

Progress with Rootstock Screening for Huanglongbing Tolerance or Resistance

Researchers: Jude Grosser, Fred G. Gmitter, Jr., John Chater, Ahmad Omar, Manjul Dutt, Liliana Cano

Contact: Jude Grosser,
jgrosser@ufl.edu

UF/IFAS CREC



Gauntlet Sugar Belle® rootstock hybrid grafted with HLB+'Valencia' showing good tolerance (middle tree).

Take Home Message:

- Significant progress was made to combine emerging HLB-tolerant parents.
- Several new rootstock candidates were identified that do not support CLas replication in their roots.
- A rootstock that completely mitigates the disease brings all commercial scions back into play without the need for CUPS.

Effort Statement: The genetic diversity being examined for developing HLB tolerant or resistant rootstocks was increased significantly, as breeding is a continuum.

Summary: The ultimate solution to the huanglongbing (HLB) problem is having good rootstocks that can mitigate or eliminate HLB impacts in

any grafted commercial scion. With this, growers could profitably grow any scion including grapefruit, 'Hamlin', or even 'Murcott'. Thus, our rootstock breeding efforts focus on directly screening new rootstock hybrids for their ability to confer HLB tolerance or perhaps even resistance to grafted scions. To date, approximately 20,000 hybrid seeds have been screened in our high throughput 'gauntlet' screening process. We have identified several promising hybrids showing the ability to transmit HLB tolerance across the graft union into the infected 'Valencia' scion. Most of the promising new rootstock candidates are from the 'gauntlet' screening, but we have also identified several from other sources. We currently have 14 new promising candidates established in tissue culture micropropagation

at Agromillora, Florida and the Phillip Rucks Nursery TC Lab, and these are being worked into new stage 2 replicated trials. These include super root mutants from UFR-1, a hybrid of Sugar Belle® with trifoliolate orange, several complex diploid and tetraploid hybrids produced from crosses of HLB-tolerant parents. Recently identified HLB-tolerant rootstocks include a hybrid of an HLB-tolerant pummelo with US-812, and a complex tetraploid hybrid from a cross of Nova + HBPummelo with Cleo + Swingle. Several of the most promising selections also have good genetics to battle other important rootstock issues including high salinity and citrus blight. Continued exploitation of expanded genetic diversity in rootstock improvement should lead to permanent solutions to HLB.

Funding:



National Institute of Food and Agriculture
U.S. DEPARTMENT OF AGRICULTURE



Citrus Research and
Development Foundation, Inc.

Agromillora FL
(Wildwood) and
the Phillip Rucks
TC Laboratory