

## Influence of the agronomic management on the aroma of Riesling wines

Nitrogen fertilisation of grapevines is known to influence not only plant development and production yield, but also yeast assimilable nitrogen (YAN). This parameter is related to the growth of yeast during fermentation and the quality of wines, since nitrogen is involved in the biochemical production of the fermentation aroma. The work compared three agronomic managements of a Riesling vineyard on the concentration of YAN in grape must and the volatile profile of the resulting wines: a conventional approach and two organic viticulture protocols. The study started six years after the conversion to organic viticulture of the vineyard. Musts and wines were obtained from five field replicates for each management over three consecutive vintages. Grapes were picked the same day each harvest and vinified under standard conditions. The must was analysed for the main quality control parameters and the volatile profile of wine was determined at the end of the alcoholic fermentation by GC-MS/MS. The differences found on the quality composition of wines were technologically irrelevant with the exception of YAN, which resulted constantly poorer over time in one of the organic systems. Furthermore, this management tended to produce a lower concentration of acetate esters. In this respect, it has been found a correlation between the total acetate esters in wine and the YAN present in grape musts within each vintage. With regard to terpenoids, linalool and alpha-terpineol tended to be higher in one of the organic managements. Nevertheless, the multivariate analysis did not separate wines on the basis of the aroma profile and the differences observed between managements on the volatiles varied among years. The results support that the aroma of wines produced from organic viticulture can be comparable to those obtained from a conventional farming system, although it seems essential to manage properly vine nutrition to ensure an appropriate YAN content in grape musts.

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