

North Atlantic atmospheric oscillation affects the quality of cava

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The years in which there is presence of the Azores anticyclone, there is a drop in the quality of cava. Credit: Cyclonebill

The quality of cava depends on technical factors such as fermentation, ageing and bottling processes, which usually remain stable for years. Researchers from Malaga University (Spain) have discovered that oscillations in the North Atlantic -that affects European climate- also have an effect on the attributes of this sparkling wine. The years in

which there is presence of the Azores anticyclone, there is a drop in the quality of cava.

The researchers Raimundo Real and José Carlos Báez, from the University of Malaga, have analysed the possible effects of the North Atlantic oscillation, known in scientific literature as NAO, on the quality of Spanish [cava](#) in a study published in the *International Journal of Biometeorology*.

The NAO is a microclimate index that reflects the atmospheric pressure difference between the Azores and Iceland, so the presence of an anticyclone in the Azores is positive and it is negative if there are areas of low pressure in that same area. This [pressure difference](#) that oscillates over time, has a direct effect on the weather conditions in the Iberian Peninsula.

"We discovered there was a connection between the NAO and the quality of cava between 1970 and 2008. The existence of positive NAO values during the months of March to August, when the grape is developing and maturing, reduced the capacity of obtaining top quality cava," Raimundo Real told SINC.

The North Atlantic oscillation plays a major role in weather fluctuations in the hemisphere. The phenomenon affects the climate in Europe and the Iberian Peninsula. It is related to temperature and rain variations in cava producing regions, which affects the physiological processes during the grape's period of maturity.

"The likelihood of obtaining a top quality cava is higher when the average value of the NAO is negative. This makes the average temperature in the cava region drop and the quality improves," the expert explained.

Inter-annual variations in the quality of cava are determined according to the different aromas and the amount of sugar in the grape. These qualities of the plant in turn, in one area of production, depend on [weather conditions](#), such as cloud cover, temperature and rainfall to which the plant is subjected, particularly during the grape period (March to September).

Predicting the years of top-quality cava

The climate in the Atlantic Ocean, the Mediterranean basin and the surrounding continents shows considerable weather variability.

"During half of the years we analysed, the NAO values are intermediate and do not clearly affect the quality of the cava, but in the other half, the values are more extreme and lead to clearly favourable or unfavourable conditions for obtaining top-quality," says Real.

The information for 2012 pointed towards an 80% likelihood of obtaining a top-quality cava, while this likelihood is around 45% for 2013, always according to the model obtained.

The model correctly predicted the 80% for the clearly favourable years for obtaining top-quality cava and the 70% likelihood of the clearly unfavourable years.

The NAO value between March and August can be calculated in the actual wine harvest time, while the quality of the cava can only be valued two years later.

"This is important for being able to predict years of top-quality cava production, as well as for exploring the possible effects and variations of climate change on the quality," he concluded.

More information: Real, Raimundo y Báez, José Carlos.. "The North Atlantic Oscillation affects the quality of Cava (Spanish sparkling wine)". *International Journal of Biometeorology* 57: 493-496. 2013. [DOI: 10.1007/s00484-012-0573-3](https://doi.org/10.1007/s00484-012-0573-3).

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