

PRELIMINARY RESULTS OF THE EFFECT OF POST VERAISON PRE-PRUNING ON GRAPE AND WINE COMPOSITION IN TANNAT AND MERLOT

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Abstract:

Context and purpose of the study - The seasonal's climatic conditions determine the composition of grapes at harvest as they affect the vine's physiology and development. High temperatures during the grape ripening period cause a high accumulation of sugars and degradation of fruit acidity, and alter the synthesis of polyphenols. Therefore, some vineyard management can be applied in order to modify grapevine impact on climate variability. One example is the pre-pruning at the beginning of grape ripening, which can delay the ripening period and modify the composition of the grapes at harvest. This work aims to evaluate the pre-pruning field technique on yield components and alcohol content in wines of Tannat and Merlot varieties.

Material and methods - In a commercial vineyard located in Southern Uruguay (Las Piedras, Canelones), the comparison of a post veraison pre pruning (PVPP) and controlled (C) vines of Tannat and Merlot were evaluated during the 2021 vintage. The PVPP consisted of a 30% reduction in leaf area when grapes reached 15° Brix. Three repetitions of C and PVPP plots of 84 vines per variety were evaluated. The agronomic variables measured were fruit production per plant, pruning weight per plant, physiological indices such as Ravaz Index, and grape composition at harvest was determined. For each C and PVPP, 54 kg of grapes was destined to the elaboration of experimental wines (traditional method) to assess the effect of this technique in wine composition.

Results - PVPP did not change yield components in the two varieties evaluated. However, Ravaz Index showed higher values in PVPP, more important in Merlot (12 and 6.6 in PVPP and C respectively) than Tannat (13.7 and 10.2 in PVPP and C respectively), with a tendency towards imbalance. At harvest, Tannat obtained 11 g/L of soluble solids and 2.25 g/L H₂SO₄ of acidity more than Merlot, showing the varietal differences for the same growing conditions. In Tannat, significant differences were obtained between the PVPP and C in soluble solids (223 g/L and 210 g/L, respectively), while in Merlot the significant differences were in final acidity (2.7 g/l H₂SO₄ and 3.0 g/l H₂SO₄ in PVPP and C, respectively).

In Tannat's wines, PVPP resulted a significant decrease in alcohol (12.4% v/v) compared to C (13.2% v/v). PVPP caused wines with lower color intensity (13.4) compared to C (14.6) and also lower tannin content (45.1 and 54 respectively). Concerning the Merlot wines, a significant decrease in alcohol content was observed in the PVPP (11.9 % v/v) compared to C (12.5 % v/v). These results allow us to question what is happening with the vine secondary metabolism and how the seasonal climate could be affect ripening in conjunction with the pre-pruning technique.

Keywords: climate change, Tannat, Merlot, canopy management, Uruguay