

**MINIMIZING FERTILIZER CONTAMINATION OF GROUND WATER BY FERTILIZER
AND IRRIGATION MANAGEMENT OF AVOCADOS**

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This project was initiated in May, 1990, and was designed to monitor the effects of different fertilization regimes on the leaching of nitrogen below the rootzone. Two fertilizer amounts, 1.6 and 0.8 lb N/tree/yr, are being applied to the trees at three time intervals (weekly, monthly, and semiannually), for a total of six treatments. Differential fertilizer treatments were initiated in May, 1991. Soil water samples (from 5-ft depth) are collected weekly and analyzed for the concentration of nitrate-N.

A second component of the project involves monitoring the effect of different irrigation treatments on the growth and productivity of avocado trees. Three irrigation treatments (60%, 100%, and 150% ET₀) were started in July, 1991. Weekly determinations of soil water content are made using tensiometers and neutron probe.

Information collected on the trees in both plots includes: tissue nutrient levels, fruit yield, and tree growth.

The results of the nitrogen leaching experiment to date indicate that the concentration of nitrate in the soil water is much lower for the trees fertilized on a weekly basis than for the other trees. No difference in the tissue nitrogen levels has been detected yet, which is not unexpected as the leaf samples were collected only 4 months after differential fertilizer treatments were started.

In the irrigation portion of the trial, information is being collected on the correlation between tensiometer readings and neutron probe readings at several depths in the soil and at several distances from the sprinkler. It is too early to detect differences in tree growth or yield as a result of the different water amounts.

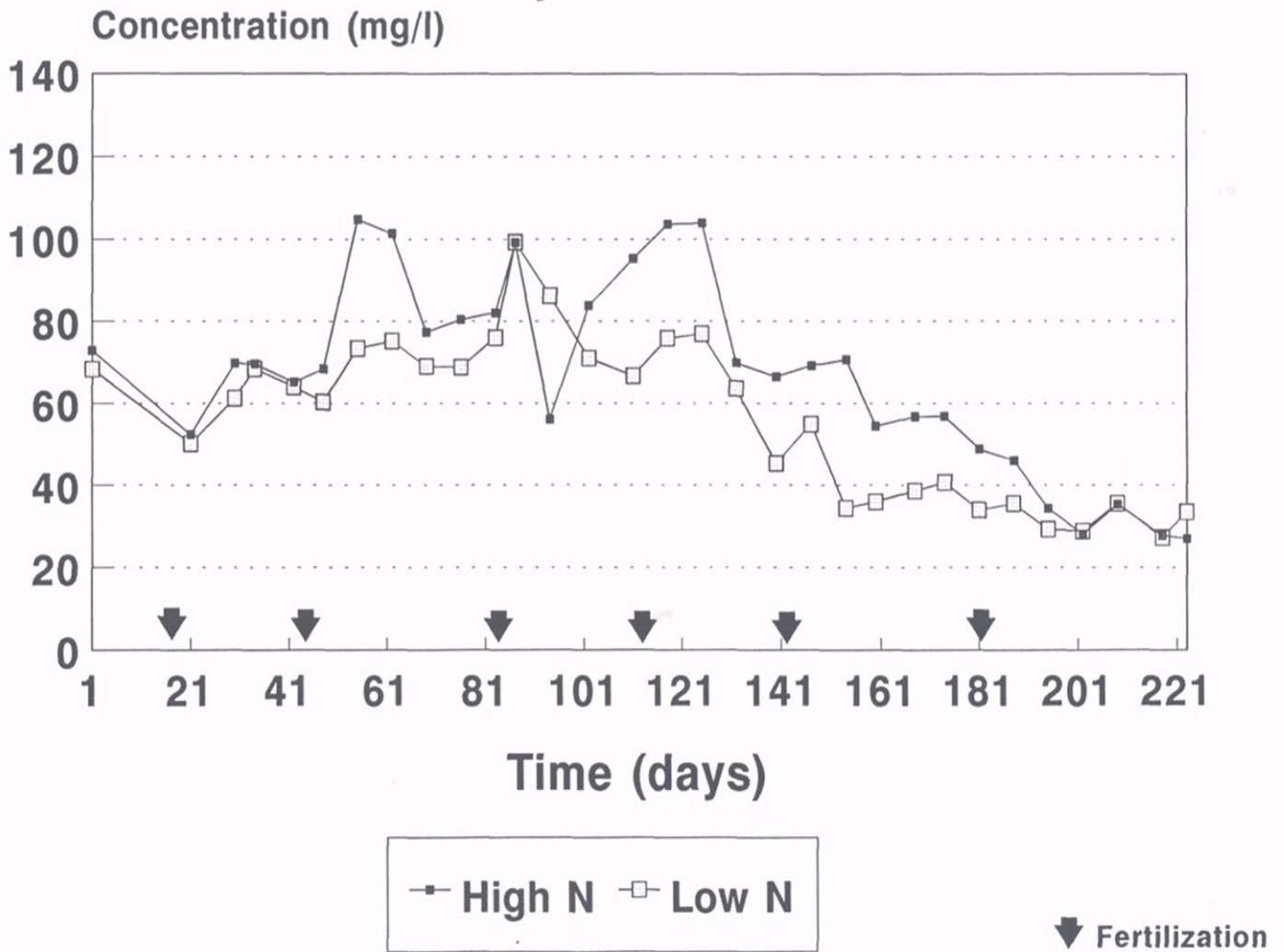
Table 1. 1991 Harvest Data Summary

Treatment Number	Average Weight per Tree (kg)	Average Number per Tree	Average Weight per Fruit (g/fruit)
1	81.86±24.1	361±114	228.91±23.11
2	65.28±37.22	279±175	247.02±30.96
3	64.60±39.99	271±165	246.60±28.85
4	64.93±30.56	296±137	223.01±27.36
5	67.86±25.86	319±140	217.49±34.47
6	52.68±40.83	243±197	229.49±41.84

Numbers are average±1 standard deviation

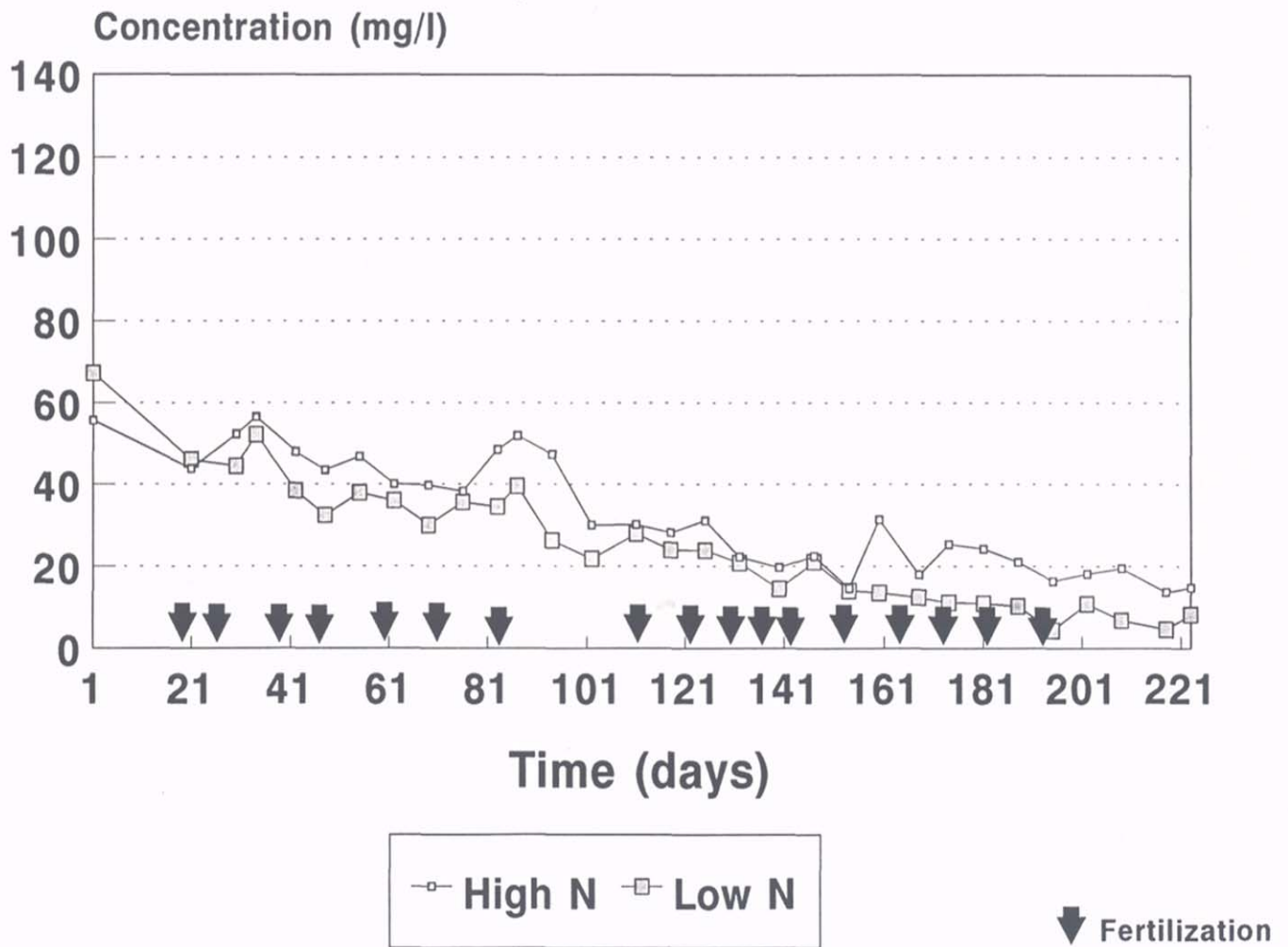
Nitrate-N Concentration in Soil Water Thornhill Ranch, Camarillo

Monthly Fertilization



Nitrate-N Concentration in Soil Water Thornhill Ranch, Camarillo

Weekly Fertilization



Nitrate-N Concentration in Soil Water Thornhill Ranch, Camarillo

Semiannual Fertilization

