ENERGY BALANCE ASPECTS OF HASS AVOCADO FLOWERING AND YIELD EFFICIENCY

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Several trials done in Spain over the last 20 years are discussed.

Farré et al. (1889) in a 4 years study with adult trees showed that pruning away at bud break part of the vigorous terminal shoots before an "on" year reduced alternate cropping significantly, increasing tree efficiency.

Pérez de Oteyza et al. (1990), working with young trees, showed that the subterminal bud weight and therefore flower number was 3.5 times bigger on trees with a heavy bloom than with a medium bloom, but yields were similar.

In a third trial with adult trees Camero 1990 and Pérez de Oteyza et al (1995), compared light, medium and heavy pruning. They eliminated 63, 94 and 99 per cent of flowers by cutting three buds, half the previous year summer growth or the whole summer growth. In the first year the bee population was low. Nevertheless fruit set and tree efficiency were significantly higher with light pruning over no- pruned controls. In the second year flower weight and tree efficiency were similar for both treatments. With medium and heavy pruning had high flower weight but low efficiency. In the first year the heavy flowering on control trees delayed leaf emergence relative to light pruning. This may have reduced photosynthesis in the early summer.

For 4 years after this experiment fruit fall was studied weekly between fruit set (fruit diameter > 1 cm) and picking. The number of fallen fruits was quadraticaly related to fruits set. For that reason the number of picked fruits was independent of fruit set above a certain level, both in relation to tree size.

Apparently an excessive fruit set may retard leaf area expansion, induce an excessive fruit fall, drain energy resources, increasing alternate cropping and reduce average yields of the Hass avocados under Mediterranean conditions.