

## **ALTERNATE BEARING OF THE 'HASS' AVOCADO: IDENTIFICATION OF THE MECHANISM BY WHICH FRUIT LOAD INFLUENCES RETURN BLOOM**

A. López-Jiménez<sup>1</sup> and C. Lovatt<sup>2</sup>

<sup>1</sup> Colegio de Postgraduados, Programa de Fruticultura, Km. 36.5, Carretera. México- Texcoco, Código Postal 56230, Montecillo, Edo. México, México. [lopezja@colpos.mx](mailto:lopezja@colpos.mx)

<sup>2</sup> Department of Botany and Plant Sciences, University of California, Riverside, CA 92521-0124  
carol.lovatt@ucr.edu

Alternate bearing (AB) in avocado causes that on-crop trees bear too many small fruit of low commercial value, and off-crop trees produce too few commercial large fruit. AB is initiated by climatic conditions, causing excessive flower or fruit abscission, which results in an off-crop; if conditions are good these cause an on-crop. Once initiated, fruit load influences on tree factors that have an impact on floral intensity. The mechanism through which the crop influences floral intensity and yield of the year following was determined. The on crop inhibited floral shoot development but increased the number of vegetative shoots and inactive buds in spring compared to the off-crop. Fruit removal in June increased summer and fall vegetative shoot growth and floral shoot number in spring, reducing vegetative shoot and inactive bud number. The contribution of spring, summer and fall shoots to return bloom and yield was quantified. Summer and fall shoots contributed 5- and 2.5 times more floral shoots to return bloom, respectively, than spring shoots. The importance of summer and fall shoots to return bloom was confirmed by removing these shoots from off-crop trees. During the following year, trees with only fall shoots removed produced a floral shoot number and yield similar to on-crop trees. Trees with both summer and fall shoots removed produced almost no return bloom or yield. The results suggest that the on-crop inhibits bud break of vegetative shoots in summer and fall and floral shoots in spring.