Wine Australia

Incubator Initiative 2019

Research area: VITICULTURE: CLIMATE ADAPTATION

Regional cluster: GREATER VICTORIA/MURRAY VALLEY

What is the genetic and phenotypic basis of heat tolerance in different species of *Vitis vinifera*: why does Nero D'Avola appear more heat tolerant than, for example, Cabernet Sauvignon?

Background

Heatwaves during January 2019 have been challenging for many vignerons across Australia. Given the likely increase in frequency and severity of heatwaves in the future, vignerons will need to consider which varieties are better suited to changing climatic conditions. While we have some understanding of which grape varieties are suited to particular growing climates, anecdotal evidence suggests that some varieties have better heat tolerance than others during heatwave events (temperatures >40°C for a number of days). Understanding why some grape varieties are able tolerate heat better than others is important. Is this a function of genetics or how the vines are managed during these heatwave events? This project aims to understand the genetic and phenotypic basis of heat tolerance in different species of *Vitis vinifera*.

Why is it important?

Climate change is influencing many aspects of grapegrowing and winemaking. These include earlier harvest dates, more compressed vintages, sugar and flavour imbalances, increases in stuck or sluggish ferments and potentially higher-alcohol wines. Also, vignerons in all regions across Australia are experiencing heatwaves, which impact greatly on canopy and grape cluster health. Leaf and grape scorching results in both physical and chemical damage to grape clusters which, in addition to the primary impact, creates entry points for pathogens such as Botrytis. Apart from the potentially negative impacts on wine flavour and aroma compounds, wineries often downgrade sunburnt-affected fruit, which may result in a reduced financial return to the grapegrower.

What would success look like?

A better understanding of the genetic and phenotypic basis of heat tolerance in grapevines would provide us with better information to manage grapevines in current vineyards, as well as identifying alternative varieties we should be looking to adopt, or develop, for future climates in Australia.

For further information and to develop an application please contact:

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