

RIPENING BEHAVIOUR AND GRAPE MUST QUALITY OF ELEVEN WHITE RESISTANT VARIETIES IN TRENTINO

Authors: Tomas Roman^{1*}, Nicola Cappello¹, Maurizio Bottura¹, Sergio Moser, Marco Stefanini¹, Mario Malacarne¹

¹Fondazione Edmund Mach, Via E. Mach n.1, 38010, San Michele all'Adige, Italia.

*Corresponding author: tomas.roman@fmach.it

Abstract:

Context and purpose of the study -. In a situation of uncertainty towards the overall effect of climate change and the reduction of pesticide utilization on quality, the wine sector needs to maintain the profitability of producers, which inexorably depends on ensuring the quality of grapes and wines. Among the various alternatives that can be adopted, hybrid varieties carrying resistance genes are currently gaining the attention of researchers and producers. Some of them are already a reality and are included in the national catalogue of some countries, selected by research institutes all over Europe. Although the area planted is still limited, the relevance of resistant varieties is increasing, partly because they can be also a short-term solution in areas with high fungal pressure, for their use where pesticides conflict with sensitive inhabited areas or where the slope of cultivation makes mechanisation difficult. Even so, the estimated 70% reduction in fungal treatments that their use could bring, adds an important economic variable to the equation. The introduction of resistant genotypes in the wine chain still has to overcome some challenges: commercial, regulatory (e.g. their authorisation in the Protected Designations of Origin) or technical, such as the adaptive response of the variety to different environments or the organoleptic and qualitative features of its wines. In view to adopt resistant varieties as a strategy, there is a clear need to analyse the adaptability of the different genotypes *in situ*. The purpose of the study was to monitor the ripening behaviour of eleven resistant varieties grown in Trentino, an alpine production area in the north-east of Italy, and the main quality parameters of grapes at harvest, comparing results to those of Chardonnay, the most cultivated variety in Trentino.

Material and methods – The main ripening parameters of twelve white varieties (Chardonnay, Bronner, Solaris, Johanniter, Sauvignier Gris, Palma, Charvir, Valnosia, Muscaris, V2, V10 and V11) were weekly monitored for 5 consecutive years (2016-2021) during the last month before harvest. Vines were grown in two experimental plots located in the floor of the Adige valley: Navicello (220 m above sea level) and Girelli (195 m), managed with vertical shoot positioned trellis system on alluvial soils. Grapes were harvested at technological maturity for the production of white wine ensuring, at least, 12 % v/v.

Results – Depending on the variety and vintage, the range of soluble solids varied between 17.5 and 27.5 °Brix, parameter for which some varieties, like Muscaris, Sauvignier Gris and V1, always exceeded that of Chardonnay at harvest. pH ranged from below 2.8 to over 3.6 units, being Muscaris, Valnosia and Johanniter those with the highest pH and Charvir, Palma and V2 normally placed under the median value of Chardonnay. The total acidity (expressed as tartaric acid) varied from a concentration below 5 g/L up to exceed 10 g/L, however, with different acidic profiles. In general, the concentration of malic acid of resistant varieties was lower respect to Chardonnay, and tartaric acid higher. At this regard, some phenotypes showed an acidity degradation curve slower than Chardonnay during the last stages of ripening, like V11, Bronner or Palma. Mean differences on the harvest day between the earliest (Solaris) and the latest (V10) exceeded 40 days.

Keywords: Resistant varieties, ripening, must quality, adaptation