

## **Decreasing Nitrogen Footprint of Vineyard Production**

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### **Abstract**

Nitrogen (N) is a key nutrient in crop production and crucial in vineyard management. When excessive reactive N is present in the environment, it may not only reduce crop production and increase pests and diseases incidence but can also be a serious environmental and human health problem. Agriculture is one of the more important activities where action can and must be taken to promote N losses mitigation and create awareness about the impact of excessive N inputs. The efficient use of N as fertilizer was tested in several field experiments to produce wine of low N-footprint. Conventional fertilization practices in each farm served as control and three other rates of N inputs were applied to vineyards located in two different regions in Portugal (Viseu and Évora). Innovative soil probes were set up in the field, at two different depths, to monitor the nitrate leaching potential risks. Several samples of soil, plants and fruits were collected for chemical analysis along the growing cycle of each vineyard farm. At the harvest time, grapes of each treatment were collected, weighted and vinified to produce a type of wine per treatment. Different N fertilizer management practices applied in the field of each farmer found no significant differences in fresh grapes production yield and quality. Wine of low nitrogen footprint were produced with a very good quality and taste.

**Keywords:** agriculture, nitrogen footprint, vineyards, wine

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