



—Scientific Note—

Evaluation of the Productivity of HLB-affected Citrus Varieties Grafted on US-942 and Swingle Rootstocks

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Huanglongbing (HLB) disease and abiotic stresses such as temperature variation, drought, and flooding have been associated to exacerbate citrus preharvest fruit drop in Florida. The preharvest fruit drop can be as high as 50% of expected yield per cropping season. Attempts to control the fruit drop rate have not been successful to date. There is no known citrus variety that is resistant to HLB, but some varietal-rootstock combinations show some tolerance and are preferred by growers. We evaluated the productivity of HLB-affected mature *Citrus sinensis* 'Valencia' trees grafted on US-942 and 'Swingle' rootstocks. The trees were six-years old. A total of 96 trees per variety-rootstock combination were used, and each experimental unit consisted of six trees.

Preharvest fruit drop, nutritional status, internal fruit quality, and yield were determined during the crop season. The productivity status was classified using the following scale: > 90 lbs = most productive; 70–89 lb = moderately high production; 50–69 lb = moderately low production; and < 50 lb = low production. Proc Glimmix (SAS Institute Inc., Cary, NC) was used for statistical analysis of the data. At harvest, 65% of the trees on US-942 rootstock fell within the most productive category. On

the contrary, most of the 'Valencia' trees on 'Swingle' rootstocks fell within the moderately low category. In trees with 'Swingle' rootstock, fruit drop per tree was significantly higher when compared with trees with US-942 rootstock.

Regardless of the rootstock, the most productive individual trees had fruit drop around 10%. In the other productivity categories, fruit drop was greater in trees on 'Swingle' rootstock. This shows that fruit drop rate was related to rootstock type and this may imply that the health and productivity of HLB-affected 'Valencia' trees grafted on 'Swingle' rootstock decline faster when compared with trees on US-942 rootstock. Fruit quality was not affected by productivity status, as both Brix increased and fruit detachment force declined with time regardless of the rootstock, but these parameters were not significantly different between each rootstock-scion combination. In all plots, leaf and soil nutrient concentrations were within or above the optimum ranges. In summary, HLB infected *C. sinensis* 'Valencia' trees grown on US-942 rootstock had higher fruit yield than *C. sinensis* 'Valencia' trees grown on 'Swingle' rootstock and this is likely due to a differential fruit drop behavior that is influenced by rootstock.

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