ALTERNATE BEARING OF 'HASS' AVOCADO: CARBOHYDRATES, ARGININE AND PROLINE CONCENTRATION

A. López-Jiménez[1] and C. Lovatt[2]

[1] Colegio de Postgraduados, Programa de Fruticultura, Km. 36.5, Carretera. México- Texcoco, Código Postal 56230, Montecillo, Edo. México, México. lopezja@colpos.mx

[2] Department of Botany and Plant Sciences, University of California, Riverside, CA 92521-0124 carol.lovatt@ucr.edu

The underlying physiological basis by which an annual yield affects the yield of the year following remains unknown regarding avocado. Fruit removal experiments were conducted in commercial 'Hass' orchards in southern California to determine if the heavy on-crop reduces distribution of carbohydrates and N to buds and roots. The carbohydrate (starch), arginine and proline concentrations in apical buds and root apices were analyzed 2 and 4 months after each fruit removal date. Starch concentrations of both root apices and apical buds increased significantly from August to January for on- and off-crop trees. Consistently with previous reports, the increase in starch was greater for off-crop trees than for on-crop trees. This research provides evidence that the magnitude of the increase in starch is greater in apical buds than root apices for both on and off-crop trees, with buds of off-crop trees having 2.6-fold more starch than on-crop trees compared to only 1.8-fold more starch in roots off-crop trees than on-crop trees. The arginine and proline concentrations of apical buds were not influenced by fruit load, in contrast with root arginine concentrations. Late fruit removal increased the quantity of nitrogen stored as arginine in roots in February; however, this was not observed regarding proline.