

Should water supply by irrigation be soon a technique to manage aromatic potential of Colombard in South-Western France Gascony vineyard?

T. Dufourcq¹, F. Lopez¹, B. Mille², R. Schneider³, X. Delpuech⁴

¹*Institut Français de la Vigne et du vin pôle Sud-ouest, Caussens, France*

²*Institut Français de la Vigne et du vin pôle Sud-ouest, Lisle/Tarn, France*

³*Institut Français de la Vigne et du vin pôle Rhone-Méditerranée, UMT Qualinnov, Gruissan, France*

⁴*Institut Français de la Vigne et du vin pôle Rhone-Méditerranée, Nîmes, France*

The aim of this work is to sustain the aromatic typicality of *Vitis vinifera* Colombard cv., taking into account that the aroma expression of this white Gascony wine is its main issue to market access. The Gascony vineyard in the South-western France, undergoes a temperate oceanic climate with regular but heterogeneous rainfalls in summer. It may in the future face hotter temperatures, increase of evapotranspiration and less rainfalls. This experiment used irrigation as a tool to manage the vine water status and finally influence the content of varietal thiols in Colombard wines. The study took place from 2010 to 2014 on an experimental plot of 300 grapevines where irrigation was led by drip system. Two different strategies of deficit irrigation were tested each year during pre and post veraison periods in comparison with a rainfed control. Vine water status was rated by the measure of stem water potential on grapevines during season, by the estimation of soil water content with WaLIS soil water balance model, and by the analysis of $\delta^{13}\text{C}$ in sugar at harvest. The grapes were vinified at pilot scale under reductive standardized conditions to maximize their varietal thiols expression. As results, we observed a strong variability in the summer rainfalls during the studied vintages and it was not possible to compare directly the rainfed and drip irrigation grapevines production. Soil water availability simulated with WaLIS model showed significant correlation with stem water potential measurements on the experimental field. Depending on the rainfalls variability, the irrigation water supply and the grape maturity process, we generated different classes of quality: early or late harvest date associated with modelled soil water status during veraison to harvest period. We showed that, to significantly produce more varietal thiols in Colombard wines, late harvest date combined with a comfortable water availability during veraison to harvest was the best vineyard management choice. These results gave some references in order to conduct a vineyard for white aromatic wines production. The knowledge of soil water availability in viticulture is one the main variable to deal with. It may be easily reachable with modelling tool. Local wine sector should master this fitting device in climate changing context.