

## BASES OF THE ECO-OENOTOURISME: LANDSCAPE WITH THE DESIGN OF THE CELLARS

### SYSTRAN AUTOMATIC TRANSLATION

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#### SUMMARY

The œnotourism takes a share growing in the valorization of the wine territories. Thus emerges the concept “of Eco-Oenotourisme” which associates in particular, in connection with sustainable development, the landscapes, the biodiversity, as well as the éco-design of the cellars. The protection of the local biodiversity is also integrated in a approach of Eco-Oenotourisme and often takes part in the valorization of the local landscape, ([www.biodivine.eu](http://www.biodivine.eu)). It should be prevented that the landscape is regarded as a simple by-product of the wine and territorial practices ([www.agriculture-et-paysage.fr](http://www.agriculture-et-paysage.fr)), this qu I J ustifie with the image of the International Charter “of Fontevraud” ([www.chartedefontevraud.org](http://www.chartedefontevraud.org)) to develop a “patrimonial governance locally”. Beyond these functional aspects, the notion of Eco-Oenotourisme is associated with the taking into account of sustainable development in the design of the cellars ([www.ecowinery.eu](http://www.ecowinery.eu))

#### KEYWORDS

Sustainable development, landscapes, œnotourism, ecoconception of the cellars.

#### ABSTRACT

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SYSTRAN AUTOMATIC TRANSLATION



## 1. INTRODUCTION

The œnotourism takes a share growing in the valorization of the wine territories. It is also a factor which takes part in the image and the added-value of the wines of these areas. Parallel To the cultural attraction for the vine, the wine and tasting, "œnotourisme" are often justified by an ecological approach of the cellars and terroirs. Thus emerges the concept "of eco-œnotourism" which associates in particular, in connection with sustainable development, the landscapes, the biodiversity, as well as the éco-design of the cellars. The oenologist, beyond the development of the wines, is integrated more and more in the wine strategy, the promotion of the terroirs, the design and the installation of the cellars. In its mission of ambassador of Eco-œnotourisme, it must take care to implement the environmental bases of a durable viticulture and an enology concept, defined by a resolution of OIV (CST 01-2008) *"Comprehensive approach at the level of the systems of production and transformation of the grapes, associating at the same time the economic perennality of the structures and the territories, obtaining products of quality, the taking into account of the requirements of a viticulture of precision, risks related on the environment, the security of the products and the health of the consumers and the valorization of the aspects patrimonial, historical, cultural, ecological and landscape."*<sup>1</sup>

This set of themes is important for the wine growers who are sensitive to the glance that the company carries on their trade, even for the acceptance of their activities and the projects that they wish to put in œuvre.<sup>2 3 4</sup>

In certain cases, the valorization of their products passes by the maintenance of essential structures of a landscape as visual expression of a link to the terroir (for products AOC for example) such as it is defined by the OIV (Viti 333/2010): *The wine "terroir" is a concept which refers to a space on which a collective knowledge of the interactions between a physical environment develops*

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<sup>1</sup> Application de la viticulture durable : Adaptations environnementales des itinéraires techniques. Joël Rochard Revue des œnologues et des techniques vitivinicoles et œnologiques: magazine trimestriel d'information professionnelle, ISSN 0760-9868, Vol. 38, N° 138, 2011, pages. 55-57

<sup>2</sup> Du paysage à l'Eco-conception des caves : "L'œnologue ambassadeur de l'eco-œnotourisme". Joël Rochard Revue française d'œnologie, ISSN 0395-899X, N° 252, 2012, pages. 4-7

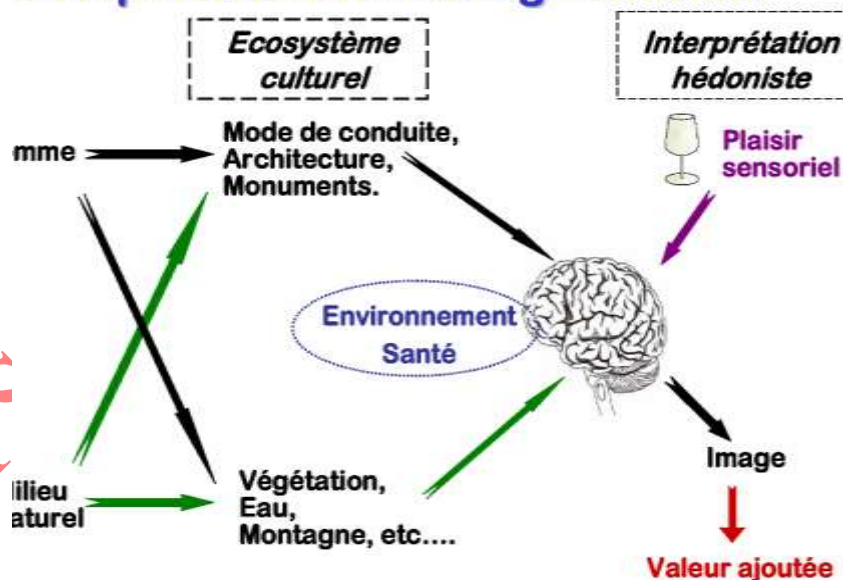
<sup>3</sup> Eco-construction et développement durable. Joël Rochard Revue des œnologues et des techniques vitivinicoles et œnologiques : magazine trimestriel d'information professionnelle, ISSN 0760-9868, Vol. 36, N° Extra 133, 2009, pages. 11-12

<sup>4</sup> L'environnement dans le secteur viti-vinicole historique et perspectives. Joël Rochard Le Progrès agricole et viticole, ISSN 0369-8173, Année 117, N° 23, 2000, pages. 508-514

and biological identifiable and the wine practices applied, which confer distinctive characteristics on the native products of this space. The “terroir ” includes specific features of the ground, topography, climate, landscape and biodiversity.

In Parallel the wine growers may find it beneficial to offer a landscape of quality, emblematic support of the tourist activity of their area, vector of image of their trade and their products. In connection with the value symbolic system, emotional, emotional of the terroir , S. MICHEL specifies that “We are what we eat. The ignorance of what we have in our plate or our glass led to a p erte of identity, but fortunately the terroir restores the link between the consumer and food. The values symbolic systems of food are those of the terroir but attention, any contamination of the soil; that it is physical, chemical, biological or visual, contaminates the product in the spirit of the customer”. This reflection stresses that the terroir , and in its prolongation the cellar, are assets, supports of valorization, but the reverse a denaturation of the landscapes, or an approach little developing of the cellar, can degrade the perception of the terroir and indirectly the image of the wine”.

### Composantes de l'image d'un vin



Illus.1: Component of the image of a wine

(Source : J. Rochard, Traité de Viticulture et d'œnologie durable, Editions Avenir Œnologie, 2005)

## 2. WINE LANDSCAPES

Beyond the purely descriptive approach, the landscape is the esthetic expression of the cultural ecosystem which constitutes the terroir, natural heritage domesticated and developed by the man. This dimension, which connects the ground to the spirit, initially associates the technical know-how of the vine grower, at the same time architect and gardener, with the noble direction of the term, the terroir. This know-how is the fruit at the same time of empirical observations, acquired from generation to generation, and by a permanent search in particular associated with the mode with control with the vine, installation, the management of the grounds and coteaux.<sup>5</sup> Parallel To purely wine dimension, the landscapes very often grow rich by other components, esthetics in connection with the natural environment, the architecture of the fields and the villages viticoles.<sup>6</sup>

### Le projet européen LIFE+ BIODIVINE



Illus.2: Site biodivine project (Source: [www.biodivine.eu](http://www.biodivine.eu))

The BioDiVine project relates to the study and the management of the biodiversity in the wine landscapes. This project, being given a European financing LIFE + 2009/2014, aims at determining the interest of installations of the wine terroirs and the adaptation of the technical routes relating to the biodiversity, the landscape and overall the environment. The project concentrates on the management of six European experimental sites (Douro in Portugal and of Rioja and Penedès in Spain) and a site of reference, Saumur-Champigny names of St. Emilion, Limoux and Costières of Nîmes, Burgundy as well as the Champagne (associated site) in France. Concrete actions of

<sup>5</sup> **Les paysages viticoles** : un enjeu du 21ème siècle pour la filière viticole.

Jean-Paul Pigeat, Michel Guillard, Joël Rochard, Nadège Fourny

XXVème Congrès Mondial de la Vigne et du Vin : Paris 19-23 Juin/June/Junio 2000, Vol. 3, 2000, pages. 55-62

<sup>6</sup> **Préserver la biodiversité au vignoble** : Démonstration par le projet Life+ BioDiVine dans le Limouxin

Josépha Guenser, Céline Forget, Richard Planas, Benjamin Porte, Joël Rochard

Revue des œnologues et des techniques vitivinicoles et œnologiques: magazine trimestriel d'information professionnelle, ISSN 0760-9868, Vol. 40, N°. 146, 2013, pages. 9-11

conservation and of installation will be put in work on each site with the creation of complementary semi-natural spaces. Parallel To installations, it is envisaged to develop a reasoned or integrated protection vineyard.

Moreover, technical follow-ups by the means of protocols appropriate to the various specialities of the biodiversity and a cartographic analysis will be carried out in order to evaluate the range of these actions aiming to preserve and increase the biodiversity.



Illus.3: Trapping RBA biodivine (Source: J. Rochard)

### System of trapping RBA

Method RBA (Rapid Biodiversity Assessment), already used in various wine terroirs , will be developed for each experimental site. Compared to the agricultural sector, the wine covers an even timeless cultural dimension which recovers at the same time sciences, the ancestral knowledge, the religious practices. Our sector printed an indelible brand, an immortal symbolic system, in the evolution of the world and the esthetic expression of the terroir . The beauty of the landscapes is expressed in many vineyards. There exist splendid landscapes



Europeans, traditional, often associated with a built inheritance. The emerging countries also comprise very beautiful landscapes emphasized by a natural environment sauvage.<sup>7</sup>



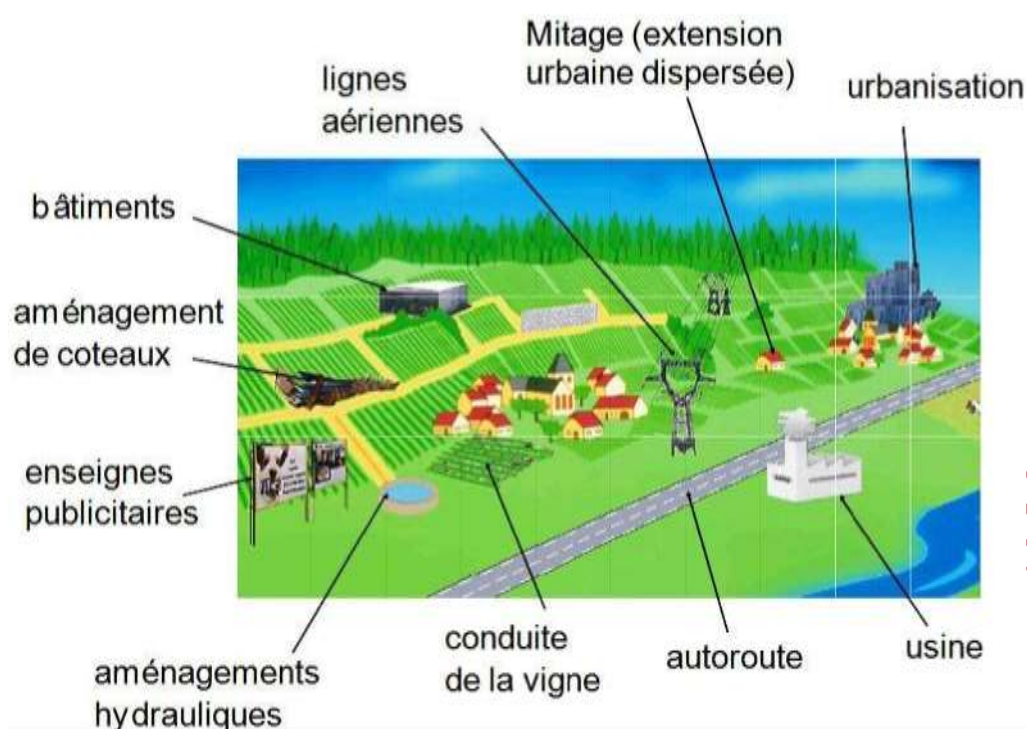
Illus.4: Landscape of Santa CATARINA in Brazil  
(Source: J. Rochard)

However, the wine landscape is sometimes threatened. Initially, pulling up, the defection or the urbanisation constitute final risks of disappearance of remarkable panoramas. Complementary sources of aggressions can also denature these landscapes (road electric lines, installations, wind, advertizing panels).

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<sup>7</sup> **Paysages viticoles de climats extrêmes.** Joël Rochard, Jocelyne Pérard  
Revue des œnologues et des techniques vitivinicoles et œnologiques: magazine trimestriel d'information professionnelle, ISSN 0760-9868, Vol. 39, N°. Extra 145, 2012, pages. 11-15





Illus.5: Sources of aggression of the wine landscapes

(Source: J. Rochard, Treaty of Viticulture and durable enology, Editions Future Enology, 2005)

Parallel To the land aspects, the urbanisation can contribute to the loss of collective conscience of the inheritance by effect of dilution of the local population in a usual community of an urban lifestyle. The wine sector is sometimes at the origin of an esthetic degradation of the landscapes. The reorganization of the slopes (removal of the low walls), the installation of an atypical mode of control compared to the traditional practices, the unaesthetic choice of stakes or the presence of plastic (resulting from compost or film of plantation) are as many examples, likely to carry damage to the landscape dimension of a wine terroir . Thus, it should be prevented that the landscape is a simple by-product of the practices wine and territorial, which justifies to locally develop a “patrimonial governance” which associates the whole of the actors of the territory (wine organizations, territorial collectivities, local tourist office and experts) in a multi-field approach.

This governance must also associate the wine biodiversity within the territory. Maintenance of the low walls of dry stones, plantation of hedge, putting under grass of the pieces, maintenance of natural zones “tank” are has utant actions which take part in the balance of ecosystems associated with the vineyards.



(Source : [www.biodivine.eu](http://www.biodivine.eu) )

Project LIFE 2009 BioDiVine relates to the management of the biodiversity in the wine landscapes. A vision at the level of the piece is essential in the durable management of the terroirs (ground, protection of vineyard etc). In Parallel a higher level of scale, with the level it landscape must also be taken into account. Interdisciplinary search on questions such as the functional biodiversity and the connectivity of the elements of the landscape shows that new prospects at the level of landscape expand in a comprehensive view of the terroir . During last decades, many experiments were carried out to optimize the semi-natural elements of the wine territories like the hedges, the thickets or the cover of the ground. The main reasons called upon for the improvement of these habitats are the following ones:

- 9 To Contribute to the nature conservation (food, shelter, migration of the habitats of the plants and animals).
- 9 To Improve quality of the environment (tapes buffers to limit the rollout of pesticides, of heavy metals and the nutritive elements).
- 9 To Promote the esthetic and patrimonial values terroirs.
- 9 Within this framework the Global Area Network of the International Charter Wine Landscapes of Fontevraud has as an ambition to encourage all the actors of the wine territories, wine local government agencies, trade unions, operators of the culture and tourism, universities and laboratories to be begun in voluntary and concerted landscape approaches combining, in a logic of sustainable development, the tweaking of the wine production and the cultural and tourist valorization of these landscapes, within the framework of a global area network of

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\* **Gestion de la biodiversité dans les paysages viticoles:** Projet de démonstration LIFE+BioDiVine  
 Joël Rochard, Carine Herbin, France Mercier, Maarten van Helden, Josépha Guenser  
 Revue des œnologues et des techniques vitivinicoles et œnologiques : magazine trimestriel d'information  
Projet européen BIOD IVINE

professionnelle, ISSN 0760-9868, Vol. 38, N°. 141, 2011, pages. 12-14

SYSTRAN AUTOMATIC TRANSLATION



Illus.6: Stringcourse charter fontevraud EM. Source: Site of the Global Area Network of the International Charter Wine Landscapes of Fontevraud [www.chartedefontevraud.org](http://www.chartedefontevraud.org)

### 3. ECO-CONCEPTION OF THE CELLARS

The construction of bktiment wine, and the choice of the associated equipment, suppose a reflection on the economic aspects, qualitative and of security. Beyond these functional aspects, the concept of éco-design of the buildings is defined by the taking into account of sustainable development. As B. PEUPORTIER specifies it *“the éco-design of the buildings calls on the écotechnologies in the field of water and energy saving, of renewable energies (energy production), of waste management (materials and effluents), of materials with less impact, while including asp etc of comfort, health and integration paysaggre.*

*Architecture solar, bioclimatic, solar liability, environmental top quality, low consumption, positive energy, zero emission are as many used terms to define projects avant-gardists integrating the requirements of sustainable development.”*

The integration of the concept of sustainable development within the wine sector associates, initially, an adaptation of the wine and oenological routes to the environmental constraints, but also, with a vision on the long run, a taking into account of the energy aspects and water management in the design of the exploitations and the cellars. Indeed, the environmental impact, related to the design of the buildings and associated equipment, is rather weak compared to the routes wine and oenological but, of the choices related to construction, engage the exploitation and the cellar for several decades. In addition, it is probable that with the image of the safety standards of staff, the regulation, the standards evolve during

next years; what justifies to anticipate the environmental requirements, in order to avoid modifications of setting to the expensive standards.

#### **+ Water management**

Generally, the tweaking of cleanings, related to the design of the hardware, of the wine storehouse, like to the organization and the sensitizing of staff, contributes to reduce consumption, without carrying damage to the requirements of hygiene. The experiment shows that a saving in 20 to water 30% is quickly obtained starting from an internal reflection and from a sensitizing of staff. The periods of grape harvest and vinification generate an important daily consumption being able to lead to a specific shortage. In Parallel, a rational management of this water must be planned to limit the pointless losses and to facilitate the processing of purification, whose dimensioning and costs of operation are closely related to volume to treat. This objective justifies on the one hand the use of methods of suitable cleaning and disinfection and on the other hand a tweaking of the design of the wine storehouses. For example, the sufficiently smooth choice of floor coverings, while avoiding the risk of drags, and the rationalization of the fluidic devices, take part in an ecological design of the wine storehouses.

The liquid waste processing is also integrated in the design of a cave.<sup>9</sup>

For a few years, the manufacturers have developed more sparing water technologies which apply gradually to the routes wine and oenological. Concerning the liquid waste processing, the construction of planted beds of reeds or the use of plants adapted to moist environments (willow, bamboo...) associate at the same time an ecological process and a harmonious integration in the landscape as well as low fuel consumption of énergie.<sup>10</sup>

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<sup>9</sup> **Conception des bâtiments d'un chai de vinification.** Joël Rochard

Revue des œnologues et des techniques vitivinicoles et œnologiques: magazine trimestriel d'information professionnelle, ISSN 0760-9868, Vol. 31, N°. Extra 113, 2004, pages. 18-20

<sup>10</sup> **Innovation environnementale dans la gestion des effluents de cave :** Application des lits plantés de roseaux Joël Rochard, S. Kerner

Revue des œnologues et des techniques vitivinicoles et œnologiques: magazine trimestriel d'information professionnelle, ISSN 0760-9868, Vol. 36, N°. Extra 133, 2009, pages. 52-54





Illus.7: Liquid waste Processing of cellar by bed of zeolite planted of reeds - Cellar GAJA Piedmont Italy  
(Source: J. Rochard)

#### **+ Energy Management**

The choices of establishment are determining in the thermal regulation, but also in the functionality of the equipment. When the local context lends itself to it, a buried or semi establishment buried, contributes to profit from a natural freshness, associated with the rollout of musts and wines by gravity. In complement, “the envelope” of a building can also be regarded as a solar panel, to establish and direct carefully by taking account of specificities of its local environment (sunning, dominant winds...) with for job function maximizing the “free solar contributions” (by the windows or of spaces buffers like the solar verandas, atria or greenhouses), storing them and to distribute them. These rules “of solar architecture” (also called “bioclimatic architecture” or “solar liability”), associated with components and a thermal design with high effectiveness, make it possible to appreciably decrease the needs for heating and climatisation.<sup>11</sup>

The establishment of vegetable structures, in roof or on the walls, makes it possible to maintain a freshness natural by effect shielding and of evaporation. When the insulation is necessary, the use

<sup>11</sup> **Les besoins thermiques d'une cave** : Principe, base de calcul et exemples. Dario Marengo, Joël Rochard, Enrico Carosso



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SYSTRAN AUTOMATIC TRANSLATION

SYSTRAN AUTOMATIC TRANSLATION

materials of natural origin, subject to compatibility with the control of hygiene, is integrated of an ecological approach. It is the same of local materials. Wood contributes to limit the impact on the greenhouse effect (carbon well) compared to the concreted structures.

The local stone, beyond the esthetic aspect, can contribute to the thermal inertia of the buildings



Illus.8: Vegetalized Wall of the Castle of Hospital - Languedoc

(Source: J. Rochard)

The thermal inertia of the ground, can be put at profit by geothermic equipment. The geothermic flow of the ground is too generally much weak to be directly used with a process “high temperature” except when it is concentrated in a thermal spring or a cursory magmatic room with its associated hydrothermal system. The not very deep underground layers (of a few tens to a few hundreds of meters) are sometimes exploited to limit the thermal needs.

When water is not available in the close basement, it is possible to exploit the thermal inertia of the ground while establishing vertically under ground, of the exchangers (bent tubes inserted in a borehole) equipped with coolant associated with a heat pump. The depth of vertical drilling generally lies between 30 and 150 meters. The device can be installed in any geological medium.

The use of the biomass at energy ends can also be under consideration like calorific source or to produce electricity; either directly in the form of “biofuels”, (vine shoots, dehydrated marc), or after transformation into “biogas” (methane CH<sub>4</sub>, CO<sub>2</sub> mixes) or into biomass fuel (alcohol). CO<sub>2</sub> emitted during combustion or of the oxidation and refixé by the plants at the time of their growth, which contrary to fossil energies, does not impact the CO<sub>2</sub> concentration of the atmosphere.

In the wine sector, if the production of grapes intended for “energy” obtaining alcohol is generally not considered (put except for the distillation of regulation of the overproductions), the by-products represent a very significant layer of which it is advisable to explore the tracks of energy valorization which can in particular associate, according to the local context, a methanisation or a composting.

Project ECO WINERY



Illus.9: Ecowinery<sup>1st</sup> page site FR (2)

(Source: [www.ecowinery.eu](http://www.ecowinery.eu))

## CONCLUSION

The eco-œnotourism is integrated in a durable strategy of a wine exploitation. This approach associates in particular a protection and a valorization of the landscapes as well as an ecological approach in the design of the cellar.

The esthetics of the terroirs testifies to this subtle harmony that the man knew to establish with nature. The landscape-vine growers testify to a single geological diversity and a cultural history of the vine and wine without equal. But the know-how of the man does not stop with the vine. Beyond the inheritance of the villages, historical churches or others bktisses, the architecture of the cellars, associated with a éco-design, takes part fully in the attractiveness of the wine-producing areas.

The missions of the oenologist evolved in the course of time. If the analysis and the processing of the wines always constitute the core business of the experts of the development, the new challenges of enology, but also of the viticulture, are integrated gradually in our know-how. Thus ecological, patrimonial and cultural dimensions of the wine sector, supports the ecoœnotourism, contributes to enrich the nobility and the recognition by our trade.