CITRUS RESEARCH & DEVELOPMENT FOUNDATION

GROWER RESEARCH REPORT

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Announcement of Opportunity for Grower Cooperators, November 2014

This is a communication to encourage participation by interested growers in the selection of cooperator field trial sites for further evaluation of HLB-tolerant rootstocks. General details of the trials are provided here and CRDF encourages submission of a letter of interest by December 1, 2014 from those who might be interested in hosting a regional trial. More details and a plot layout can be accessed on the front page of our website citrusrdf.org.

Background:

In the environment of HLB, citrus susceptibility to disease is an important component of developing solutions. As rootstocks from the breeding programs are being evaluated, CRDF has encouraged early release and other strategies to make these rootstocks available to growers. Past success in 2013-14 in rootstock release activities from USDA, ARS and UF, IFAS is encouraging, and CRDF will continue to work with both variety improvement programs and their plant release mechanisms to ensure that rootstock materials showing promise are made available for further grower evaluation either through open release or through Materials Transfer Agreement (MTA) strategies. CRDF has arranged for sufficient numbers of 5 HLB-tolerant candidate rootstock trees to plant commercial-scale replicated field trials with cooperative growers, compared to 2 standard rootstocks at each site. These trials will be located in 3 citrus regions of the state and will be hosted by commercial citrus growers to facilitate real-world evaluation under commercial production, harvesting and marketing conditions. Only grower-cooperators who fit these criteria will be considered for hosting the field trials. While CRDF is interested in overlaying appropriate design in these plantings, the plantings necessarily will need to conform to general grower practices, including being treated as a solid planting as far as cultural practices, harvesting and marketing are concerned. For this reason, one consistent scion will be used in all field trial sites.

Upcoming Board and Committee Meetings

Dec 2nd - Commercial Prod Delivery	Lake Alfred 9:00 am
Dec 9th - Board of Directors	Lake Alfred 9:30 am

It is now time for CRDF to implement Phase I grower field trials of most promising candidate HLB tolerant rootstocks emerging from early field trials. Trees for Phase I grower plantings at three sites will be available in spring, 2015. CRDF project managers have characterized the details for grower-cooperator participation in these field trials, including the standardized horticultural practices following planting and appropriate initial information-gathering from the trials commencing when the trials are planted. CRDF-funded trial administration and data support will provide liaison with the grower cooperators beginning at pre-plant and continuing after the trials are planted.

Details of the field trial plantings to be considered by potential trial hosts:

- The recommended block design is a 12 x 12 planting (144 trees in each block) for each rootstock per replicate. This “square” orientation is preferred over long rectangular blocks (e.g., 9 x 16 or 8 x 18) to optimize the buffering effects.
- Two buffer rows and two row-end buffer trees in each plot allows a non-edge block of 8 x 8 trees, or 64 trees per replicate per rootstock to evaluate for HLB and other performance parameters across the trial.
- With this block size, there will be 144 trees per replicate per rootstock.
- With 5 replicates of each rootstock, 720 trees of each rootstock will be planted per site and a total tree population of 5,040 for the 7 rootstocks in each location in the state.

Candidate HLB-tolerant rootstocks - The rootstock trial will be planted at the sites as follows:

Indian River Site:	Ridge Site:	Southwest Flatwoods Site:
Orange 4 (UFR-2)	Orange 4 (UFR-2)	Orange 4 (UFR-2)
Orange 15 (UFR-3)	Orange 15 (UFR-3)	Orange 15 (UFR-3)
Orange 19 (UFR-4)	Orange 19 (UFR-4)	Orange 19 (UFR-4)
46 x 31-02-13 (UFR-16)	46 x 31-02-13 (UFR-16)	46 x 31-02-13 (UFR-16)
US 942 (USDA, ARS)	US 942 (USDA, ARS)	US 942 (USDA, ARS)
US – 812 Standard at all sites	US – 812 Standard at all sites	US – 812 Standard at all sites
Sour orange: Indian River	Carrizo citrange: Ridge	Swingle – Southwest flatwoods

- The number of acres planted will vary with the tree and row spacing chosen. Under conventional spacing, this is approximately 1 acre per plot and thus 35 total acres per location in the state.

All rootstocks for planting in these three trials were budded with '1-14-19 Valencia' for scion uniformity. This facilitates a straight comparison of performance, including yield and fruit quality, as well as facilitating production, harvest and fruit marketing across all rootstocks.

Expectations for planting and cultural practices in the field trials:

Planting plans should maximize the ability to compare buffered blocks of solid planted rootstocks.

Within-row spacing of trees on the different rootstocks should take into consideration the growth habits of scions on each of the rootstocks. The rootstock breeders can provide recommendations on specific rootstocks that may benefit from tighter or more open spacing, but have indicated that all rootstocks that are included in these field plantings should perform well at 10 foot within-row spacing.

This assessment is focused on 10-12 years of economic life of the planting. Complete records on the planting plan, dates of planting, and other relevant details such as soil type, organic matter, irrigation water salinity, pH and bicarbonates, should be collected at planting.

Cultural practices: Once planted, the following general practices are encouraged to support the planting and provide for a reasonable evaluation of the rootstocks:

- Aggressive psyllid management according to current CHMA recommendations or equivalent for young trees and early mature trees. Active participation in a CHMA or cooperative treatment area is encouraged as relevant.
- Irrigation, nutrition and grove floor management consistent with current practices to promote root health and growth in the presence of HLB
- Freeze protection should be a component of the planting plan.

Considerations for grower cooperators:

The grower cooperator is the primary investor in this trial, well beyond the investment by CRDF and the industry in providing the trees and encouraging the planting. CRDF will promote discretion in seeking access to field trials for observation, data collection, and field days associated with the trials. There is a need to balance the purpose of demonstrating the performance of the HLB-tolerant rootstocks under commercial production with property and business considerations. Property ownership change is always an issue in longer-term field trials. To the extent possible, cooperators are encouraged to manage continuity of the trial in the event of property ownership or management change.

Selection of grower cooperators to host the trials:

CRDF encourages submission of a letter of interest by December 1, 2014 from those who might be interested in hosting a regional trial. Candidate hosts from each region (Indian River, Ridge and Southwest Flatwoods) must be willing and able to commit about 35 acres of suitable land by March 1, 2015 and to planting and maintaining 5,040 trees using uniformly good commercial practices. Candidate hosts will be evaluated and recommendations will be provided to the CRDF Board for final decisions. Please address your letter of interest to Citrus Research and Development Foundation, Inc., 700 Experiment Station Rd., Lake Alfred, FL 33850 or email to cpd@citrusrdf.org. Including an overview of your current grove operations and experience with hosting field trials in the letter of interest would be beneficial. Please contact our office (863) 956-5894 if you would like to discuss details of this opportunity prior to submitting a letter of interest.

LINK	TITLE	RESEARCHER
CRDF	Key unknowns about Asian citrus psyllid biology in Florida: Overwintering sites and alternative hosts	Pelz-Stelinski
CRDF	Investigation of Non-Antibiotic Tetracycline Analogs and Formulations Against HLB	Nelson
CRDF	Manipulating defense signaling networks to stimulate broad-spectrum resistance to HLB and other diseases in citrus	Lu
CRDF	Transmission of the emerging citrus pathogen cytoplasmic citrus leprosis virus by endemic mites	Brlansky
CRDF	Strobilurin (QoI) resistance and the potential for resistance development to the newly introduced SDHI and DMI fungicides in tangerine-infecting Alternaria alternata populations of Florida	Dewdney
CRDF	Using a novel psyllid trap that captures and preserves psyllids and Candidatus bacteria for DNA analyses: understand vector-greening population dynamics and entomopathogens and the enhancement grant	Mizell