

# THE LABORATORY AT WINERY AS ADDED VALUE CONTRIBUTION

The oenological laboratory within a winery has gone from being an element with little impact on the production and design of a wine to being a support element for the oenologist in making decisions throughout the entire winemaking process. Some of these decisions must be addressed immediately and are not compatible with the outsourcing of the service: optimization of the technological maturity point in harvest, fermentation pump-overs, sulfite corrections, prevention of faults (cases), ... The application of the necessary actions to correct the problems before they become complicated beyond the point of irreversibility is a factor that alone justifies the need to maintain a minimum analytical capacity.



The laboratory becomes an essential element when the size of the winery forces to optimize processes and resources to adjust production capacity, quality and superior complexity when working on a greater number of references. The data obtained in the analysis allows us to obtain advance information on the possible evolution of winemaking, helping to prevent risks, adjusting reaction times and facilitating management decisions.

Just a few years ago, the only parameters considered were total sugar (to determine the probable alcoholic strength), pH (to assess the degree of acidity) and those related to the control of the fermentation process (nitrogen and sulphites). For this, methods of a certain operational complexity were used (and continue to be used in many cases): distillations, acid-base titrations, chromatographies... Currently, there are a good number of highly accurate automated analytical methods that widens the range of parameters to be considered and that allow the winemaker to adjust the process characteristics in a much more precise way to obtain the desired type of wine.

Automatic oenological analysis platforms make it possible to easily process a good number of samples simultaneously, addressing complete and complex analysis profiles, adjusted to each stage of the process. In addition, they incorporate technical solutions that reduce the handling of the samples (and therefore the risk of introducing interferents that alter the result), the time required to obtain a result and the general management of the analysis process.

This greater ease of access allows specific parameters of each stage to be incorporated into the laboratory routine that were previously only considered at the research level. For example, the analysis of gluconic acid in the reception of grapes, as an indicator of health status, allows a better classification of each batch during the harvest or the determination of potassium as a technical parameter when harvesting (an over-ripening of the grape increases potassium levels in the must and contributes to reducing the total acidity and, therefore, the evaluation of the grape) are examples of highly specific parameters that until recently were only determined in highly complex or reference laboratories, but which Now it can be done in a simple way in the winery itself and that allows adjusting, at the same moment of reception of the grape or wine, the price paid to the quality received. If, in addition, it is possible to perform those parameters of interest on a single analytical platform with the degree of precision required for decision-making processes, a large part of the complexity, associated with the implementation of the laboratory which limits access to small wineries, is eliminated.

Another important factor to take into account is the ability provided by the laboratory installed in the winery to act on the existing production process immediately. Throughout the winemaking process, certain parameters provide accurate and real-time information on the actions to be carried out, especially with regard to the use of additives (sulphites, tartaric). Knowing precisely the value of certain parameters allows us to adjust the quantities to be used appropriately and ensures

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that, neither by excess nor by default, the process is compromised, which in a very short time implies an improvement in productive costs.

The automation of the analysis process, together with adequate documentation of the results and the capacity for review and traceability (something that is also a requirement in any food industry) becomes an opportunity for the winemaker to systematically review the results obtained throughout the along historical data series and, based on them, develop specific R & D & i projects based on them both in regard to the selection of varieties or cultivation conditions and the implementation of innovations in the process of production.

Finally, the last factor to consider is that of the investment itself that involves having a minimally equipped laboratory with trained personnel to allow these analyzes to be carried out, as opposed to the alternative of sending samples to a reference laboratory. The equipment options are multiple and, depending on the capacity of the winery and your investment capacity, you can opt for various levels of complexity that range from simple manual systems (for example, a photometer, together with an NIR alcoholimeter and a pH -meter), going through automatic analyzers with moderate processing capacity (up to 200 analysis/hour), to large automatic systems (more than 400 analysis/hour) and/or very specific technologies (HPLC, FT-NIR, Atomic Absorption, Gas Chromatography,...). This investment in equipment, facilities and personnel is the one that must be contrasted with the cost of the determinations that are expected to be carried out in a reference laboratory in order to be able to adequately adjust to the productive dimensions of the winery. And in most cases, a simple calculation confirms that the investment level is much lower than that of other production equipment in the winery.

Sinatech is committed to robust oenological analysis platforms, which incorporate the most current and advanced technologies to provide optimal results. We offer the laboratory the complete range of parameters to cover the most relevant analytical needs throughout each stage of vinification, optimized for the Dionysos system, the most advanced oenological analyzer on the market.

For more than 10 years, Sinatech's commitment to the winemaker has been to work side by side to provide the most appropriate analytical solutions for the control and monitoring of the winemaking process. Automated methods easily adaptable to any work routine, with a personalized consulting team to help you quickly and smoothly implement.

**Sinatech: TeamWork**