CITRUS RESEARCH AND DEVELOPMENT FOUNDATION, INC.
Minutes of the
Research Management Committee Meeting
Friday, October 12, 2018

A meeting of the Research Management Committee of the Citrus Research and Development Foundation, Inc. was held on Friday, October 12, 2018. The meeting was properly noticed and recorded. The meeting was called to order at 9:37 am by Chairman David Howard. Roll was called and a quorum was present. Committee members participating were: Mr. Bobby Barben (telephone), Mr. Tim Dooley, Mr. Steve Farr (telephone), Mr. David Howard, Mr. Daniel Scott (telephone), Mr. Joby Sherrod (telephone), Mr. Wayne Simmons (telephone) and Mr. Jim Snively. Mr. Buddy Strickland and Mr. Forest Taylor did not participate.

Also participating were: Ms. Brandy Brown, Dr. Bill Castle, Mr. Peter Chaires, Mr. Rick Dantzler, Dr. Fred Gmitter, Dr. Jim Graham, Dr. Jude Grosser, Mr. Ned Hancock (telephone), Dr. Catherine Hatcher, Mr. Frank Hunt, III, Mr. Cody Lastinger, Mr. Sean McCoy, Ms. Audrey Nowicki, Mr. Brandon Page, Dr. Michael Rogers, Dr. Jim Syvertsen and Mr. John Updike.

Mr. Simmons moved to accept the minutes of the September 21, 2018 meeting. The motion was seconded by Mr. Dooley and passed unanimously.

Chairman Howard opened the meeting stating the committee had two distinct objectives to discuss. First, "we need to keep today's discussion focused on the Gmitter 18-011 Project first and then to the broader discussion of Plant Breeding Research. Both agenda items are closely related, and to expedite the decision-making process I would ask that all members remain focused on the specific action items during motion discussion. If the committee members have specific questions, they may be directed to appropriate audience members. I would only ask that the answers from the audience be delivered as succinctly as possible. I am very concerned that extended dialogue with the Pl's or their supervisor may be perceived as unintended favoritism to those researchers that didn't receive this extended consideration."

Mr. Howard asked Dr. Hatcher to refresh the memory of the committee by walking through the RFP process for the proposals. Dr. Hatcher gave a presentation on the RMC-18 Research Priority 4, Plant Improvement, which is related to the discussion of project #18-001 Gmitter and the project review process.

- **<u>Plant Improvement</u>**
    A. Identify the genetic basis of citrus host responses to HLB to identify targets for conventional or biotechnological approaches for the development of HLB resistant or tolerant citrus varieties.
        i. Seek new resistance R-genes in citrus or other species that counteract CLas effectors.
        ii. Describe the varietal target and experimental approach targeting HLB resistance. Indicate the percent effort, time and resources dedicated to each variety.
        iii. Evaluate germplasm developed specifically for HLB resistance through conventional or biotechnological techniques. Describe phenotypic and molecular characterization

protocols for laboratory, greenhouse and field experiments; reference the appendix for phenotyping protocols.

B. Develop tools for reliable, high-throughput characterization of citrus germplasm for HLB resistance or tolerance using current knowledge of HLB symptomology and the molecular characterization of citrus.

Project Review Process

- RMC -18 priorities identified
  - Industry input
  - Researcher input
  - Portfolio review
  - NASEM report review
- RFP finalized April 25, 2018 – pre-proposals invited
- Pre-proposal review and ranking – SAB and RMC
- Pre-proposals recommended to submit full proposals
- Full proposals review and ranking – SAB and RMC
- Full proposals decision
  - Recommended for funding
  - Recommended for funding with contingencies
  - Differed

Dr. Hatcher reviewed the revisions for project #18-011 Gmitter, Part A, The UF/CREC Core Citrus Improvement program with the committee. The PI was requested to revise the project's scope to be more focused with a substantial budget reduction, as well as clarify the difference between proposal 18-011 and his current NIFA and MAC funding, and to clearly identify which part of the priority #4 was being addressed in the proposal. Dr. Gmitter submitted a revision with a budget reduction of $112,000, reflecting equipment costs removed from the project. Staff is recommending the committee review the project, the project revisions and make a recommendation to the Board for funding. Dr. Hatcher reviewed the four main objectives from project #18-011:

1. Develop new rootstocks that impart HLB-tolerance to scion cultivars.
2. Develop new, HLB-tolerant scion cultivars from sweet orange germplasm, as well as other important fruit types such as grapefruit, mandarins, and acid fruit.
3. Screen our ever-growing germplasm collection for more tolerant types and evaluate fruit quality of candidate selections.
4. Conduct studies to unravel host responses to *CLas* and select targets for genetic manipulations leading to consumer-friendly new scion and rootstock cultivars.

Mr. Howard asked for a motion to further discuss the project. Mr. Snively made a motion to accept proposal #18-011 Gmitter in its revised form and recommend for funding. The motion was seconded by Mr. Dooley. There was a lengthy committee discussion, with the PI on rootstocks and field trials, data, results and the breeding program. It was noted the committee wasn't voting against breeding since all know the importance of the breeding program. However, the PI was asked to give the committee a more focused revision than what was provided. Mr. Dooley commented that the committee is looking at a plant

improvement project that will cost roughly $900,000, with similar objectives to a $1.3 million plant improvement project that was funded three years ago. There was a reduction in cost made to project #18-011, so Mr. Dooley doesn't feel the committee should table this for further discussion, but to move forward with the motion and to continue support of the Plant Improvement project, given the sufficient reduction in the budget and similar objectives to projects had been funded in the past. With no further discussion, the motion passed with a 5/2 vote, with Mr. Barben and Mr. Sherrod opposing.

Mr. Howard reported the second topic to discuss was the Plant Improvement funding strategy. "Speaking as a grower who represents the Indian River region, it appears to me that Plant Breeding has moved to the top of the industry's list for HLB survival. With Plant Improvement representing the majority of proposals in 2018, it seems prudent to refine or define our RFP expectations. As chairman of the RMC, I am asking us today to create a list of considerations/questions for the CRDF Board regarding the Foundation's position on ALL Plant Breeding, not specific to UF/IFAS. My hope is that the Foundation will consider these grower questions and comment as part of a larger industry discussion that leads to a more focused 2019 RFP in the Plant Improvement category."

Mr. Howard discussed the Plant Improvement Funding Strategy questions on funding projects versus programs. The discussion resulted in the following list of questions, which will be presented at the Board meeting for a broader discussion.

- **Industry Support (Florida and National):**
  Do the CRDF and RMC Committees have industry support to continue funding a Core Program breeding approach? Support a grower referendum through industry organizations and FCPMA.

  CRDF, NIFA, MAC, CRB etc. are funding new research. Do those funding organizations become owners or partners in varieties/rootstocks released through FFSP? Can CRDF get a percentage of royalty to recover some costs of the research expense?

  NVDVC supports base funding for plant improvement.

- **Accountability:**
  Is it possible to enlist an independent audit of all plant breeding efforts? Who and how much? Hasn't this already been done in the past?

- **Research Direction:**
  Should we revisit historical RMC discussions regarding Plant Breeding direction? Didn't we ask for promising candidate material that already was in the system to be moved toward field trials?

  Refocus on Deliverables rather than creating additional material.

Is there a priority to support conventional breeding to circumvent the uncertain regulatory obstacles with CRISPR, Transgenic, etc.?

Concentrate breeding efforts on scions and fruit quality.

We are planting large quantities of traditional rootstocks (Lemon, Sour Orange, and Swingle) is there work here that would help?

Balance research effort with the industry, 80% processed v. 20% fresh.

Continue as is. Do not micromanage the breeding program.

- **Data Collection and Grower Connectivity:**
  Is there such a large amount of field trials that data collection and management needs to be contracted through an independent source? Possibly performed by CRDF staff? Does this fall within CRDF mission statement? Who would pay for this effort? Would monies already committed for this in existing projects be diverted to this cause?

  Are the PI teams overwhelmed by data collection and field trial management?

  How can we improve information sharing on trials, summary conclusions, site descriptions and rootstocks/varieties? New IFAS website?

  Make project reports more meaningful and results oriented. Does the change to a 6-month reporting process improve communication and detail?

  Can there be a centralized source for information on all the trials and all the funding sources?

- **Funding Sources and overhead (IDC)**

  What were the traditional funding sources for PIs in the past and how have we transitioned into this large working entity?

  Is CRDF funding of IFAS infrastructure necessary and/or appropriate? Perhaps other entities should fund research overhead?

  UF has also invested heavily on plant improvement and looks at CRDF as a partner in funding research?

  What percentage of the entire breeding program is supported by IDC? Doesn't IDC come back to support infrastructure?

Do other funding programs (NIFA) complement infrastructure shared by research teams?

The University needs funding to maintain staff positions.

- **Measurables and Definitions:**

  What is tolerance? What is the genetic basis for observed tolerance in 'Sugar Belle' etc.? Is the upper limit of yield now 330 boxes/acre?

  Prioritize objectives of the funded breeding programs by trait important to the industry. HLB, Yield etc. Most important issues in current grower community.
  How do the industry and/or breeding program make selections to identify best performing varieties? Selection intensity of candidate materials?

In other business, Chairman Howard announced that Dr. Hatcher will be leaving the Foundation and expressed his personal gratitude as well as that of the RMC for her efforts, also a big thanks for her help during the RFP process and best of luck on her new assignment.

With no further business, the meeting was adjourned at 11:56 am.

Minutes submitted by Brandy Brown.