



REPORT

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What form will HLB solutions take?

The most pressing issues regarding HLB and the Florida industry revolve around a couple of questions: What are the most likely solutions? and... How soon will they be available for use in the industry?

They appear to be simple questions, but answering them is anything but easy. The fact is, significant progress has been and is being made and the results of research are being utilized in the grove today. Borrowing from baseball, the delivery of partial successes is not by way of a home run, but rather by a series of base hits. Collectively, these base hits lead to progress in using tools.

Some of the research is unidirectional – that is, information travels from the investigator to the end user without much interaction along the way. However, as the industry becomes more involved in the challenges of HLB and participation in governance of the research, this one-way delivery is less common.

The alternative approach is one where ideas are generated in an open environment, often stimulated by grower observations, and investigators are encouraged to submit plans to test the questions posed. The more near-term, applied research often begins this way, and the connection remains as the research is conducted in the field and reported back to growers. An extension of this approach is when grower observation leads them to set up trials and to test various questions. A good example is the use of modified nutritional programs to counter the effects of HLB infection. As this process moves along, researchers engage with the growers and discuss observations. This can lead to opportunities for data collection and sharing, where growers and researchers are working together to answer questions. Florida growers are setting up their own trials in different locations, with variable rootstock/scion combinations, management systems, and using a range of treatments. This creates a lot of opportunity for “community learning”. In support of these efforts, CRDF has approved funding for research teams to work closely with growers to assist in interpretation of data and to look at variation across different areas of the state where these grower trials are being conducted.

UPCOMING MEETINGS

FEBRUARY, 2013

7	Governance Committee	CREC, Lake Alfred	10:00 a.m.
21	Research Management Committee	CREC, Lake Alfred	9:00 a.m.
26	Board of Directors Meeting	CREC, Lake Alfred	TBD

What is learned from this experience? Again, it is not likely a home run, but rather adjustment to practices, treatments and approaches to management which will improve grove health in the continuing presence of HLB and other diseases. The solution that emerges from this effort also is important because it is actually implemented along the way, and through field trials, the rates, timing, and other factors are adjusted to optimize the outcome and limit unnecessary expense.

What we see through these grower/researcher interactions also represents the likely delivery of other solutions that are emerging from the funded research. Research results will not likely be delivered as a proven, final “ready-to-go” product, but rather a result that will move towards field testing and adjustment, based on real-world practice in the grove. Like the grower trials, the final implementation of a tolerant rootstock/scion combination, modified psyllid management tools, an anti-microbial therapy, or the ultimate resistant citrus tree will be proven through planting, observation and data collection in the field. Data sharing from these “advanced field trials”, like the data sharing coming from pooling observations and information from grower trials, will help growers and researchers assess the value of the solution for HLB or the other targets of disease management. At the same time, this approach provides information on how best to integrate the particular remedy into the overall citrus management system.

Home runs are crowd pleasers and game changers in baseball, and we can anticipate that home runs may come from the broad investment in citrus research toward finding solutions to HLB. But baseball games are won by runs scored through successive base hits, and the same has been and will remain the case in the fight against HLB.

Looking again at the opening questions of what the solu-

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tions will be, and when will they be available, it may be useful to consider:

- Progress continues to be made in optimizing use of insecticides to suppress psyllids
- Focus on nutritional health of citrus has provided improvement for uninfected as well as infected trees. These grower trials and research trials continue
- Field trials and numerous recent presentations at grower meetings point out that currently-available rootstock/scion combinations are demonstrating differential growth and productivity in the presence of HLB pressure
- Antimicrobial testing is refining a list of most promising candidates for greenhouse testing and commercial development consideration
- Numerous new citrus plantings are being analyzed and data are being shared to determine the best practices for bringing new plantings into production

These are all “base hits” that are advancing our ability to manage HLB. We have neither won nor lost the game, and the game isn’t over. More base hits are on deck, and the value of field evaluation of any new advance continues to be demonstrated.

International Research Conference, Huanglongbing (IRCHLBIII)

The Third International Research Conference focused on HLB was held February 4-7, 2013 in Orlando, providing an

opportunity for scientists from around the world to gather to share results and observations on this important citrus disease. This event is a joint effort by the Florida citrus industry and research institutions who are conducting research to develop and deliver HLB solutions. Attendance at this 4-day event was near 500 participants, representing 22 countries. CRDF was a major sponsor of this event, utilizing the opportunity to encourage communication and collaboration among scientists and to meet the objective of updating the Florida industry on research progress. A major recommendation of the industry response to HLB published in 2010 was to regularly communicate results of research funded through the Citrus Research and Development Foundation and beyond to the industry and to facilitate the translation of discoveries to utilization in the grove. Formal presentations were complemented by poster sessions scheduled to allow for discussion among participation. These activities were organized according to topical area, encouraging interactions among those working on similar areas of research.

A modification from previous HLB Conferences is the plan for a separate grower meeting to follow the IRCHLB III, during which summaries of the meeting sessions will be presented. This meeting is scheduled for the morning of March 6 at the University of Florida, IFAS, Citrus Research and Education Center (CREC), Lake Alfred and growers are encouraged to attend. Additional details of the HLB Conference and the follow-up grower meeting will be forthcoming.

ANNUAL AND FINAL REPORTS

Following are the annual and final reports on CRDF-funded research projects which have been posted online since our last issue. The full report can be accessed from the ‘link’ button. These, and interim progress reports on all projects as well as projects funded by the California Research Board and Texas Citrus Producers Board can be found online at citrusrdf.org>GROWERS>RESEARCH>SEARCH PROGRESS REPORTS.

LINK	TITLE	RESEARCHER
	Spatial and Temporal Incidence of <i>Ca. Liberibacter</i> in Citrus and Psyllids detected Using Real-time PCR	Roberts
	Evaluation of the mechanism and long-term management potential of boron based suppression of HLB symptoms	Schumann
	Alternative Hosts for HLB to Assist in Disease Management	Brlansky