

REPORT



An Overview of Strategic Planning for the Florida Citrus Industry

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The invasion of Florida citrus by Greening has forced us to expand our research and education efforts to develop and deliver solutions to this serious disease. The industry's prior efforts to fund and direct research to greatest needs over the recent two decades has placed the industry in an excellent position to respond, and the commissioning of a National Academies Strategic Planning effort led to delivery of a 307 page comprehensive report in March of this year to expand on this ongoing effort. The report provides an external expert analysis of the citrus disease situation in Florida, leading to recommendations for expansion of current efforts as well as new approaches to address greening.

Five recommendations from the 11-member National Research Council, Strategic Planning Committee focused on Organization of Research (O-1 through O-5 in the report), while the Committee also indicated a need for expanded dissemination of Information to growers and other interested parties (In-1 through In-3). The main thrust of the report, however, was to describe a series of recommendations to organize research towards short-term as well as long-term solutions. Eleven recommendations addressed short-to-Intermediate research needs, with goals to provide usable results within a five-year time-frame (report recommendations NI-1 through NI-11). In addition to several recommendations focused on delivering tactics for psyllid suppression and for improved management of existing infected groves, results from these research recommendations are crucial building blocks for long-term solutions, such as delivery of citrus trees resistant to greening. The long-term solutions to greening were outlined in 4 research and technology recommendations (L-1 through L-4). The recommendations, with the rationale provided by the Strategic Planning Committee, form a robust research plan. The actual recommendations, as well as an in-depth discussion of the analysis and each recommendation, can be found at <http://www.nap.edu>.

Analysis of the NRC report's recommendations against the recent two years of research funded by the Florida citrus industry, indicates that significant resources have been invested by the industry through FCPRAC and most recently, CRDF, Inc. across the short-intermediate and long-term recommendations. Over \$16 million has been committed each of the past two years to these projects. Looking at numbers of current projects and dollars invested, it is clear that the recommendations highly rated by the Strategic Planning Committee are receiving greatest attention by researchers in-state as well as numerous external projects drawing in new national and international scientists.

The emergence of the detailed NRC report is attracting public and private interest, resulting in a broader representation of scientists, as well as the latest technology and research methods to address greening. In summing up the strategic plan and its delivery to CRDF on behalf of the industry:

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Citrus Health Management Areas

The CRDF subcommittee appointed by the Board to assist growers interested in forming a citrus health management area (CHMA) met on May 25 to identify ways that they could assist growers that wanted to voluntarily organize themselves.

Formation of CHMA's was the number one recommendation of the National Research Council.

In some areas, individual companies and growers have already formed a CHMA with some in operation since 2007. The early adopters of the concept of a CHMA began working together because of reports out of Brazil about the success growers were having combating HLB by cooperating with one another. The report by Juliano Ayres and Renato Bassanezi had four recommendations: start greening control early, implement a very aggressive greening control plan, gain 100% participation of growers in the area, and create a large area.

The CRDF subcommittee heard a recommendation from Dr. Michael Rogers, UF-IFAS, that outlined the role IFAS proposes to play in assisting growers interested in participating in a CHMA. The proposed IFAS team would include subject matter specialists, county agents, and FDACS/DPI representatives. Together with the growers, they will map the area showing the volume of citrus groves, identify the severity of HLB in that specific area, and make recommendations to the group as to the best management practices to combat the disease and maximize

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- ✓ You now have a dynamic, relevant and externally verified research and delivery plan
- ✓ The NRC process and report reinforced and expanded our prior research agenda and investment
- ✓ The NRC plan and CRDF will be extremely useful going forward, seeking resources, prioritizing projects, and reporting progress
- ✓ The emergence of CRDF, along with a comprehensive strategic plan, gives Florida the maximum opportunity to DISCOVER AND IMPLEMENT tactics to limit impacts of HLB in the immediate future, and other challenges to our long-term viability
- ✓ With a plan and organization now in place, the industry must now be prepared to adopt solutions as they emerge

It appears that the industry has embraced an aggressive approach to pursuing all options to solve HLB and remain viable for decades to co

An abbreviated listing of the recommendations follows:

Organizational (O) Recommendations

- O-1. Create "Citrus Health Management Areas" in Florida.
- O-2. Identify one organization for HLB research and development efforts.
- O-3. Create a centralized HLB website and data bank
- O-4. Commission an analysis of the economics of the citrus industry's responses to HLB.
- O-5. Organize an enhanced annual international symposium on all aspects of HLB.

Informational (In) Recommendations

- In-1. Expand extension efforts emphasizing the importance to HLB management.
- In-2. Encourage homeowners to remove and properly dispose of backyard citrus trees.
- In-3. Communicate information on HLB to government officials.

Research and Technology Recommendations: Near- to Intermediate-Term (NI)

- NI-1. Improve insecticide-based management of Asian citrus psyllid.
- NI-2. Support searches for biomarkers that may be exploited to detect HLB infected citrus.
- NI-3. Establish citrus orchard test plots for evaluation of new scouting and therapeutic methods.
- NI-4. Accelerate the sequencing and exploitation of the sweet orange genome.
- NI-5. Support development of HLB model systems.
- NI-6. Exploit the CLas genome sequences for new strategies of HLB mitigation.
- NI-7. Support research for alternative ACP management strategies.
- NI-8. Support small-scale studies on the feasibility of alternative horticultural systems.
- NI-9. Support demonstration of RNA interference effects for suppression of ACP.
- NI-10. Develop *in vitro* culture techniques for CLas.
- NI-11. Sequence, assemble and annotate the ACP genome.

Research and Technology Recommendations: Long-Term (L)

- L-1. Support development of transgenic HLB-resistant and ACP-resistant citrus.
- L-2. Support development and testing of bactericides, therapeutics or SAR activators.
- L-3. Support analysis of ACP behavior and ACP-plant interactions for new ACP management strategies.
- L-4. Explore possible control strategies based on release of modified psyllid males.

CRDF 2010/11 Budget Funds Worldwide Research Efforts

The Florida Citrus Commission, at its meeting on June 9, agreed to fund the shortfall in the CRDF's FY 2010/11 budget that resulted from the Governor's veto of HB981 and the general revenue appropriated by the Legislature for disease research.

The Commission approved a FY 2010/11 disease research budget of \$10.8 million, up from \$8.0 million in the FDOC's preliminary budget. The FDOC funds plus box tax receipts from the one penny tax still authorized, carryover, and residuals will support a proposed CRDF budget of \$14.1 million in the fiscal year starting on July 1. The proposed FY 2010/11 budget includes \$13.3 million for research with \$12.3 million already committed to 131 projects by 78 Principal Investigators at 10 domestic universities, 4 USDA labs, 5 international universities, 5 other research organizations. These researchers are complemented by an additional 108 Co-PI's representing 15 more domestic universities and organizations, and institutions in 5 countries, making our research portfolio a collaborative worldwide effort.

The proposed 2010/11 budget includes \$1.0 million for new research projects and commercial product development support.

Every one of the existing 131 research projects will contribute to our stock of knowledge about HLB and the Asian Citrus Psyllid, and any one of the projects could provide the solution for the disease.

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production. The next step is to fund the team. The subcommittee is seeking funding sources.

Growers already in a CHMA and those interested in learning more about the IFAS proposal are encouraged to review the presentation made to the subcommittee by Dr. Rogers. It can be found on the CRDF website www.citrusrdf.org or a copy obtained by contacting the CRDF office.