



# Footprinting the sustainable wine production in Italy

**Ettore Capri**

OPERA Research Center, Università  
Cattolica del Sacro Cuore – Piacenza

SETAC Europe 26<sup>th</sup> Annual Meeting  
May 25, 2016 “The sustainability of wine production in Europe”

# Agenda

---

## **1. SUSTAINABILITY IN THE WINE SECTOR**

How we can define sustainability, and how we can implement it in the wine sector: the holistic approach.

## **2. THE SIMEI INTERNATIONAL CONGRESSES**

The two International Congresses have been organized by Unione Italiana Vini and OPERA Research Center, to foster sustainability in the wine sector at the national and international level.

## **3. THE CHALLENGES**

What are the challenges for sustainability in the wine sector? Presentation of the most important outcomes of the International Congresses, grouped in four macro-areas: measuring, communicating, networking, training.

## **4. THE ITALIAN EXPERIENCES**

The Italian multi-stakeholder answer to challenges for sustainability in the wine sector.

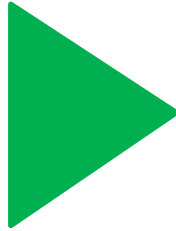


“Sustainability is a state of mind. Having respect for the land, for the people, for our history and especially for our future. This is what I mean for state of mind”

*Maria Camilla Fasola Bologna, CEO Castello di Monte Vibiano Vecchio – winery certified by V.I.V.A.*

“Sustainable development is the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

OUR COMMON FUTURE, BRUNDTLAND  
COMMISSION - 1987



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**.

*OIV, RESOLUTION CST 1/2004  
on the Development of sustainable  
vitiviniculture*

# Sustainability in the wine sector

---

- Every definition of Sustainability refers to a **balance** of environmental, socio-cultural and economic needs for today and tomorrow.

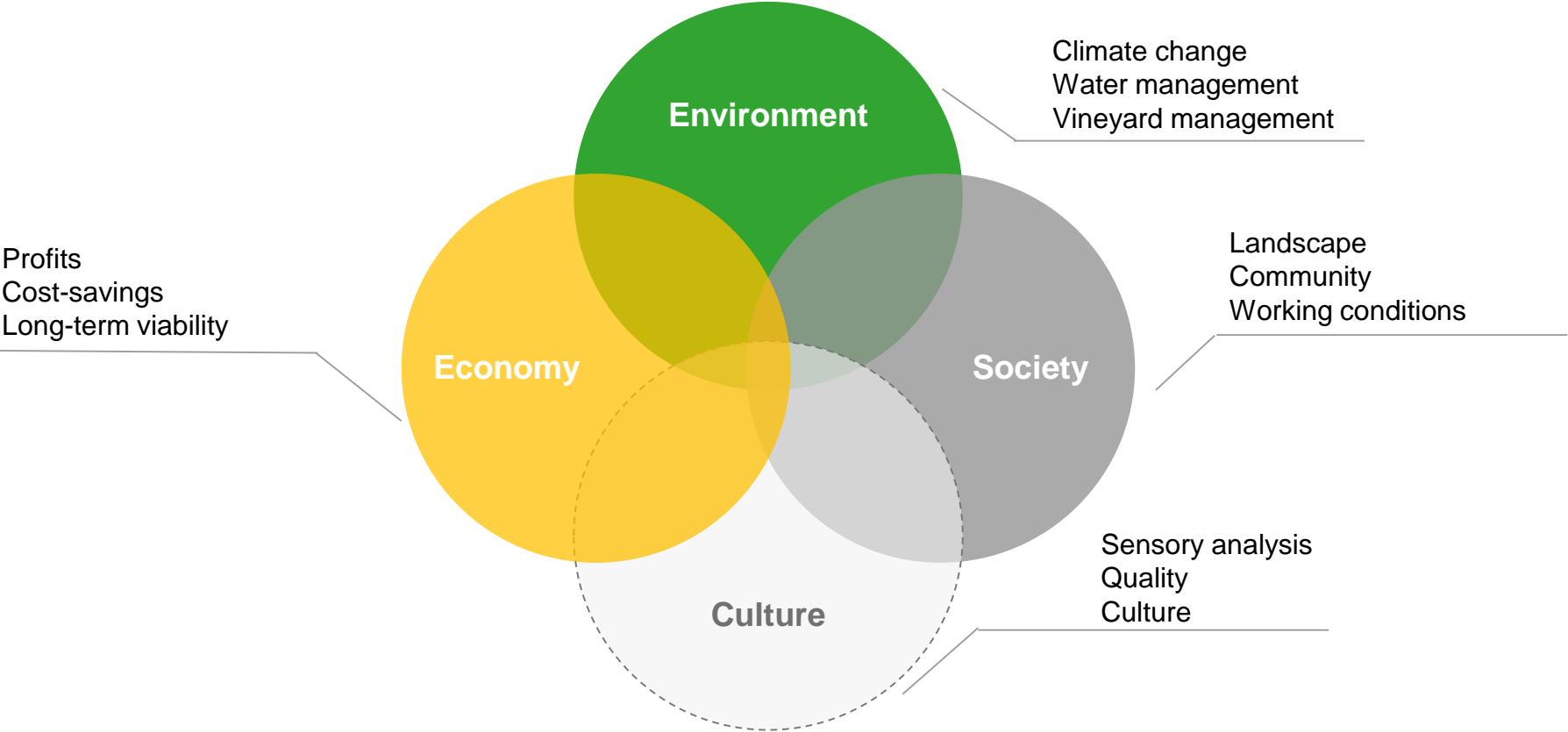
- Wine represents a **relevant sector** of the national economy and it is part of many European Countries' culture and identity.

- The wine chain is based on **primary inputs** directly deriving from the environment.

- Viticulture is globally recognised as one of the best identified components of our “culture” of rural landscape management and protection, associated with the product safety and the protection of the consumers.



# The sustainability pillars



# The holistic approach

- Considering all the pillars of sustainability: **Environment, Economy, Society** and Culture
- Sustainability overall the **entire value chain**: viticulture, wine production, packaging, transport, retailers, final consumption
- Involving all the **stakeholders**: vine growers, wineries, retailers, trade associations, researchers, policy makers, consumers
- Including the consumer perspective and the **sensory analysis**



# From the International Congresses...

---

12-13 November 2013

## **International Congress: Sustainable Viticulture and Wine Production. Steps ahead toward a global and local cross-fertilization**

Milan, 25<sup>th</sup> Edition of the SIMEI Exhibition

3- 4 November 2015

## **International Congress: Discover the sensory factors and sustainability as a tribute to wine quality**

Milan, 26<sup>th</sup> Edition of the SIMEI Exhibition

- Organized by **OPERA Research Center (Universita Cattolica del Sacro Cuore)** and **Unione Italiana Vini**, the two events were attended by more than 300 prominent representatives of policy makers, industry, research and stakeholders, in an interactive and highly participatory discussion.
- From the events, **opportunities and challenges for global sustainability in the wine sector came to light.**

### **White papers:**

1. *Vision on the sustainable future of our wine and vineyards* (<http://goo.gl/ze75il>)
2. *Wine sustainability. Past, present, future. Sensory characterization of wines as an integral dimension of sustainability* (<http://goo.gl/KBv3k4>)



# ...to the challenges for wine sustainability

---



01.  
Defining and measuring



03  
Networking



02.  
Communicating



04  
Training



## 1. Defining and measuring

- Need for a **common understanding** of sustainability for wine products, promoting accountability and transparency of measurement and reporting.
- **Harmonization**: perceived as the key to ensure a multiplier effect and generate positive sustainability outputs.
- Ensuring a **holistic approach** to sustainability, including all phases of the chain and all the stakeholders.



## 2. Communicating

- Creating **confidence and value** including all the stakeholders.
- Understanding consumers' expectations.
- Promoting consumer education and awareness.



### 3. Networking

- **Consultation, coordination and collaboration are essential to achieve sustainability.** Sharing existing knowledge and disseminating new technical solutions are considered essential to foster synergies and cooperation between the various actors in the wine value chain, in order to ensure sustainability of wine production (Capri et al., 2014).



## 4. Training

- **Bridging** the best available professional knowledge and scientific research. Existing knowledge needs to be disseminated on a large scale and new technical solutions need to be provided to the end users in a timely fashion.
- **Provides education and training** encourages new professionalism in the agro-food system, transferring specific competencies and knowledge in the industry sector.

# The Italian experiences

---

Promoting a multi-stakeholder approach, that involves Institutions, Trade Associations and Universities to face the challenges in the wine sustainability sector.



LA SOSTENIBILITÀ  
NELLA VITIVINICOLTURA IN ITALIA

## V.I.V.A. Sustainable Wine

- *Defining and measuring*
- *Communicating*
- *Training*

## WINE OBSERVATORY SUSTAINABILITY

## WOS – Wine Observatory on Sustainability

- *Networking*
- *Training*

# V.I.V.A. Sustainable Wine



LA SOSTENIBILITÀ  
NELLA VITIVINICOLTURA IN ITALIA



MINISTERO DELL'AMBIENTE  
E DELLA TUTELA DEL TERRITORIO E DEL MARE

O P E R A



RESEARCH CENTER

[www.viticoltureasostenibile.org](http://www.viticoltureasostenibile.org)

# Objective

---

## Measuring

To develop a methodology for calculating and assessing the sustainability of the wineries and their products, from field to consumer

To define the technical specifications and develop a Sustainability Code for the analysis and the certification of the **four indicators (Air, Water, Territory and Vineyard)**, periodically updated according to European and International legislation in the sector

## Communicating

To help companies to communicate to the market and the consumers the project's benefits and value

## Training

To train company technicians and consultants on the application of VIVA indicators in order to help the assessment and improvement of their sustainability performance over time;



# From the analysis of sustainability performances...

---



**AIR** evaluates the greenhouse gas emissions directly and indirectly related to the life cycle of a product (CFP) or to an organization (GHGI).



**WATER** reveals the total volume of fresh consumed and polluted water both referred to company activities or to the production of a wine bottle (0,75 l). It is an explicit indicator of the fresh water consumption in the vineyard and in the cellar related to the wine production.



**VINEYARD** takes into account the agronomic management practices in the vineyards and in particular it evaluates the use of pesticides and their effect on water bodies and soils, soil management practices, fertility and biodiversity issues.



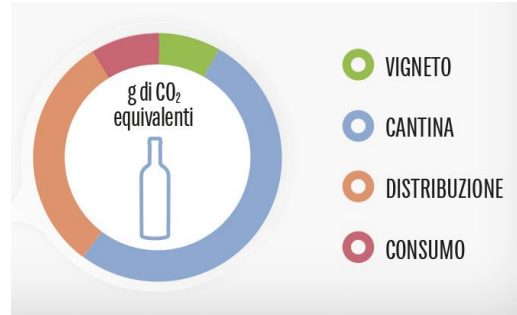
**TERRITORY** has been created to evaluate, in the sustainability assessment, also important aspects such as landscape and the economic and social impact of wine production on the territory.

# ...to the communication to the final consumer

The **VIVA Label**, available through Internet or smartphone/tablet, summarizes the results and improvements, in terms of sustainability, achieved by the wine companies.

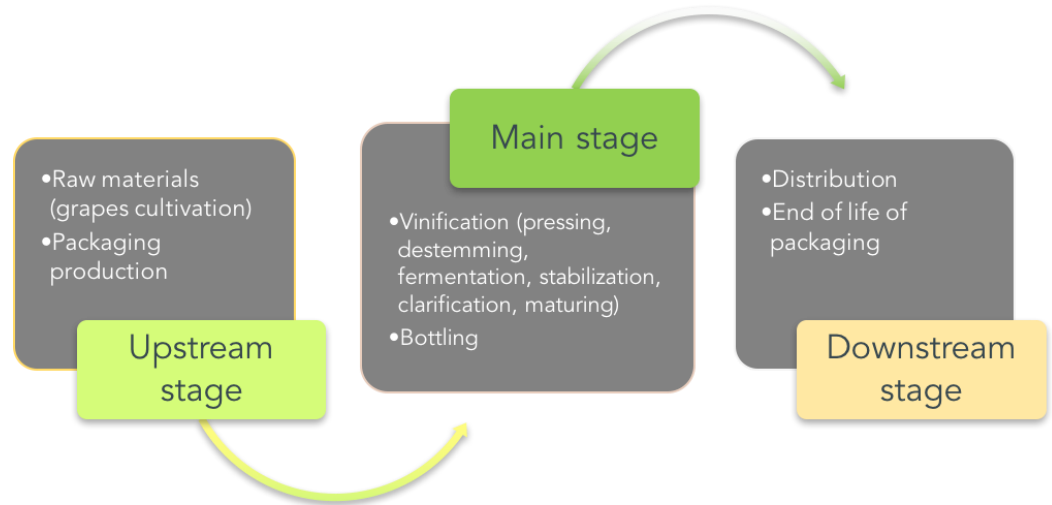


VIVA digital label foresees absolute **transparency** in the relationship between producers and consumers: a first and important step in the direction of sustainability.





- **Product Carbon Footprint:** greenhouse gas emissions directly and indirectly related to the life cycle of a product (CFP)
- **Functional unit:** one bottle of wine (0.75 lt.)
- **Methodology:** Life Cycle Assessment



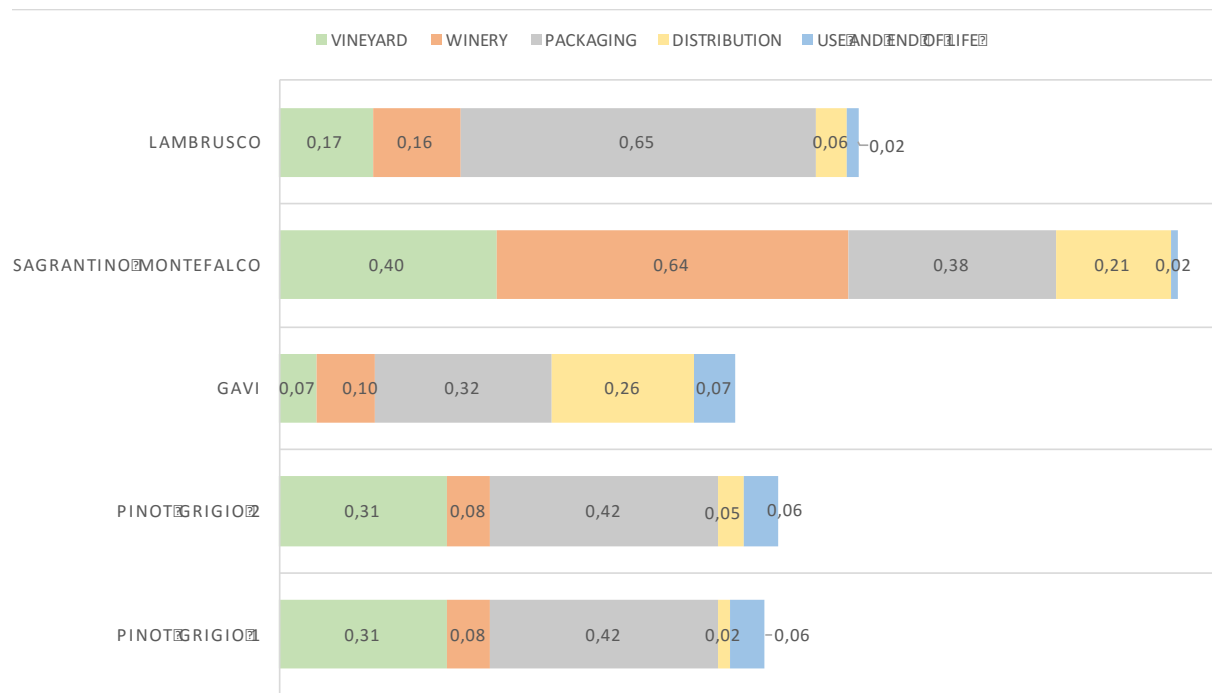
## References

- UNI EN ISO/TS 14067- Principles, requirements and guidelines for the quantification and communication of the carbon footprint of a product



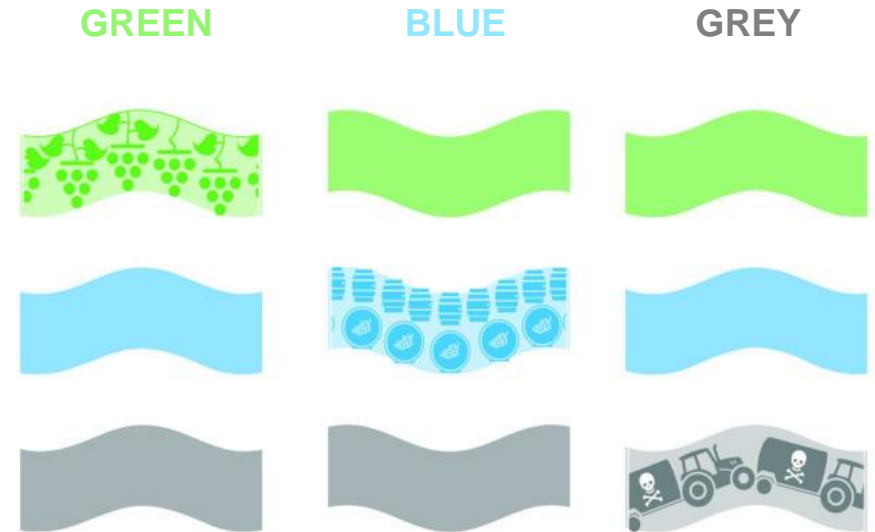
## The Carbon Footprint of 5 VIVA certified wines

Results: Kg/CO<sub>2</sub> eq.





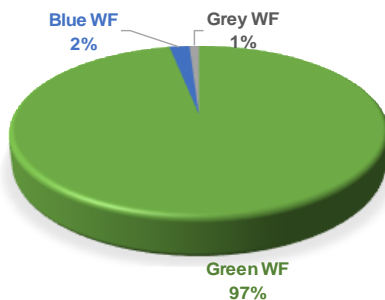
- **Total volume of fresh consumed and polluted water both referred to company activities or to the production of a wine bottle (0.75 l.).**
- The WFP is the sum of three components: **Green Water, Blue Water, Grey Water.**
- The WFP offers a better and wider perspective on how the viticulture affects the use of water resources.



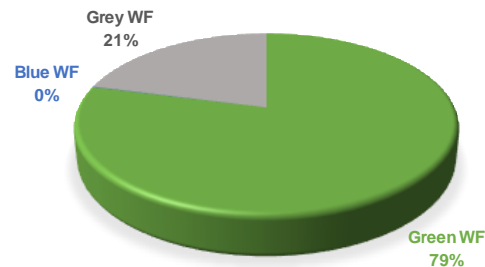
## References

- Mekonnen M.M., and Hoekstra A.Y. (2010). The green, blue and grey water footprint of crops and derived crop products. Value of Water Research Report Series No. 47, UNE- SCO-IHE, Delft, the Netherlands
- Lamastra L., Suciù N.A., Novelli E., Trevisan M. (2014) A new approach to assessing the water footprint of wine: An Italian case study. Science of the Total Environment 490, 748–756

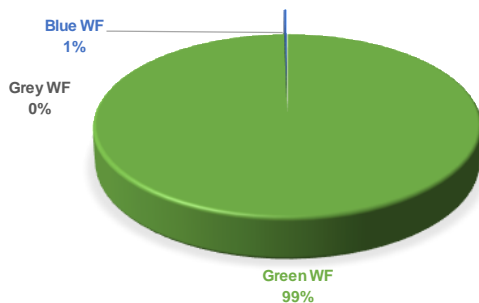
## The Water Footprint of 4 VIVA certified wines



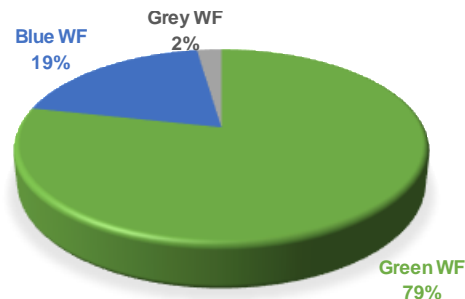
**PINOT GRIGIO**  
tot: 755 lt./bottle



**GAVI**  
tot: 606,59 lt./bottle



**SAGRANTINO  
MONTEFALCO**  
tot: 1229,24 lt./bottle



**LAMBRUSCO**  
tot: 534,34 lt./bottle

# Vineyard



- **VINEYARD** takes into account the agronomic management practices in the vineyards.
- Indicators:
  - pest management
  - fertilization
  - soil fertility
  - soil compaction
  - soil erosion
  - landscape
- A single score is attributed to each indicator from 0 (minimum impact) to 1 (maximal impact)
- A global score gives the “class of judgment” 5 levels: from A (minimal environmental impact) to E (strong environmental impact)

Value	Class of judgment	Judgment
0-0.3	A	Very good
0.31 – 0.55	B	Good
0.56 – 0.75	C	Acceptable
0.76 – 0.9	D	Not acceptable
≥ 0.91	E	Negative

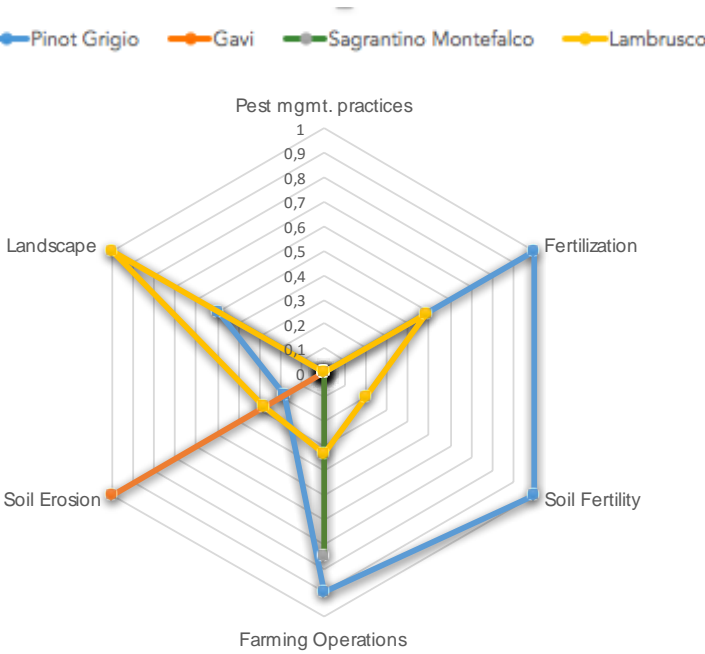
## References:

- Directive 2009/128/EC about the sustainable use of pesticides,
- OIV guidelines defined by the CST 2008 guide
- Trevisan, M., Di Guardo, A., and Balderacchi, M. (2009): An environmental indicator to drive sustainable pest management practices. *Environmental Modelling & Software* 24, 994-1002.

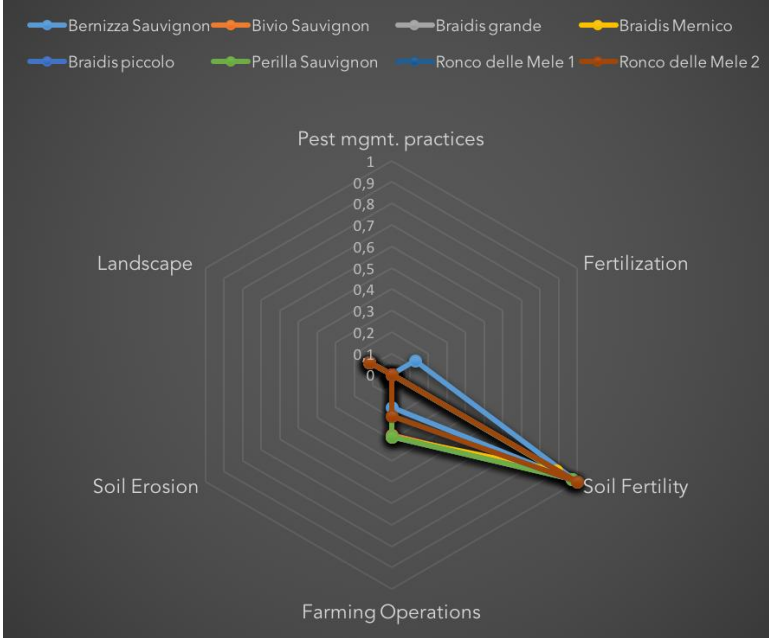
# Vineyard



## Example: results of 4 companies



## Single winery





# Territory



- This indicator evaluate the link between the wine and its territory:
  - **on the community:** socio-economic impact of wine production on employees, local community, producers and consumers.
  - **on the environment:** biodiversity and landscape.

**All the certified wineries have successfully satisfied the 31 socio economic requirements to gain the V.I.V.A. certification.**



## References:

- *Global Reporting Initiative – Sustainability Reporting Guidelines GRI G 3.1*

**WINE OBSERVATORY  
SUSTAINABILITY**

# Wine Observatory on Sustainability

The international no-profit platform about wine sustainability



MINISTERO DELL'AMBIENTE  
E DELLA TUTELA DEL TERRITORIO E DEL MARE

O P E R A



RESEARCH CENTER



Unione Italiana Vini  
*since 1895*

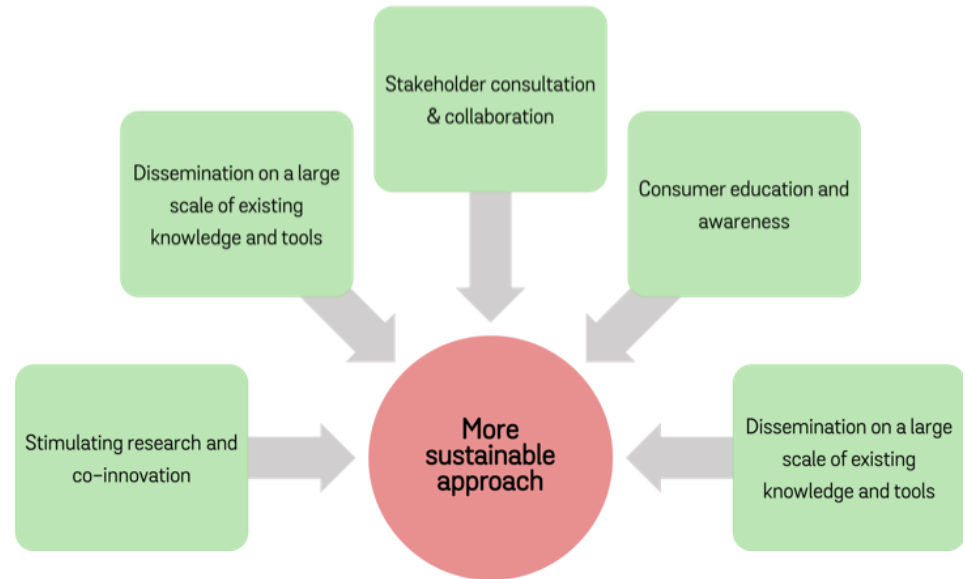
**[www.wineobservatorysustainability.eu](http://www.wineobservatorysustainability.eu)**

# Definition

---

The **Wine Observatory on Sustainability** is a no-profit, international web platform aiming to collect, share and coordinate existing experiences on sustainability in the wine sector.

The idea of the Observatory came from the outcomes of the International Congress “Sustainable Viticulture and Wine Production” (Milan, 12-13 November 2013)



## What is the Wine Observatory Sustainability?

See the presentation HERE

what's next? - - -

### Resource Room

#### 01 Mar 2014

**Vision on the sustainable future of our wine and vineyards**  
This policy paper has its roots in the works of the International Congress Sustainable Viticulture and Wine Production, organized on the 12 [...]

#### 01 Oct 2014

**First Report on Sustainable Winegrowing - towards EXPO Milano 2015**  
The First Report on Sustainable Winegrowing is the result of a complex journey that has involved 27 experts on the topic of sustainable wine [...]

[more here...](#)



**Join the WOS**  
Interested in joining the WOS? [Click here](#) to sign up or [contact us](#).

### Newsroom

#### 03 Nov 2014

**Sensory analysis: sustainable viticulture as tribute to the wine quality**

#### 01 Nov 2015

**WINERY 2015: 7th IWA Specialized Conference on Sustainable Viticulture, Winery Wastes & Agri-industrial Wastewater Management**

#### 02 Oct 2015

**First International Symposium on the Valorization of Wine-making By-products for the Food Sector**

[more news...](#)

### Networking

Find the WOS Authority of interest to you to get more info



[OR browse all authorities](#)

### Sharing

#### Key Performance Indicator (KPI)

Key Performance Indicators (KPI) are questions that retailers can use to assess and track the performance of brand manufacturers on critical sustainability issues. The category KPI questions focus on [...]

[more here...](#)

### Farmdemo

List of practical examples of farms implementing positive sustainability program/tools

## Objectives

- To **share and combine experiences**, programs, initiatives from different countries and actors about sustainability of the wine value chain
- To **create an international network** as a base for useful synergies
- To sensitize to the topic all the players in the wine chain (including the consumers), **sharing events, documents, training and initiatives** on the topic of sustainability in the wine sector through the web-platform
- To **promote a dynamic environment** where users are actively involved

# Contents

---

In order to achieve its objectives, the platform includes the most relevant practical tools and best practices, building connections between recognized authorities, researchers and wine producers.

**Resources** are divided in four categories:

**Networking:** a database including recognized authorities on sustainability in the wine sector (i.e. research centres, universities, public and private bodies, associations, etc.).

**Sharing:** a database including the most relevant practical sustainability tools available for the wine sector (i.e.: protocols, programs, indicators, courses...)

**Farm demo:** a database including wine farms which represents positive experiences of practical application of sustainable programs.

**Resource centre:** a collection of documents produced or promoted by WOS (i.e.: policy and reflection papers, scientific articles etc.).

# How to participate?

---

- **Consulting** the resources published on the website
- **Interacting**, adding comments and notes to the items included
- **Submitting** new materials to WOS
- **Contributing** to the WOS organization:
  - as a member
  - as a scientific moderator
  - participating in WOS meetings, working groups and events



# Thanks to...

---

Cantina Vignaioli del Morellino di Scansano

La Cedraia

Mastroberardino

Tasca D'Almerita

Masi Agricola

Cantine Riunite & CIV

F.II Gancia

Marchesi Antinori

Michele Chiarlo

Castello Monte Vibiano Vecchio

Arnaldo Caprai

Principi di Porcia

Planeta

Cantina Settecani

Venica&Venica

# Thank you for your attention

---



*Ettore Capri,  
OPERA, UCSC*



*Fiamma Valentino, Ministero  
dell'Ambiente e della Tutela  
del Territorio e del Mare*



*Pieter Ravaglia, Ministero  
dell'Ambiente e della Tutela del  
Territorio e del Mare*



*Lucrezia Lamastra,  
UCSC*



*Matteo Monchiero,  
ANT-NET*



*Elisa Novelli,  
OPERA, UCSC*



*Chiara Corbo,  
OPERA, UCSC*



*Andrea Di Guardo,  
Informatica ambientale*



*Stefano Stefanucci,  
Unione Italiana Vini*