

USDA, National Institute of Food and Agriculture Announces Citrus Research Project Award

A public announcement from USDA, NIFA reporting awards under the Specialty Crop Research Initiative (SCRI) October 1, 2012 included the approval of a multi-year national project whose goal is to develop novel solutions to combat the citrus disease, Huanglongbing (HLB), which plagues Florida citrus and has recently been discovered in Texas and California. The project, entitled "Rear and Release Psyllids as Biological Control Agents - An Economical and Feasible Mid-Term Solution for Huanglongbing (HLB) Disease of Citrus", was developed earlier this year to address a gap in the research that is currently being conducted by scientists from around the world. The overall project goal is to employ a coordinated, multidisciplinary, and systems-based approach to stop the spread of the economically crippling plant disease HLB. HLB is associated with a phloem-limited bacterium, *Candidatus Liberibacter asiaticus* (CLas) transmitted by Asian Citrus Psyllid (ACP), *Diaphorinia citri*.

While it has been long known that suppressing the ACP, the insect which spreads the bacterial disease between citrus trees, is important in managing the impact of this disease, approaches to managing the psyllid to date have primarily focused on short-term population reductions with pesticides, biological control organisms such as parasitoids and predators, and through the use of cooperative application of these tools by citrus growers across an area to increase the results. These methods have proven useful, but greater suppression of the insect is vital to slow or stop the spread of this disease and to assure a long-term presence of citrus production in the affected areas. A study in 2009-10 by the National Academy of Sciences identified intermediate- to long-term control of ACP as an integral priority in finding permanent, effective solutions to this disease. With progress in many areas of research, and the announcement of this award, the approach now can be pursued aggressively.

This citrus project was approved as a Coordinated Agricultural Project (CAP) with a five year timeline, and aims to develop and field-test a novel approach. The project plan is to replace the wild type psyllid population with one incapable of vectoring the disease, and to deploy this introduced psyllid population in a way that displaces the existing population that has invaded the U.S. citrus producing regions and currently threatens all U.S. citrus production. The precedent for this approach has recently emerged from the medical disease field, involving disease-carrying mosquitos and the release of mosquitos that are incapable of carrying the diseases.

To achieve these goals, a three-fold approach is proposed:

1. Develop a psyllid management strategy based on the development of psyllid populations incapable of transmitting CLas (nuPsyllid) and strategically release the nuPsyllid population to displace current ACP populations that have invaded the US.

2. Provide optimized management strategies for integration of the proposed population displacement technique into current management practices: and
3. Integrate the management strategies with monitoring strategies to continually assess effectiveness and provide outreach education to the grower stakeholders and citizens about the control strategy.

In addition, the project will address methods of deployment to block spread of the HLB into regions of the U.S. that are not currently infected, but are at threat of invasion from neighboring countries or states.

The project team includes biological, physical, and socio-economic expertise, coordinated to adapt current technological strategies showing success in other insect-vectored disease control campaigns, into a deployable and monitored strategy to manage/eliminate the spread of HLB and sustain the competitiveness and profitability of U.S. citrus production. The project is divided into four subareas of research, extension and outreach, each of which contains knowledge gaps. The urgent need for the development of a deployable strategy requires the team to conduct multiple parallel research paths to fill these gaps. In addition, a research oversight/management structure will monitor the accomplishments and select productive paths.

Stakeholder Involvement in the Project

Identified stakeholders include citrus grower associations, citrus growers, consumers, industries and businesses allied with citrus production. Within structures such as grower associations, educational seminars and grower meetings have long been valued for bringing together grower needs and the responses from research and extension. Grower supported research sponsors have cooperated among several states to best invest grower funds to meet statewide and national needs in Florida, through the Citrus Research and Development Foundation (CRDF), in Texas through the Texas Citrus Producers Board (TCPB), and in California through the Citrus Research Board (CRB). All of these efforts are coalescing with the broad support and expected benefits from this USDA-sponsored project.

The Project Team:

The project draws on expertise from citrus research organizations in the US, and the research and delivery team represents state Universities, State Departments of Agriculture, and USDA laboratories in many states, including Florida, Texas, California, Arizona, Oregon, Washington, and Wisconsin. A project management team will work closely with the 40+ scientists involved, as well as with an advisory committee that includes citrus stakeholders and regulatory experts. The Citrus Research and Development Foundation, as the applicant, will serve as the contact point for this project. For more information, please contact Dr. Tom Turpen, Project Director at catp@citrusrdf.org.