Relationship between Several Parameters and Avocado Production

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Benefit to the Industry

The project will provide information from several thousands of avocado leaf samples done in the Western Galilee, Israel during the last 20 years. The accepted nutritional critical levels in the leaves and water and fertilizer amounts will be checked and adjusted according to the results. All parameters will be correlated with the annual production.

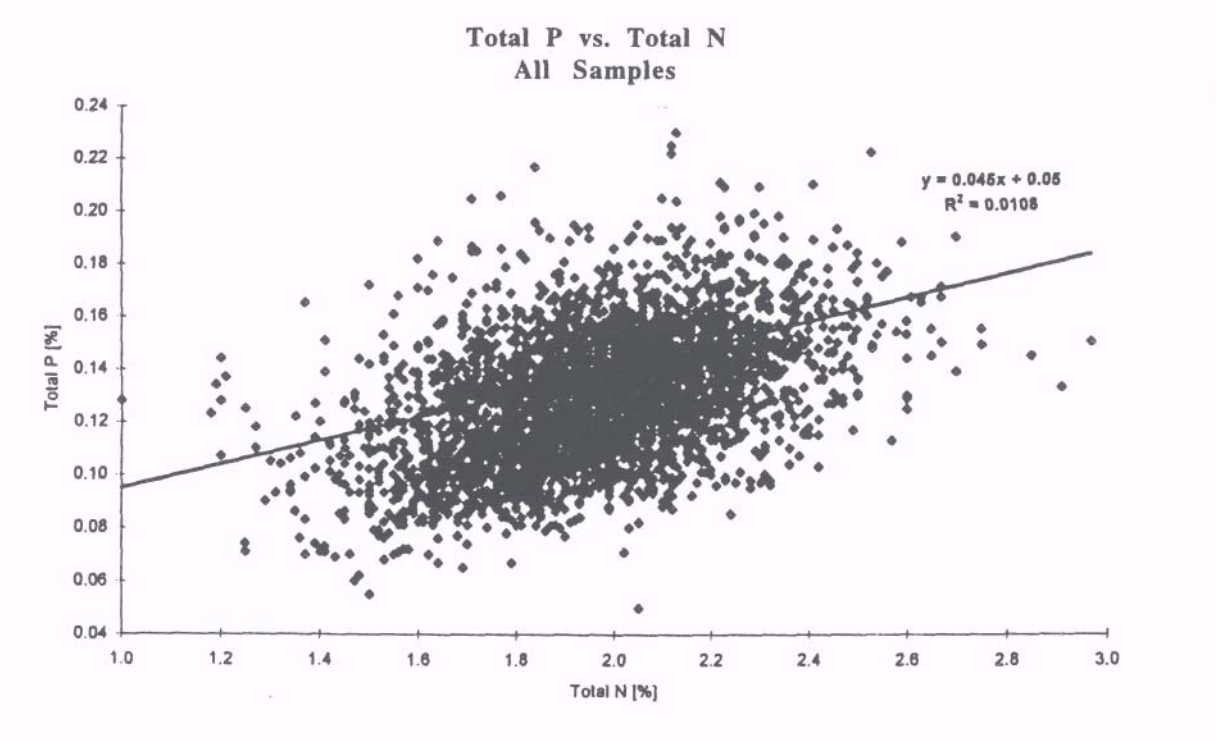
Objectives

To find out the relationships between avocado yields and certain variables related to irrigation and nutrition in order to improve these practices in the plantations.

Summary

The regional extension service laboratory is running annually hundreds of avocado leaf analyses. Each plot is sampled separately and its soil type, cultivar, rootstock, irrigation system, water amounts, fertilizer type and amount and productivity is recorded. The analyses included 3677 samples.

Preliminary results show that the relationship between leaf N and yield fits the bell shaped curve. Very low or very high N levels are followed by low yields. Increased leaf levels of K and P are also not followed by increased production. A positive relationship was established between N and P. At this stage it seems that increasing amounts of N,P,K fertilizers is not recommended. Reduced water amounts below 500 mm in addition to 600 mm of rain, reduce production significantly. However, increasing water amount above 900 mm/yr does not give any benefit. These results should be verified and more parameters will be analysed during the following years.


Total P vs. Total N
All Samples
y = 0.045x + 0.05
R² = 0.0108
Total P [%]
Total N [%]
0.24
0.22
0.20
0.18
0.16
0.14
0.12
0.10
0.08
0.06
0.04
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0