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## **New approach to chestnut fertilization based on the characterization of the nutritional status of chestnut orchards and studies on crop response to liming and fertilization**

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### **Abstract**

Chestnut tree has been gaining economic importance in mountainous regions of the Mediterranean basin due to the increase in the price of the nut. However, fertilization programs for this crop are based on general information on soil fertility without taking into account the plant since nutritional studies on this species are practically non-existent. In the north of Portugal, for example, companies selling fertilizers are recommending fertilization based on the application of lime (based on the fact that pH is low) and phosphorus (based on the fact that soils presented low levels of phosphorus when determined by the Egner-Rhiem method). A recent characterization of the soils where the chestnut trees grow, based on 1121 soil samples, and the assessment of the nutritional status of the orchards, based on 278 leaf samples, as well as the conduction of field trials with nitrogen, phosphorus, potassium, boron and lime advised for quite different fertilization proposals. Thus, chestnut trees showed very low nitrogen nutritional status whereas phosphorus levels are not problematic. Field trials have shown that boron and potassium appeared as important nutrients in the annual management of the tree crop nutritional status. Chestnut tree seems to be also a plant tolerant to the acidity of the soil and with low need for lime application.