PHOTOPERIOD AFFECTS GROWTH AND NON-STRUCTURAL CARBOHYDRATES IN CONTAINERIZED CITRUS NURSERIES
G.P.S. Brar1*, T.M. Spann1
1 University of Florida, Horticultural Sciences Department, Citrus Research and Education Center, 700 Experiment Station Rd., Lake Alfred FL 33850 USA

We studied the effect of photoperiod on the growth of 'Hamlin' sweet orange trees budded on two trifoliate orange-type rootstocks and on the non-budded rootstock seedlings. Trees were grown in growth chambers at 28 °C/21 °C day/night, under three photoperiod treatments: long day (LD, 14 hour photoperiod), short day (SD, 10 hour) and SD-night interrupt (SD-NI, 10 hour + 1 hour night interrupt). Both budded and non-budded trees had reduced growth under SD conditions; however, the plants under SD-NI grew similar to those under LD. The root-to-shoot ratio was significantly influenced by photoperiod, and was greater in SD than LD or SD-NI for all trees, suggesting treatment-induced resource allocation changes. The total non-structural carbohydrate content was similar for SD and SD-NI trees, and was lower than for LD trees. These data support the hypothesis that greater growth under SD-NI conditions was not a carbohydrate effect, but was a phytochrome-mediated response.