



Influence of climate variability on grape production and wine quality in the Rias Baixas, north-western Spain

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Climate variability has an important role on grape production and wine quality. Wine grapes require a very specific set of climatic conditions; they need a mean temperature of between 12°C and 22°C during the growing season. The local and regional atmospheric changes that result from global climate change could have a significant effect on grapevine phenology, grape production and wine quality.

For one of the main areas protected under the denomination of origin Rías Baixas, in Galicia, Spain, we explore the relationships among grape production, wine quality, rainfall and temperature for the period 1987 - 2005. The influence of climatic variability was analysed in terms of the relationship between the productivity of the grapevines and the main meteorological teleconnection patterns affecting the North Atlantic region. We consider three bioclimatic indices for viticultural zoning, Winkler and Huglin, and the hydrothermic index of Branas, Bernon and Levadoux. While significant trends were identified in the Winkler and Huglin indices, there were no significant trends in the Branas, Bernon and Levadoux index, for the period 1958 - 2005.

In addition, we had also investigate the daily variation in atmospheric circulation through the study of the influence of circulation weather types derived using an automated daily classification.

For the coming decades, using the scenario A1B evaluated by the regional climate models used in the ENSEMBLES project, the positive trends of Winkler and Huglin indices continue, while Branas, Bernon and Levadoux implies a negative trend. In all cases, these trends induce significant changes in the viticulture of the region.

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