

SUSTAINABLE VITICULTURE: FROM LANDSCAPES TO EFFLUENT TREATMENT

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1. INTRODUCTION

Like any human activity, the wine industry can cause environmental impacts that need to be understood and controlled. Management of winery effluent, which has been discussed at several international congresses, has been implemented in high-capacity wineries. This now increasingly concerns smaller facilities, where treatment may be individual, collective or combined with a community treatment system.

Moving beyond such specific concerns, the protection of the environment is a technical, legal and societal issue which is gradually being incorporated into most viticultural and oenological technical itineraries. The use of plant protection products and soil management, together with waste and effluent management, are areas that are subject to increasingly stringent restrictions related to the environment and to consumer health. The management and protection of viticultural landscapes, which express the identity of the profession and are part of our heritage, contribute to the multifunctionality of viticulture.

On top of the purely local and regional issues that affect our industry, we are now seeing the emergence of an increasingly global and intergenerational perspective that is especially concerned with air quality, climate change and preservation of biodiversity, together with sustainable development.

1.1 THE CONCEPT OF SUSTAINABLE DEVELOPMENT

It was in 1972, at the United Nations Conference on the Human Environment in Stockholm, that the question of the relationship between economic development and the deterioration of the environment was for the first time placed on the agenda of the international community. After the Conference, the governments set up the United Nations Environment Programme (UNEP), which today continues to play a role in facilitating the implementation of measures to protect the natural environment.

In 1983, when the UN set up the World Commission on Environment and Development, it soon became clear that the deterioration of the environment, which until then had been considered to be a secondary effect of industrial wealth without much importance, was causing serious survival problems in developing countries. The Commission, chaired by Ms Brundtland (Norway), developed the concept of sustainable development. This approach, as opposed to one solely based on economic growth, aims to "meet the needs of the present without compromising the ability of future generations to meet their own needs."

As a direct result of these ideas, the United Nations Conference on Environment and Development held in Rio in 1992 constituted an official recognition of the relationship between environment and development. This laid the foundations of sustainable development,

which consists in devising a type of growth that does not adversely affect future generations. The representatives of the 172 states that met at Rio approved five major agreements which aimed to modify the traditional approach to development.

ENJEUX PARCELLAIRES ET COMMERCIAUX

- Résistance
- Résidus

ENJEUX LOCAUX

- Effet sur les auxiliaires
- Conséquences sur les écosystèmes associés
- Pollution des eaux
- Paysages

ENJEUX PLANÉTAIRES

- Ressources naturelles
- Déchets
- Biodiversité
- Pollution de l'air
- Effet de serre



1970 - 1980

1980 - 1990

1990 - 2000

Raisonnement des pratiques

Démarche intégrée

Notion durable

1.2. APPLICATION TO THE WINE INDUSTRY

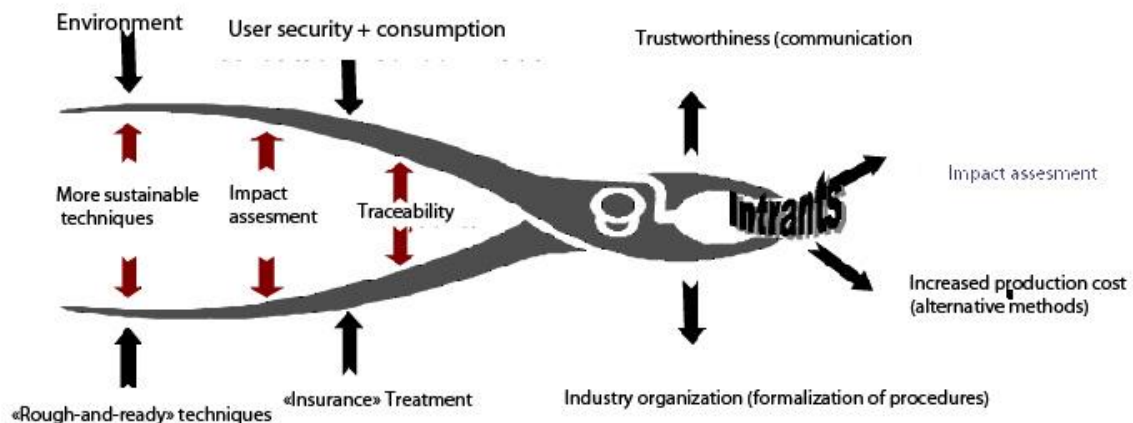
In this context, the OIV set up a cross-cutting ad hoc group to move forward thinking on this subject. A draft resolution was approved by the member states at the last General Assembly held in Vienna on 9 July 2004. The definition proposed for sustainable vitiviniculture was the following (www.oiv.int):

“Global strategy on the scale of the grape production and processing systems, incorporating at the same time the economic sustainability of structures and territories, producing quality products, considering requirements of precision in sustainable viticulture, risks to the environment, products safety and consumer health and valuing of heritage, historical, cultural, ecological and aesthetic aspects”. Adapting the notion of sustainable development to viticulture and to oenology covers different aspects:

- Technical itineraries: as well as requirements related to quality and productivity, every viticultural and oenological itinerary should associate consumer health related aspects with environmental impacts on local, regional and even global scales.
- Organization: modernization has often led to a compartmentalization of issues that disregards the interrelationships between the links in a complex production chain. Environmental analysis, which is the basis of sustainability, justifies a cross-cutting,

frequently interdisciplinary, approach which incorporates not only negative but also positive externalities (multifunctionality).

The implementation of the notion of sustainability applied to viticulture should combine an economic approach on the scale of the winery with related financial aspects (externalities) connected with indirect spin-off from the industry (tourism, fire prevention, land-use planning), and possible negative effects (water pollution, run-off, etc). This approach should serve as a basis for obtaining public subsidies (European, national and regional) without which vulnerable viticultural sectors may well disappear.



From a technical point of view, more sustainable techniques should make it possible to reduce the use of inputs while at the same time ensuring product quality, which is the chief concern of producers.

This requires the development of diagnostic tools and decision support, which will often need to be accompanied by the development of consultancy (institutional, networked or private); precision viticulture that aims to optimize technologies according to field conditions (amendments, spraying); and the implementation, whenever possible, of biological and biotechnological methods that make use of natural regulatory mechanisms.

Naturally, it is essential that the management of effluent and waste be integrated within a sustainable approach. This implies that such effluent and waste should be characterized and quantified, that itineraries should be adapted so as to reduce their quantity, and that management systems adapted to local constraints should be implemented.

Other issues which are harder to appreciate because they will take longer to take effect should nonetheless be integrated into a global and intergenerational approach. For instance, potential effects on air quality, climate change and biodiversity will gradually play an increasing role in viticultural and oenological strategies, and in the years to come may well constitute one of society's major concerns, together with an ethical approach to the environment.

CONCLUSION

Viticulture, like any other industry, must adapt to changing times. Although the twentieth century, deeply affected by two world wars, saw the introduction of technology and chemistry into viticultural and oenological technical itineraries, the notion of sustainability, as defined by the Rio de Janeiro Conference in 1992, must now be incorporated into the industry's strategies. The development of decision-making tools and of indicators, the elaboration of

alternative methods, improved understanding of complex biological phenomena, and an ever more professional industry are all factors that are likely to contribute in the future to sustainable vitiviniculture. This is all the more necessary given that wine is to a large extent linked to cultural aspirations that increasingly take environmental constraints into consideration.

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