

# CRDF Takes Balanced Approach

By Tom Turpen



The mission of the Citrus Research and Development Foundation is to convert research into solutions to protect citrus production from threats of infectious disease. Our process is as rigorous, objective, transparent and as fast as we can achieve. The projects are selected by scientific merit and the likelihood of yielding an impact. Here we will provide a snapshot of 135 open and currently approved research contracts. It should come as no surprise that 92% of our funding is provided for Greening research while the other 8% mainly supports Canker research. The Foundation supports one project each in Black Spot and Leprosis, examples of two emerging diseases where some foresight now may be prudent. Behind the scenes we do what we can to recruit other sponsors to pay attention to issues like Blight and other diseases. We are well aware that infectious disease problems are inseparable from other aspects of the agricultural system including cultivar breeding, advanced citrus production systems, and customized nutritional support to provide relief to infected groves.

We continue to organize research by the categories published in the NRC planning study (full report can be found at [http://www.nap.edu/catalog.php?record\\_id=12880](http://www.nap.edu/catalog.php?record_id=12880)) published in 2010:

- 2% Consequences of HLB infection/Unclassified
- 14% CLas culture, genomics, molecular biology, and Koch's postulates
- 10% Citrus response to infection: symptoms, defense, CLas spread in the plant, SAR
- 9% HLB pathogen and disease detection
- 10% HLB epidemiology and mitigation of HLB by cultural practices
- 8% ACP monitoring and behavior, cultivation and relationship to CLas
- 18% ACP chemical, biological or biochemical management chemical attractants and repellants, and trapping and repelling plants
- 11% Citrus genomics and transcriptomics, and Conventional citrus breeding for resistance
- 15% Transgenic and viral/bacterial vector mediation of citrus resistance to HLB
- 3% Model systems, including chemical screening

The above percentages are based on the amount of funding on currently open and pending-approved contracts. Overall, these categories have not fluctuated by more than 3% or so for three fiscal cycles. For example, we have reduced emphasis on diagnostics while increasing investments designed to prolong the harvest of marketable fruit from infected trees. The Foundation was a major one-time contributor to the citrus genome project, greatly accelerating the recent release of the current draft sequence but this contribution is non-recurring.

How do we know this portfolio of projects is correctly balanced? There are a few clues. First of all, it should please no one. Growers and the industry at large should always push for faster results. Teams of researchers with specific expertise should make the case that their projects have merit and impact and deserve to be funded. Secondly, we should fail often and fail fast. This is the nature of research. All projects should generate useful information but overall we are looking for both breakthrough products and incremental management tools that when brought together make a difference. No one can predict the results of these projects in advance. So, the industry and grower oversight on our Foundation board and research management committees have an eye on a return on investment, the only rule that matters. A balanced portfolio will manage the risk of infectious disease, keep and expand citrus markets and reduce production costs. This is occurring now and will span a horizon extending from immediate applications to very long-term new products for the future. The challenge for us all now is the same as for any value investment, to stay the course.

***Dr. Turpen is the Interim COO and Program Manager of the Citrus Research and Development Foundation. The foundation is charged with funding citrus research and getting the results of that research to use in the grove.***



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