

Sustainable water and soil management for resilient viticulture

Zaragoza (Spain) • 1-6 July 2024



Objectives

Vineyard producing regions are now confronting the realities of climate change, leading to significant shifts in their traditional viticultural practices. Given the increasing unpredictability of water sources and changing soil dynamics, sustainable water and soil management has never been more critical.

As global temperatures rise, vineyards face the double challenge of ensuring adequate water supply and maintaining soil health. This is further complicated by the push towards expanding viticulture, with many new vineyards being established in regions with different water availabilities and soil structures.

The course aims to equip participants with the knowledge and tools necessary for sustainable viticulture management, emphasizing the delicate balance between soil health and water conservation.

By the end of the course participants will:

- Have a comprehensive understanding of the challenges and implications of water scarcity in vineyards, particularly under the changing climate dynamics.
- Gain insights into the intricate balance of soil-water relationships, exploring the soil-plant-atmosphere interactions crucial for grapevine health.
- Understand the ecophysiological responses to various water and soil conditions, carbon exchange and the implications these have on grape quality and yield.
- Be equipped to identify sustainable strategies (environmental, social and economic) for soil and water management in viticulture.
- Possess knowledge regarding the potential and limitations of using alternative water sources, such as reclaimed or treated water, and salinity management for vineyard irrigation.
- Stay updated with cutting-edge technologies in carbon sequestration.

Organization

The course is jointly organized by the International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), through the Mediterranean Agronomic Institute of Zaragoza (CIHEAM Zaragoza), and the International Organisation of Vine and Wine (OIV).

The course will be held at the CIHEAM Zaragoza headquarters over a period of 1 week, from 1 to 6 July 2024, in morning and afternoon sessions. The course will be delivered on-line too and will be given by well qualified lecturers from international organizations, and from universities and research centres in different countries.

The course requires personal work and interaction among participants and with lecturers. The international characteristics of the course favour the exchange of experiences and points of view.

The programme has an applied approach. Lectures are complemented by applied examples, case studies and a round table discussion.

Participants will be invited to present a case study about the experience on the water and soil management in vineyard in their country of origin.



Programme

1. Current situation and perspectives of viticulture (OIV)
2. Resilience, adaptive capability and sustainability in viticulture
3. Climate change and viticulture
 - 3.1. Climate change: a multifaceted threat
 - 3.2. Scenarios and perspectives of climate change
 - 3.3. Implications of climate change on global viticulture and the wine industry
 - 3.3.1. Implications for the vineyard / table grape/ dried grape
 - 3.3.2. Implications for the cellar
4. Current status of soils and public policy
 - 4.1. Soil functioning
 - 4.2. Microbiome
 - 4.3. Organic matter
 - 4.4. Erosion
 - 4.5. Salinity
5. Control of vineyard microclimate (basics of water use)
 - 5.1. Mass and energy exchanges
 - 5.2. Radiative fluxes; Sensible and latent heat fluxes
 - 5.3. Leaf and canopy energy balance; Penman-Monteith equation
 - 5.4. Movement of water in the Soil-Plant-Atmosphere Continuum
6. Ecophysiology
 - 6.1. Root absorption
 - 6.2. Carbon exchange
 - 6.3. Optimization of water fluxes
7. Soil and water management in viticulture
 - 7.1. Soil type, soil structure and soil management, including grass crops, cover crops
 - 7.2. Irrigation systems and technology
 - 7.3. Monitoring, scheduling and defining replacement volumes
 - 7.4. Plant density and canopy configuration and management
 - 7.5. Tools for limiting the evapotranspiration demand in the vineyard
 - 7.5.1. Physical structures or barriers for limiting evapotranspiration
 - 7.5.2. Physiological structures and grapevine performance: selecting water-efficient planting material
 - 7.5.3. Foliar or soil application products for limiting evapotranspiration
 - 7.6. Recycling, reuse and salinity management
 - 7.7. Carbon sequestration
8. Case studies:
 - 8.1. Irrigation management and salinity control in the Israel Negev desert
 - 8.2. Good practices for efficient water use
 - 8.3. Irrigation scheduling strategies in Spain
 - 8.4. Fertilization strategy in regenerated agriculture
 - 8.5. Long-term monitoring of runoff and solid transport in the vineyard
9. Participants' experience on water and soil management in the vineyard in their countries of origin
10. Round table discussion
11. Field visit (Saturday)

Guest lecturers

Belda, Ignacio – Universidad Complutense de Madrid (Spain)
Biddoccu, Marcella – National Research Council of Italy (CNR)(Italy)
Contin, Marco – University of Udine (Italy)
Fait, Aaron – Ben-Gurion University of the Negev (Israel)
Gatti, Matteo – Univ. Cattolica del Sacro Cuore in Piacenza, Milano (Italy)
Girona, Joan – IRTA, Lleida (Spain)
Lazarovitch, Naftali – Ben-Gurion University of the Negev (Israel)
Marcos, Luís – ADVID, Vila Real (Portugal)
Pitacco, Andrea – Università Degli Studi Di Padova (Italy)
Santesteban, Gonzaga – Universidad Pública de Navarra (Spain)
Schultz, Hans Reiner – Hochschule Geisenheim University (Germany)
Torres Duggan, Martin – Tecnoagro and Argentinean Soil Science Association (Argentina)



Admission

The course is designed for 25 face-to-face participants and 30 online participants with a university degree, and is aimed at public and private managers and decision-makers, agronomists, environmentalists, technical advisors and experts from R&D institutions involved in water and soil management in viticulture.

Given the diverse nationalities of the lecturers, knowledge of English and Spanish will be valued in the selection of candidates, since they will be the working languages of the course. The Organization will provide simultaneous interpretation of the lectures in these two languages.

Registration

- Candidates must apply online at the following address: <http://www.admission.iamz.ciheam.org/en/>
- Applications must include the curriculum vitae and copy of the supporting documents most related to the subject of the course.
- The deadline for the submission of applications is **10 March 2024**. The deadline may be extended for candidates not applying for a scholarship if there are free places available.
- Applications from those candidates requiring authorization to attend the course may be accepted provisionally.
- Registration fees for the course amount to 500 euro for face-to-face participation and 350 euro for online participation.

Scholarships

Candidates from CIHEAM member countries (Albania, Algeria, Egypt, France, Greece, Italy, Lebanon, Malta, Morocco, Portugal, Spain, Tunisia and Turkey), may apply for scholarships covering registration fees, and for scholarships covering the cost of travel and full board accommodation.

Candidates from other countries who require financial support should apply directly to other national or international institutions.

All candidates will undergo a selection process based on their profile.

Insurance

It is compulsory for participants in face-to-face modality to have medical insurance valid for Spain. Proof of insurance cover must be given at the beginning of the course. Those who so wish may participate in a collective insurance policy taken out by the Organization, upon payment of the stipulated sum.

Contact:

Belkhodja, Ramzi
Academic coordinator
iamz@iamz.ciheam.org

Battiston, Enrico
Head of Unit Viticulture, OIV
viti@oiv.int