

# Water requirements of avocado in Israel. I. Tree and soil parameters

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## Abstract

The effect of different irrigation intervals on the avocado tree was tested during the years 1968–1974 in the northern coastal plain of Israel. The objectives of this experiment were: (a) to make measurements of soil and plant parameters to help understand mechanisms of response to irrigation; and (b) to establish the most suitable irrigation schedule for highest yields of export quality fruit.

The trial consisted of four irrigation treatments, at intervals of 7, 14, 21 and 28 days; the respective average annual water applications were 8890, 7450, 6680, and 5940 m<sup>3</sup>/ha. The cultivars Ettinger, Fuerte and Hass were tested in five replications in randomized blocks. Soil moisture consumption was estimated by using a neutron probe and tensiometers.

Most of the water consumption was from the upper 60-cm soil layer. With the 7-day interval, the calculated daily loss from the soil profile was greater throughout the whole irrigation season than with the other intervals.

The least salt accumulation occurred under the long interval treatments since the large amounts of water supplied at each irrigation leached the salts continuously.

Reduced intervals between irrigations resulted in increased trunk growth and increased tree size. It is concluded that with a 21-day interval the vegetative growth of producing trees was restricted and therefore relatively smaller trees with easier fruit picking and delayed orchard thinning were obtained.

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