

5th INTERNATIONAL SYMPOSIUM ON OLIVE GROWING



27 September
2 October 2004
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RELATIONSHIP BETWEEN LEAF N CONCENTRATIONS AND OLIVE YIELDS

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Within an olive orchard there is a huge productivity difference among individual trees. Also, the alternate bearing pattern of this species is well documented. These aspects, as well as other like pruning, make difficult the interpretation of plant analysis results. In this work, we made a simple exercise based upon the results from 48 individual-trees for two consecutive years. Groups of 12 similar young trees were submitted to four different soil management systems, influencing tree nutritional status and productivity. We consider the olive yields in Dec 2002 and Dec 2003, recorded per tree, and corresponding leaf analysis (Jan 2003 and Jan 2004). Mean olive yields in Dec 02, an "off" year, was 2.8 kg/tree and mean leaf N concentration in Jan 03 was 16.2 g kg⁻¹. In Dec 03, an "on" year, mean olive yields was 8.2 kg/tree and mean leaf N concentration in Jan 04 was 19.3 g kg⁻¹. The relationship between leaf N concentrations in Jan 03 and olive yields in Dec 02 showed a slight linear increase. In the second year there was no significant linear relationship between leaf N and olive yield, although a fifth of the most productive trees had a high mean leaf N content of 19.6 g kg⁻¹. When both the years' data are considered, a typical Mitscherlich type curve is found. Apparently, these are peaceful results: the most productive trees have higher leaf N contents. However, the main reason for the difference in tree production between Dec 02 and Dec 03 would be the alternate bearing, and the differences in leaf N concentration between the years would be caused by spring pruning in 03. Whilst the relationship between leaf N concentration in Jan 03 and olive yields in Dec 03, would be of the utmost importance for fertiliser management purposes, such relationship was not found. Our results suggest some caution should be taken when using plant analysis to support fertiliser recommendation on olive orchards. It seems there is a need for further work on the subject.