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## Studies on soils fertility and tree nutritional status in chestnut groves

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Chestnut tree is the major crop of the northern highlands of Portugal. Despite the stressful situation caused by some phytosanitary problems, good nut prices have led farmers to invest in chestnut groves. Current fertilization strategies consist in liming and NPK fertilizers rich in phosphorus, based on the fact that soils are usually acidic and poor in phosphorus. This work reports results of a study in which leaf and soil samples were collected in 80 chestnut orchards. The study showed a predominance of acid and very acid soils (73%), low levels of phosphorus (68%) and high levels of potassium (87%). The content of organic matter was low to medium (80%). However, the data obtained from leaf analysis does not seem to be in agreement with the data obtained from soil analysis. Leaf nitrogen concentration is below the lower limit of the sufficiency in 47% of the samples. To soils with very low phosphorus levels do not seem correspond trees with so big nutritional problem, since only 15% of the orchards revealed leaf phosphorus concentration below the adequate range. Although soils show high potassium levels, plant nutritional status does not seem to be so good, since 31% of the samples showed leaf potassium levels below the adequate range. The high acidity seems to be affecting leaf calcium levels, as 52% of the samples showed low leaf calcium concentration. Thus, much still seems to have to be done in the region to adjust the fertilization strategy to the actual needs of the plants.

### Biography

Margarida Arrobas has a bachelor degree in Agronomy, a MSc Degree in Crop Production and a PhD in Edaphic and Environmental Sciences. She has been a lecturer at the Polytechnic Institute of Bragança (IPB) since 1986. She teaches several curricular units in the scope of Soil Fertility and Fertilizers and Plant Nutrition. She guides several MSc and PhD students and also several foreign students in laboratory internship. She is a member of the Executive Committee of the Mountain Research Center of the Polytechnic Institute of Bragança. She is the coordinator of the Analytical Chemistry Unit - Laboratory of Soils and Plant Analysis of IPB. She is author/co-author of more than 100 published scientific and technical.

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