

DEVELOPMENT OF A PHENOLOGICAL MODEL FOR CALIFORNIA 'HASS' AVOCADO

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We currently have underway a long-term project to develop a phenological model for the "Hass¹ avocado in California. This project was initiated partly in response to California interest in the Whiley Australian avocado phenological model (Whiley *et al.*, 1988; Whiley and Wolstenholme, 1990). Planning began in December 1991, and the field trial was installed in spring 1992 at the U.C. South Coast Research and Extension Center in Irvine, California. This project utilizes the "Hass¹ Clonal Rootstock Trial conducted by M.L. Arpaia, G.S. Bender and G.W. Witney.

A randomized complete block design was selected using four clonal rootstocks, Duke 7, D9, Thomas and Topa Topa. Ten small rhizotrons (35 cm x 40 cm viewing area) per rootstock were installed to monitor root extension during the growing season. The northeast quadrant of the tree was selected and care was taken to ensure that each of the forty installations was uniform as to orientation and distance from the trunk. In addition, ten branches in the same quadrant were tagged to study the timing, duration and amount of vegetative growth. A bloom study was also conducted. We are currently in the process of analyzing the data collected from 1992.

In summary, we noted only one root flush in 1992, which occurred following flowering and vegetative growth. This is in contrast to the Whiley model, which reported two root flushes per year. This difference could be due to several factors including: a) different growing/environmental conditions existing between Queensland and California; and b) the 1992 root growth season followed an 'off yield and was competing against an upcoming 'on' yield (anticipated harvest date: April 1993).

On the basis of our preliminary 1992 observations, there is no apparent rootstock effect on the timing of flowering, root growth and vegetative flushing. Regardless of rootstock only 20% of the tagged branches in the vegetative study exhibited a fall flush. We will be examining this in further detail during the course of the project.

References:

- Whiley, A.W., J.B. Saranah, B.W. Cull and K.G. Pegg. 1988. Manage avocado tree growth cycles for productivity gains. *Queensland Agri. J.* Jan-Feb:29-36.
- Whiley, A.W. and B.N. Wolstenholme. 1990. Carbohydrate management in avocado trees for increased production. *S. African Avocado*

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