

Sustainable viticulture: how to evaluate and record it on a wine estate

>>> Sustainable viticulture is being developed to meet the challenges of current societal expectations. Numerous assessment tools have emerged in recent years. The IDEA method (Indicateurs de Durabilité des Exploitations Agricoles or Farm Sustainability Indicators) is one of these assessment tools. Using the 4th version of IDEA (IDEA4), this article assesses the overall performance (level of sustainability) of a wine estate in Bordeaux in partnership with the company Ekylibre. <<<



Figure 2. Agroforestry intra-parcel of the vineyard.

Based on the principle “if you can measure it, you can manage it”, the IDEA4 method allows winegrowers to identify the best way to move towards sustainability in a practical way. Indeed, IDEA4 determines the overall performance of their agricultural and viticultural activities by assessing the sustainability of their vineyard management from an agro-ecological, socio-territorial and economical point of view. The IDEA4 method is also a tool for assessing Corporate Social Responsibility for wine estates.

■ The IDEA4 method: a decision-making tool to support management when shifting towards sustainability

The 4th version of the IDEA method (IDEA4) is composed of 53 indicators¹. It is used to conduct a diagnosis via two complementary reading grid approaches: one based on the three dimensions of sustainability (Figure 1) and the other based on the five properties of sustainable agricultural systems (autonomy, ability to produce and reproduce goods and services, global responsibility, robustness and territorial embeddedness).

a survey/interview with the winegrower which lasts approximately three hours. From the data collected, a score is calculated for each of the 53 indicators and the final sustainability score of the wine estate is obtained in an aggregation process². The analysis based on these scores identifies possible ways to improve sustainability.

■ Example of the results of an IDEA4 diagnosis for a wine-producing farm

The case study focuses on a 30-ha organic-certified wine-producing farm (of which 5 ha is dedicated to intra-parcel agroforestry) in Bordeaux (Figure 2). Since establishing his business in 1993, biodiversity and soil fertility have become central to the winemaker’s vineyard management approach, as can be seen in the 2 km of hedges on the farm and his decision to grass the inter-row areas (sowing or spontaneous grassing). The farm has 12 Human Work Units and vinifies its wines in its own cellar.

The IDEA4 diagnosis uses data from 2019. The first results comprise the scores obtained by the wine estate using the approach based on the three dimensions of sustainable development (Figure 3).

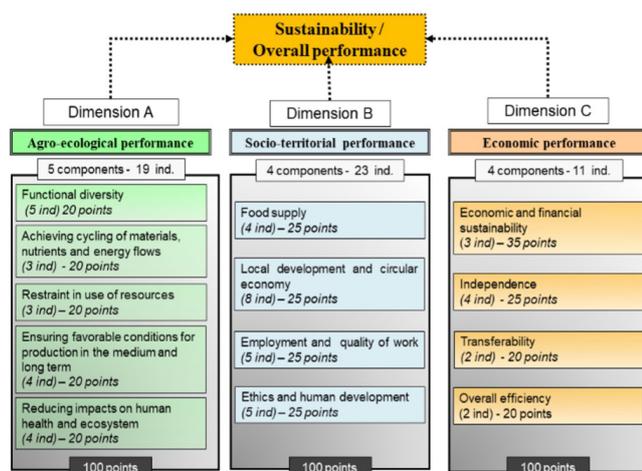


Figure 1. The 3 dimensions and 13 components of the evaluation structure of wine estate sustainability applying the IDEA4 method.

IDEA4 can be applied to the main agricultural production systems (viticulture, as well as arable crops, livestock, arboriculture and market gardening, etc.). It not only highlights the differences in sustainability between main farming systems, but also the differences between wine estates of the same production system (viticulture in this case). In practice, an IDEA4 diagnosis comprises



Figure 3. Scores obtained by the wine estate for the 3 dimensions.

It scores well in both agro-ecological (72/100) and socio-territorial (89/100) sustainability. However, the final score for the overall performance of the estate corresponds to the score of the weakest dimension, the economic dimension (67/100), as it is the one that limits sustainability.

The sustainability analysis then examines the 13 components of the dimensions as shown in Figure 4. The figure represents the maximum possible score a wine estate can receive for each component (i.e., the highest achievable score according to the method depending on its performance evaluation benchmark). The results of the components explain the high score for the socio-territorial dimension; for example, 100 % of the possible score (25/25) was obtained for the component Ethics and human development. It is also possible to identify some areas for improvement; for example, out of the four components of the economic dimension, overall efficiency is the lowest (6 out of a possible 20 points).

Further analysis of the component indicators would be needed to better identify the reasons for this score. Finally, the IDEA4 diagnosis indicates the areas that would need to be improved without imposing courses of action on the farmer; The choice of action would be up to the winegrower, depending on the particular characteristics of the vineyard and the business and family strategy.

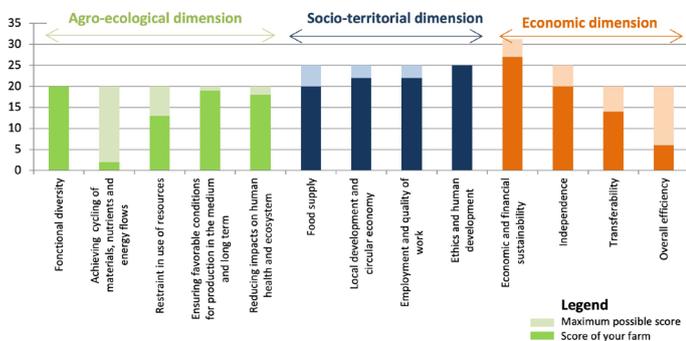


Figure 4. The results obtained for the 13 components structuring the IDEA4 method.

The second approach characterises the five properties of the system (territorial embeddedness, autonomy, ability to produce and reproduce goods and services, global responsibility and robustness). Using the same 53 colour-coded and aggregated indicators, the level of sustainability of each property is illustrated. The entire tree shows here that the estate develops its sustainability by relying homogeneously on the five properties (from light green to dark green; Figure 5). By progressing along the hierarchical tree to the most detailed level – that of indicators, not shown here to ensure readability – it is possible to identify practices that can be improved. Figure 5 shows that the estate’s autonomy in the productive process is unfavourable (dark red colour), resulting from the low scores of two indicators of nitrogen and energy autonomy in materials, seed and plant production. Reinforcing autonomy here is therefore an initial area of improvement to consider.

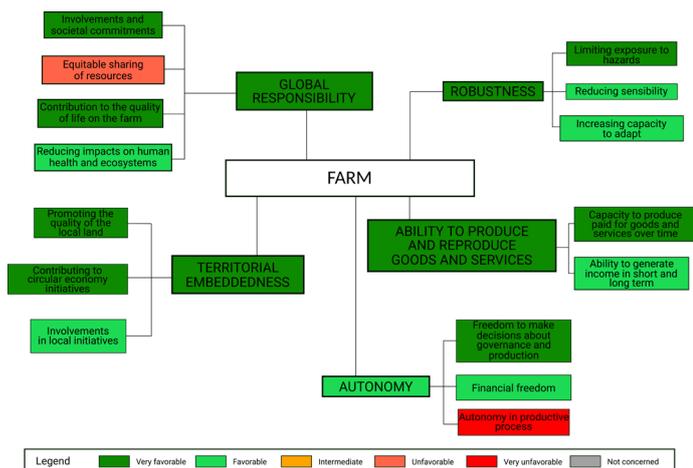


Figure 5. The results obtained for the 5 IDEA4 properties on the enlightened tree.

Conclusion

Using the IDEA4 method to assess the overall performance of their estate provides winegrowers with a double analysis (three dimensions / five properties of sustainability). It offers multiple ways to understand and think about practices and their consequences in terms of sustainability. IDEA4 can also help identify the strengths and weaknesses of an estate and areas for further action. Furthermore, it could be used for regional benchmarking and to help winegrowers identify key areas for improvement and understand the impact of their business decisions. When using IDEA4, the context of the study must be taken into account in the interpretation of the results, as calculation methods are linked to the European context that IDEA is built on (e.g., for the varieties that are limited by the appellation rules). The winegrowers we met are aware of environmental issues and the challenges highlighted by the method. As it is directly intended for use in agricultural consulting and/or teaching, IDEA4 is an educational and free decision-support tool which can be used in a shift towards agro-ecology in viticulture.

Next steps: Online data collection

To facilitate the production of diagnostic results and produce benchmark data on sustainability in viticulture, a Web interface is being developed. Easy to use, it will provide users with all the graphical outputs of the results related to the two approaches (dimensions and properties) for one or more wine estates. It will also include an automated statistical approach for group analyses. These analyses will notably enable advisors to support winegrowers in the improvement approaches they implement.

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1 Zahm, F., Ugaglia, A. A., Barbier, J. M., Boureau, H., Del’Homme, B., Gafsi, M., ... & Redlingshöfer, B. (2019). Évaluer la durabilité des exploitations agricoles: La méthode IDEA v4, un cadre conceptuel combinant dimensions et propriétés de la durabilité. *Cahiers Agricultures*, 28(5), 10.

2 Zahm, F., Barbier, J. M., Cohen, S., Boureau, H., Girard, S., Carayon, D., ... & Redlingshöfer, B. (2019). IDEA4: une méthode de diagnostic pour une évaluation clinique de la durabilité en agriculture. *Agronomie, Environnement & Sociétés*, 9(2), 39-51.