



**International Organisation
of Vine and Wine**
Intergovernmental Organisation

SUSTAINABILITY IN THE VITIVINICULTURAL SECTOR: INNOVATIVE PRACTICES, SOIL MANAGEMENT AND GENETIC DIVERSITY

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The global reference
for vine and wine

OIV | Strategic Plan 2025 – 2029

ABOUT OIV

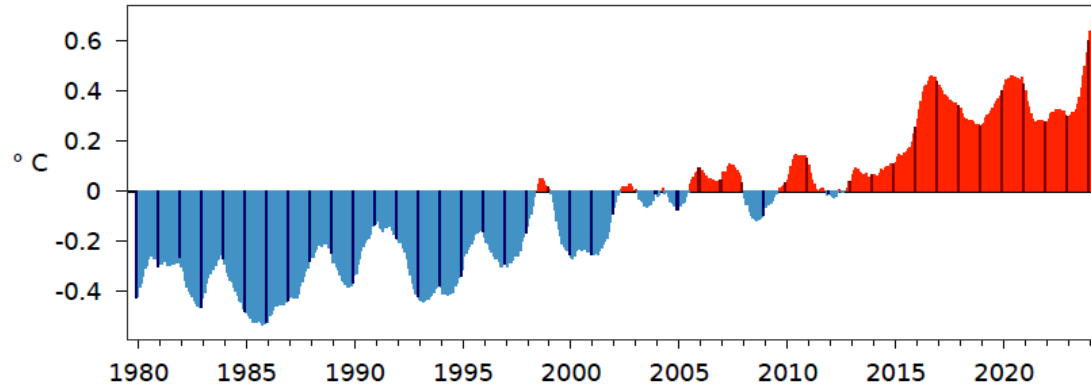
Vision: The global reference for
vine and wine

- 85% vineyard surface area
- 90% world wine production
- 75% world wine consumption
- 51 Member states
- 17 Observers

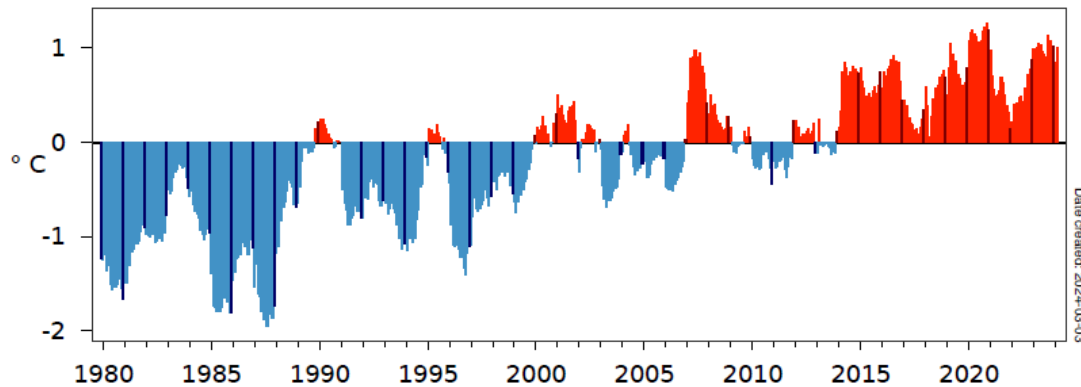
CLIMATE CHANGE

KEY MESSAGES FROM IPCC REPORTS

Twelve-month global surface air temperature anomalies



Twelve-month European surface air temperature anomalies



(Data: ERA5. Reference period: 1991-2020. Credit: C3S/ECMWF)



PROGRAMME OF
THE EUROPEAN UNION



DATA PROVIDED BY



1. Climate impacts on people and ecosystems are more widespread and severe than expected
2. Adaptation measures can effectively build resilience, but more finance is needed to scale solutions
3. Some climate impacts are already so severe they cannot be adapted to, leading to losses and damages
4. The world must rapidly shift away from burning fossil fuels, the number one cause of the climate crisis
5. Climate finance for both mitigation and adaptation must increase dramatically this decade



CLIMATE CHANGE



nature reviews earth & environment

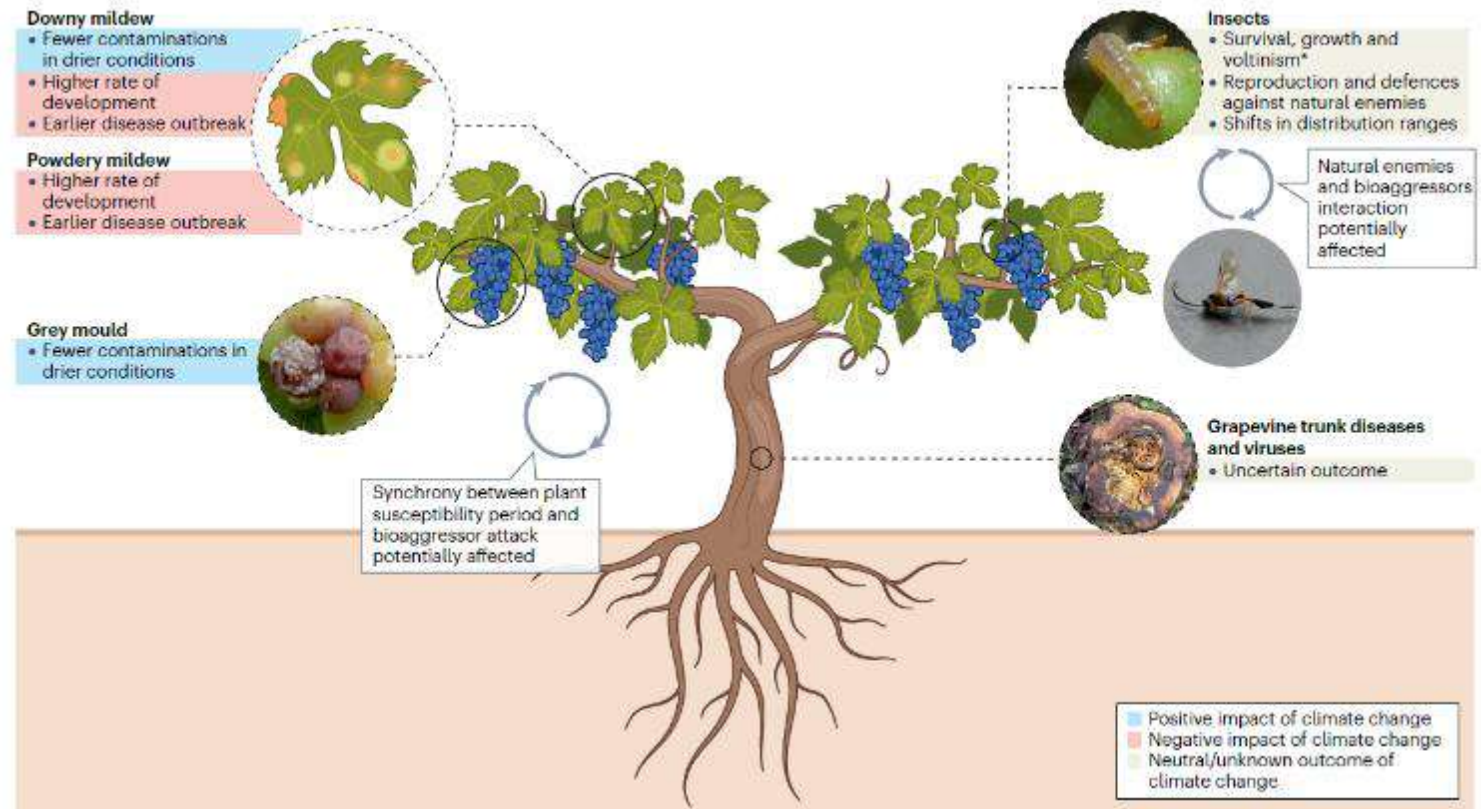
<https://doi.org/10.1038/s43017-024-00521-5>

Review article

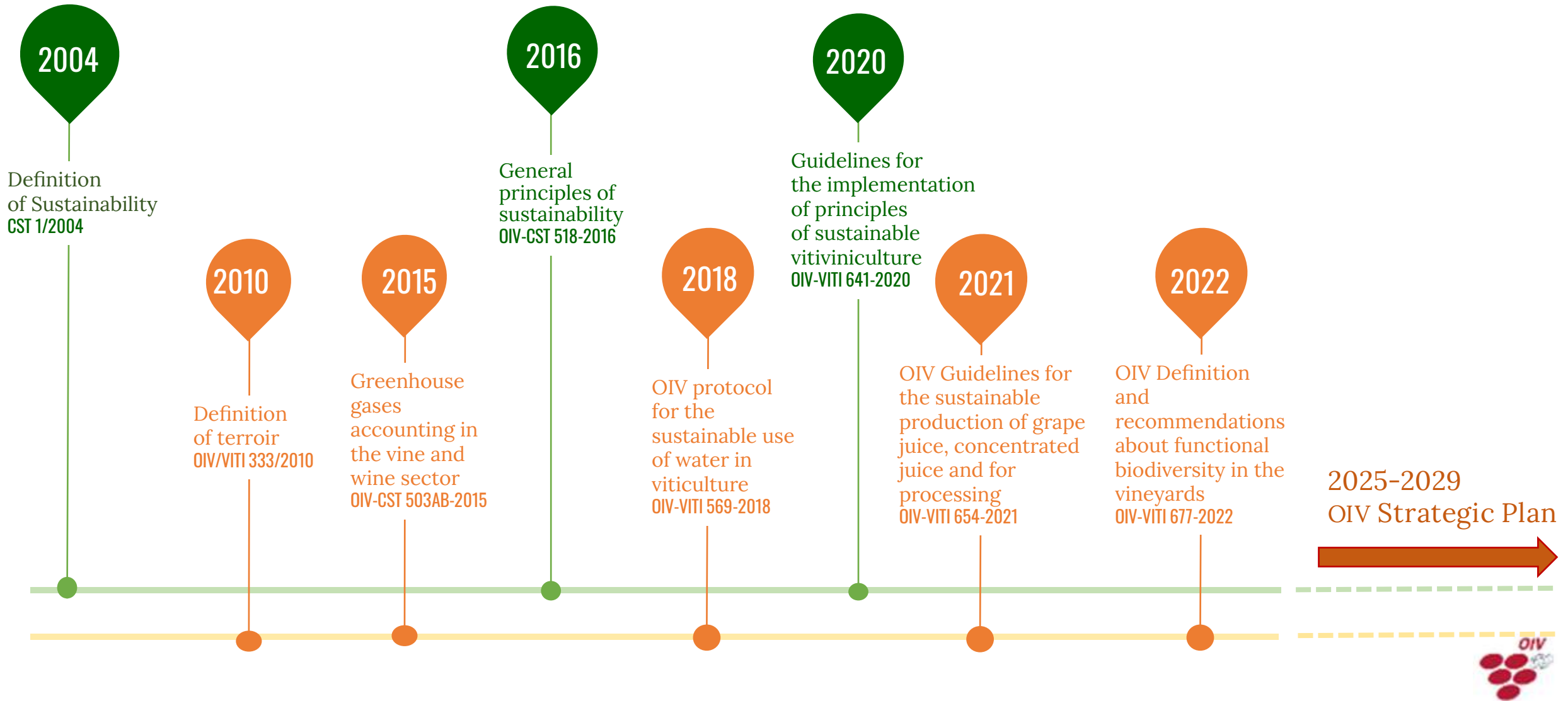
Check for updates

Climate change impacts and adaptations of wine production

Cornelis van Leeuwen¹✉, Giovanni Sgubin^{2,3}, Benjamin Bois⁴, Nathalie Ollat¹, Didier Swingedouw², Sébastien Zito¹ & Gregory A. Gambetta¹



OIV SUSTAINABILITY MISSION





OIV Priorities

1.

Coordinate approaches
to sustainability



2.

Promote resilient and
sustainable viticulture



3.

Adapt oenology and
production processes
to the future

4.

Support all
vitivinicultural products

5.

Simplify
international trade

6.

Contribute to consumer safety
and inform perspectives
on vine, wine and society

FUTURE CHALLENGES

1. Climate Change and Sustainability

- a. standards and indicators to measure the impact of climate change
- b. methods to evaluate the environmental, economic and social sustainability
- c. novel approaches of production to mitigate the impact of climate change and to enhance the sustainability

2. Resilient Viticulture

- a. recommendations and guidelines to preserve the grapevine genetic heritage from the risk of erosion and to increase the biodiversity
- b. protection of grapevine against emerging/epidemic diseases and pests, to safeguard the productivity and the lifetime of the vineyards
- c. contribute to the development of the table grape and dried grape sectors, and their adaptation to the changes of eating habits



FUNCTIONAL BIODIVERSITY IN THE VINEYARD

“Functional Biodiversity is defined as a set of organisms, microorganisms and their species that contribute to ecosystem functions in an agroecosystem which promotes sustainability and resilience of production systems.

Functional Biodiversity seeks to integrate ecological infrastructures (hedgerows, woodlands, dry-stone walls, ground covers, insect hotels, etc.) and management practices (e.g. cover crops, livestock, microbial inoculation, etc.), in order to support and enhance ecosystem services and biodiversity in and around the vineyard and to facilitate their management by increasing the quality of the production, while recovering and maintaining the quality and functionality of landscapes.”





CLIMATE CHANGE: RESILIENCE

- Climate change adaptation is unavoidable
- Initial purpose: to indicate strategies to avoid or to reduce the negative effects of climate change by:
 - ✓ Defining Climate Change Resilience
 - ✓ Assessing Climate Change Resilience
- Case study of the earthquake in NZ (*Fath et al. 2019*): focus on the complexity of the system and the balance between the system efficiency and resilience

RECOMMENDATIONS FOR ACCOUNTING FOR GHG BALANCE

GENERAL OBJECTIVES

- ✓ Update the GHG emissions calculation specific to the vitivinicultural sector (OIV Collective Expertise Document 2017)
- ✓ Have a reference document easily accessible to the vitivinicultural sector for calculating the GHG emissions
- ✓ Define a document structure that facilitate the target audience
- ✓ Finding specific information





METHODOLOGIES REVIEW FOR WFP CALCULATION

Different approaches in WFP calculations
for 1 question: how much water is needed to produce
grape and wine?

- Water Footprint Network (WFN, Hoekstra and co-authors): considers all freshwater consumption in crop production, including green, blue and grey water
- Life Cycle Assessment (LCA): considers local water scarcity and produces a « stress weighted water footprint »
- Hydrological approach considering hydrological inflows, outflows and storage changes

OIV DEFINITIONS OF GRAPEVINE PLANT MATERIAL

- ✓ Need to clarify the **potential differences** between the designations of different concepts related to classification and to vine varieties at an international level.
- ✓ Need to adopt the following **definitions** in relation to the classification of plant material used in the vitivinicultural field:

VARIETY

CULTIVAR

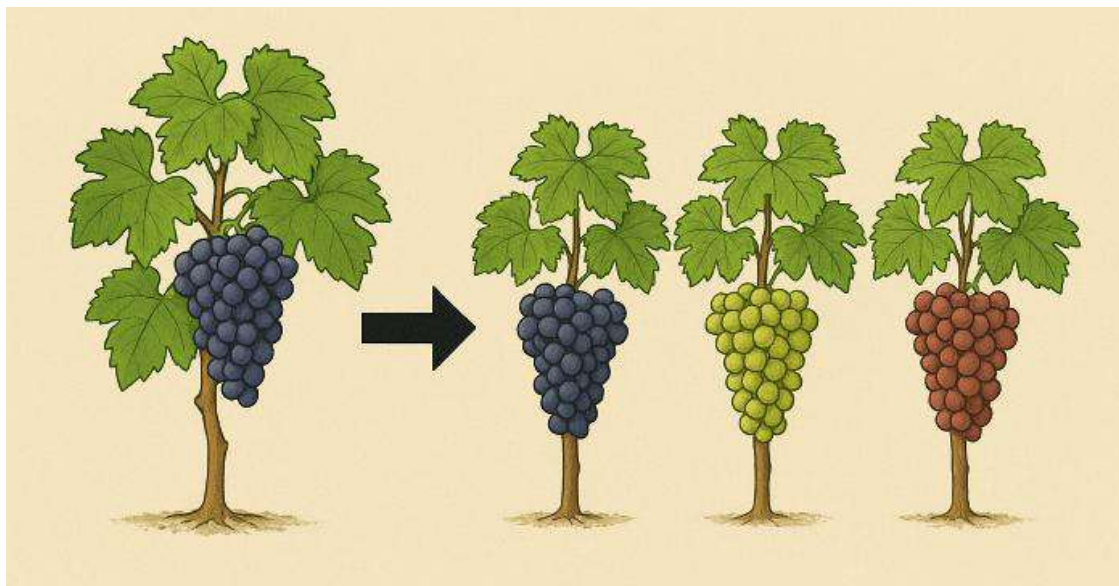
ESSENTIALLY DERIVED VARIETY

HYBRID

RESISTANT/TOLLERANT VARIETY ...



INTRA VARIETAL SELECTION



- ❑ Naturally created and accumulated over centuries
 - guarantees a strong historical and natural character,
 - which adds high economic value to viticulture and wine
- ❑ Allows to carry out selection within a variety
 - and adapt it to the most diverse environmental, agricultural, and market contexts.



NEW GENOMIC TECHNIQUES IN VITICULTURE

Main Objectives:

- A. Study the development of **New Genomic Techniques (NGTs)** - previously known as New Breeding Technologies - and its synergy with other current breeding and selection approaches.
- B. Study and promote the development (**propagation/multiplication**) of plant material using NGTs and its research capacities for production and exchange.
- C. Establish general principles that allow the study and evaluation and dissemination of NGTs in a **sustainable vitivinicultural sector model**, federating all voluntary stakeholders of the public and private sectors (national governments, local and regional governments, companies, trade organizations, NGOs, research facilities, etc.).



NEW DISEASE RESISTANT GRAPE VARIETIES

Main Objectives

- ✓ To develop a global network to study the viticultural/oenological performance of tolerant/resistant vine varieties under different pedoclimatic conditions
- ✓ To consolidate knowledge on resistant/tolerant vine varieties
- ✓ To provide appropriate and territorialized information to interested winegrowers, without being an obstacle to the dissemination and use of resistant/tolerant vine varieties
- ✓ To set an international and harmonized protocol for assessing the aptitude of resistant/tolerant vine varieties, to be reviewed periodically

ALTERNATIVE TO THE USE OF COPPER

- ✓ Scope: increasing restrictions to the use of Copper, towards a future replacement
- ✓ Objectives:
 1. Inventory of the alternatives to the use of Copper (based on scientific data)
 2. Summarise the regulatory outlooks among the OIV member States
- ✓ Parallel activities >>> OIV involvement in Stakeholder Advisory Committees
 1. NOVATERRA: EU H2020 Project to reduce the negative impact of pesticides
 2. COPPEREPLACE: EU SUDOE Interreg Project to reduce the application of copper in vineyards



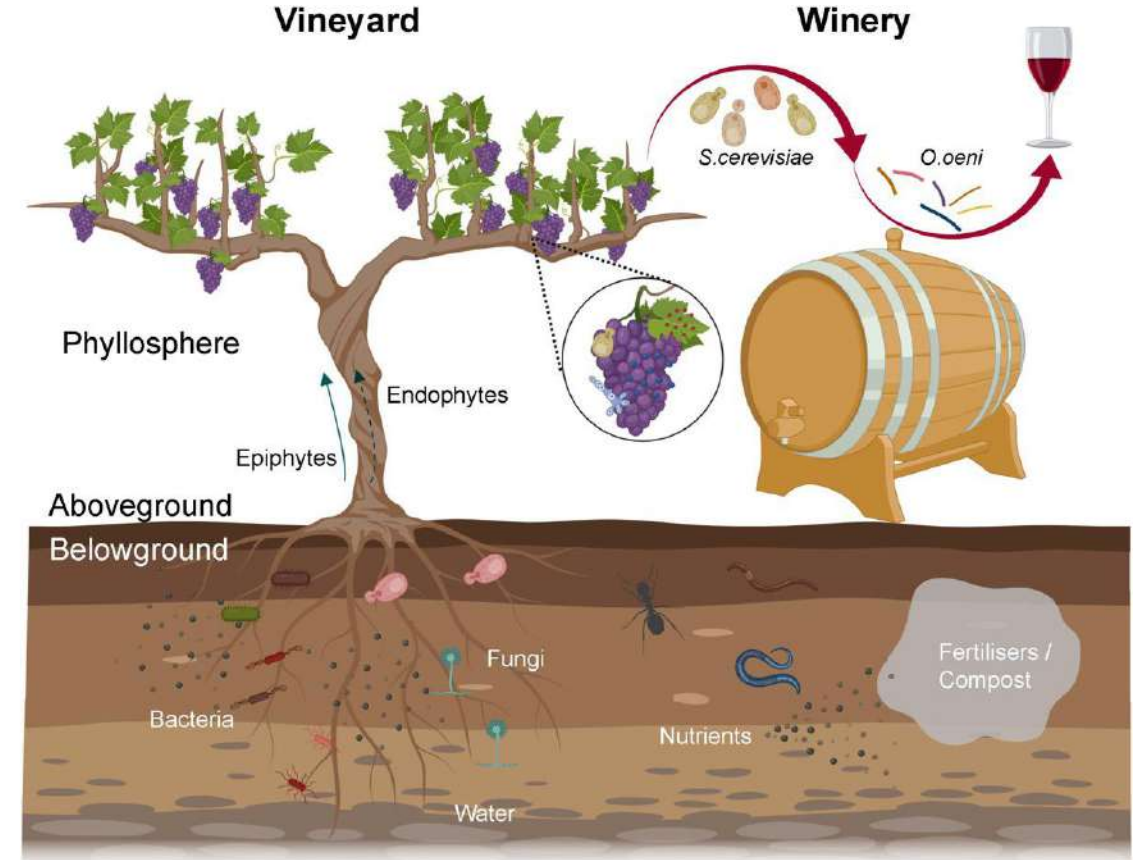


ALTERNATIVE TO THE USE OF COPPER

- ✓ Biocontrol Agents (BCAs)
- ✓ Inorganic Materials
- ✓ Microbial extracts and Natural Derivatives
- ✓ Vegetal Extracts
- ✓ Synthetic Materials
- ✓ Other Copper Formulations
- ✓ Cultural practices

MICROBIAL BIODIVERSITY

- ✓ The microbiology is the common thread of winemaking: from vineyard soil to wine fermentation >>> to be preserved
- ✓ Overview about the microbial diversity in vineyard, by illustrating major traits of fungi and bacteria populating the viticultural environment
- ✓ Supporting the application of the recommendations established in the OIV-VITI 655-2021 RESOLUTION



Liu et al., 2019 (Front. Microbiology)

HEALTHY AND LIVING SOIL

- Follow up Exp. Col. Doc. *in press* on soil microbial diversity
- OIV Strategic Plan 2025-2029 attainment
- Implementation of the MoU OIV & 4 per 1000 Initiative
- Next steps:
 - ✓ Identifying parameters and criteria to be applied to monitor the health and vitality of viticultural soils
 - ✓ By developing a technical document
 - ✓ To be discussed transversally by the SUSTAIN Group





VINE PROTECTION & VITICULTURAL TECHNIQUES

- ✓ “OIV recommendations for limiting outbreaks of Grapevine FD”
 - *Resolution OIV-VITI 758-2025* - Preeminent topic >>> adopted in 2025
- ✓ Preventing the introduction of Flavescence dorée
 - *Expertise Collective Document* - Preeminent topic >>> published in 2025
- ✓ “OIV recommendations to control the grapevine leafhoppers”
 - *Resolution Project VITI-PROTEC* - New project presented in 2025
- ✓ Good practices in mother vines and nurseries
 - *Resolution Project PROTEC-GENET 24-759* - Main elements to consider for the production of quality propagating material

Thank you!

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