10.7 First Steps Towards Rescuing Las-Infected Citrus Germplasm

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Huanglongbing (HLB) disease is having a significant impact on the USDA citrus breeding program as it has shown up in a number of trees that exist only in a virtually irreplaceable germplasm collection. It is critical that we rescue Las-budwood from elite germplasm that is Las+. We reasoned that by selecting budwood that tests Las-, albeit from Las+ trees, we would produce some propagations free of Las. At least three, and as many as six, branches from each of seven trees were tested for Las using standard qPCR methods. A total of 90 propagations (3 from each branch) were produced. Initially, 63% of the branches were Las+. Of all the propagations, 89% survived, with no apparent difference in survival between propagations made from Las+ or Las- branches. Among all propagations, 29% were Las+. Among propagations made from branches that were Las+, 55% (18/47) tested Las+, whereas among the propagations made from Las- branches, 12% (3/25) were Las+, with two of these propagations originating from the same original branch. Average Ct value for Las+ propagations from Las+ branches was 27.9 compared to 36.0 for the Las+ propagations from Las- branches. So far, our data support the notion that testing for Las prior to propagation is an important first step in the process of rescuing Las-tissue from Las+ trees. Propagated trees will continue to be monitored for the appearance of HLB symptoms and further development of Las as determined by qPCR, to determine whether uneven Las distribution and selected propagation from Las+ trees will permit rescue of critical germplasm.