Effects of irrigation and nitrogen on

Micronutrient Concentrations

in Hass avocado leaves

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Availability of soil moisture affects the utilization of soil manganese and boron by avocado trees, and high nitrogen fertilization reduces the trees' utilization of copper.

For a long-term test, Hass avocado trees on a Mexican seedling rootstock were planted in June, 1952, on land cleared of native brush. During the first year water was applied in small basins around the trees, and thereafter a permanent irrigation system provided water near each tree by means of a sprinkler-nozzle. During each of the first two years every tree received one-twelfth pound of nitrogen from calcium nitrate broadcast under the trees in two applications. Differential treatments were started in 1954, to evaluate the effects of three levels of irrigation and three levels of nitrogen fertilization on yield, fruit size and quality, tree growth, and chemical composition of leaves. Irrigation water was applied when soil suction—soil moisture tension—values reached 0.5, 1.0, and 10 bars—atmospheres of suction—at selected points in the root zone.

Each irrigation plot of 14 trees was divided into three subplots receiving differential nitrogen treatments. Six trees received a high level of nitrogen, based on leaf analysis, six received a low commercial level of nitrogen, and the remaining two were the check with their petioles, was taken from one side.

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