Maanavi, Darisuh – *Use of photo-catalyst in a foliar spray format to test various solutions for the eradication of HLB in Florida orange groves*. There was discussion if starch formation is the cause or result of CLas infection. The proposal noted that when applying the material, a slight improvement was noted in the trees but did not specify the level of improvement. It was suggested that this pre-proposal be revisited after the company has more data. The budget was high for a single year study. A motion was made by Mr. Himrod to not advance this pre-proposal. It was seconded by Mr. Barben and passed unanimously.
7. Burns, Lucy – *Innovative detection method to detect viable citrus greening bacteria with higher accuracy*. A motion was made by Mr. Himrod to not advance this pre-proposal. It was seconded by Ms. Porter and passed unanimously.
8. Deng, Zhanao – 2 – *Testing four PGR-like substances for rejuvenating HLB-affected citrus trees and reducing pre-harvest fruit drop*. No motion was made to advance the pre-proposal.
9. Gabriel, Dean – *A flexible self-amplifying RNA system for screening and silencing plant target genes that inhibit HLB defenses*. Dr. Dawson gave his summary of this pre-proposal. No motion was made to advance the pre-proposal.
10. He, Zhenli – *Integration of nano-omics technology to develop precise nanohybrids for mitigating citrus huanglongbing (HLB)*. No motion was made to advance the pre-proposal.
11. Ibanez-Carrasco, Freddy – *Evaluation of plant growth promoting Rhizobacteria against the citrus greening – Asian citrus psyllid complex*. No motion was made to advance the pre-proposal.

12. Levy, Amit – *Inducing HLB tolerance by citrus tristeza virus mild strains infection*. No motion was made to advance the pre-proposal.
13. Shahid, Muhammad – 1 – *Identifying cold-hardy citrus scion and rootstock cultivars for sustainable citrus production in North Florida*. No motion was made to advance the pre-proposal.
14. Shahid, Muhammad – 2 – *Improving cold hardiness in citrus by exogenous application of abscisic acid, silicon and potassium*. No motion was made to advance the pre-proposal.
15. Vashisth, Tripti – *Right PGR, at right time- Hormonal therapy to rejuvenate HLB-affected trees*. No motion was made to advance the pre-proposal.
16. Vincent, Christopher – *Solar Citrus*. While some thought this was an interesting pre-proposal, it was decided that more information would be needed before moving it forward. No motion was made to advance the pre-proposal.
17. Yang, Ching-Yong – *Novel natural metabolite RejuAgro A to control citrus greening as commercialized product*. No motion was made to advance the pre-proposal.

Full Proposal by Robert Turgeon – 22-020 *Protecting citrus trees from citrus greening with anchored, single-chain antibodies*. Dr. Dawson presented his summary of the proposal. A motion was made by Mr. Himrod to fund the first year with modifications regarding sending constructs to the mature transformation facility for other varieties. Additional funds may be required for the transformations. The motion was seconded by Ms. Porter and passed unanimously.

The committee recommended requesting that Dr. Brlansky submit a pre-proposal on blight to propose what he presented to the board.

Consideration of the eight directed research proposals:

1. Use of CRDF Rootstock Trial Locations for Testing Bactericides Inserted into Trees through Systemic Delivery Devices – Ute Albrecht, UF, \$384,700.00. After discussion, a motion was made by Mr. Himrod to fund this project. The motion was seconded by Ms. Porter and passed unanimously.
2. Use of Bactericide in Combination with GA and 2,4-D (Plant Growth Regulator) (Separate from ongoing CRDF PGR Trials – Bids were received from Henry Yonce, Bio Tek Agriculture USA, \$25,000.00 and John Curtis, Better Crops, LLC, \$16,100.00. After discussion, a motion was made by Mr. Himrod to fund Dr. Curtis, Better Crops, LLC, to complete the scope of work outlined. The motion was seconded by Ms. Porter and passed unanimously.
3. Impact of Bactericides inserted through systemic delivery on improving tree health and root density over time – Bids were received from John Curtis, Better Crops, LLC, \$5,000/site. Mr. Himrod made a motion to fund John Curtis for two (2) sites, one on the Ridge and another in SW FL in the amount of \$10,000.00. The motion was seconded by Mr. Hancock and passed unanimously.
4. Impact of Hedging on Movement of Bactericides – Bids were received from Henry Yonce, Bio Tek Agriculture, USA, \$18,000.00 and John Curtis, Better Crops, LLC, \$5,000/site. Ms. Chamberlain made a motion to fund Mr. Yonce. The motion failed for a lack of a second, therefore no action taken on the motion to fund the project.

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5. Alternative Insertion Sites for Bactericides – Bids were received from Henry Yonce, Bio Tek Agriculture, USA, \$15,000.00 and John Curtis, Better Crops, LLC, \$6,000.00. Mr. Hancock made a motion to fund Dr. Curtis to do this work. The motion was seconded by Mr. Farr and passed unanimously.
6. Bactericide Combined with VismaxTM – Bids were received from Henry Yonce, Bio Tek Agriculture, USA, \$25,000.00 and John Curtis, Better Crops, LLC, \$15,200.00. Ms. Porter made a motion to fund Henry Yonce contingent upon Vismax receiving a label. The motion was seconded by Mr. Himrod and passed unanimously.
7. Bactericide Insertion Timing Study – Henry Yonce, Bio Tek Agriculture, USA, \$30,000.00 and John Curtis, Better Crops, LLC, \$5,000/site. There was no motion to move this project forward.
8. Yield Comparison Between Bactericide and Non-treated Control Blocks on Yield and Tree Health – One bid was received, from Henry Yonce, Bio Tek Agriculture, USA, \$13,000.00. Mr. Updike thought this should be handled through CRAFT. It was questioned whether CRDF could help fund companies to produce a less expensive product. No motion was made to act on this proposal.

The proposed RFP for Assistance to entities seeking to provide growers with OTC products inserted through systemic delivery devices was discussed. Action was deferred on this RFP topic.

The meeting was adjourned at 1:15.

Minutes submitted by Barbara Thompson