

# From Soil to Grape: Multi-Scale Monitoring and Precision Irrigation in Madeira Vineyards


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CERVIM international congress  
06-08 of May 2026 - Montreux



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# Madeira and ISOplexis Centre - UMa



**ISOplexis**  
Centro de Agricultura Sustentável e Tecnologia Alimentar

- ISOPlab
- QSAlab
- BG ISOplexis
- ISOPserviços

Por um futuro sustentável

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**ISOplexis**  
Centre for Sustainable Agriculture and Food Technology

# Overall Objective

The **isUP-AgrO project** aims at the improvement of ISOPlexis, creating an excellent research centre in the agriculture sector.

With this project, the **ISOPlexis Centre team** will receive training and develop administrative and management skills for R&I. isUP-AgrO is developing the **networking activities between partners through a strategy comprising expert visits, short-term training, workshops, staff exchanges, as well as conference attendance, dissemination, and outreach activities.**

- Complementary to these Support Actions, the project also **includes a Research component**, where the team will integrate the knowledge and skills gained from the other activities into a **joint research project**.

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Unlocking the Potential for Agricultural research on an EU Outmost region: boosting ISOPlexis centre

**Unlocking the Potential for Agricultural research on an EU Outmost region: boosting ISOPlexis centre**

Fact Sheet

**Project description**

EN ES FR IT PL

**Enhancing sustainable agriculture in Madeira**

Global food security and environmental sustainability are major concerns in today's world. However, achieving these goals faces challenges, particularly in agricultural research. Despite advancements, many research centres struggle to achieve international visibility, hindering collaboration and progress. In this context, the EU-funded isUP-AgrO project aims to elevate the ISOPlexis research centre, located in Portugal's Madeira region, into a prominent EU hub for sustainable agriculture and food technology. Collaborating with research centres from Spain and Italy and a Portuguese company, isUP-AgrO focuses on skill development, networking and joint research. Through training, exchanges and innovative methodologies, the project aims to establish ISOPlexis as a key player in the European landscape of sustainable agriculture.

Show the project objective

**Keywords**

Agriculture Agrobiodiversity Agrosystem services Precision agriculture Sustainability

**Programme(s)**

HORIZON 4.1 - Widening participation and spreading excellence MAIN PROGRAMME

**Topic(s)**

HORIZON-WIDERA-2023-ACCESS-02-01 - Twinning Bottom-Up

**Call for proposal**

HORIZON-WIDERA-2023-ACCESS-02

**Project Information**

**isUP-AgrO**  
Grant agreement ID: 101159644

**DOI**  
[10.3030/101159644](https://doi.org/10.3030/101159644)

**EC signature date**  
14 March 2024

**Start date**  
1 July 2024

**End date**  
30 June 2027

**Funded under**  
Widening participation and spreading excellence

**Total cost**  
No data

**EU contribution**  
€ 1 431 827,92

**Investment in EU policy priorities**

Digital agenda  Clean air

Artificial intelligence  Climate action

Biodiversity

**Coordinated by**  
Universidade da Madeira  
Portugal

# Consortium



**UNIVERSITÀ  
DI PARMA**



**Carla Ragonezi**

**Lead Coordinator**

**University of Madeira –  
ISOplexis**

FUNCHAL, MADEIRA - PORTUGAL



**Gianni Galaverna**

**Partner**

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PARMA - ITALY



**Enrique Fernández**

**Partner**

**CSIC – IRNAS**

SEVILLE - SPAIN



**Ana Branco**

**Partner**

**SaturnTech, Lda.**

FUNCHAL, MADEIRA - PORTUGAL




# The project comprises 6 work packages



**WP1**  
Project Coordination and Management



**WP2**  
Training Schools and International Workshops



**WP3**  
Staff Exchange



**WP4**  
Research Management, Networking, and Proposal Development



**WP5**  
Communication and Dissemination



**WP6**  
Exploratory Research Project

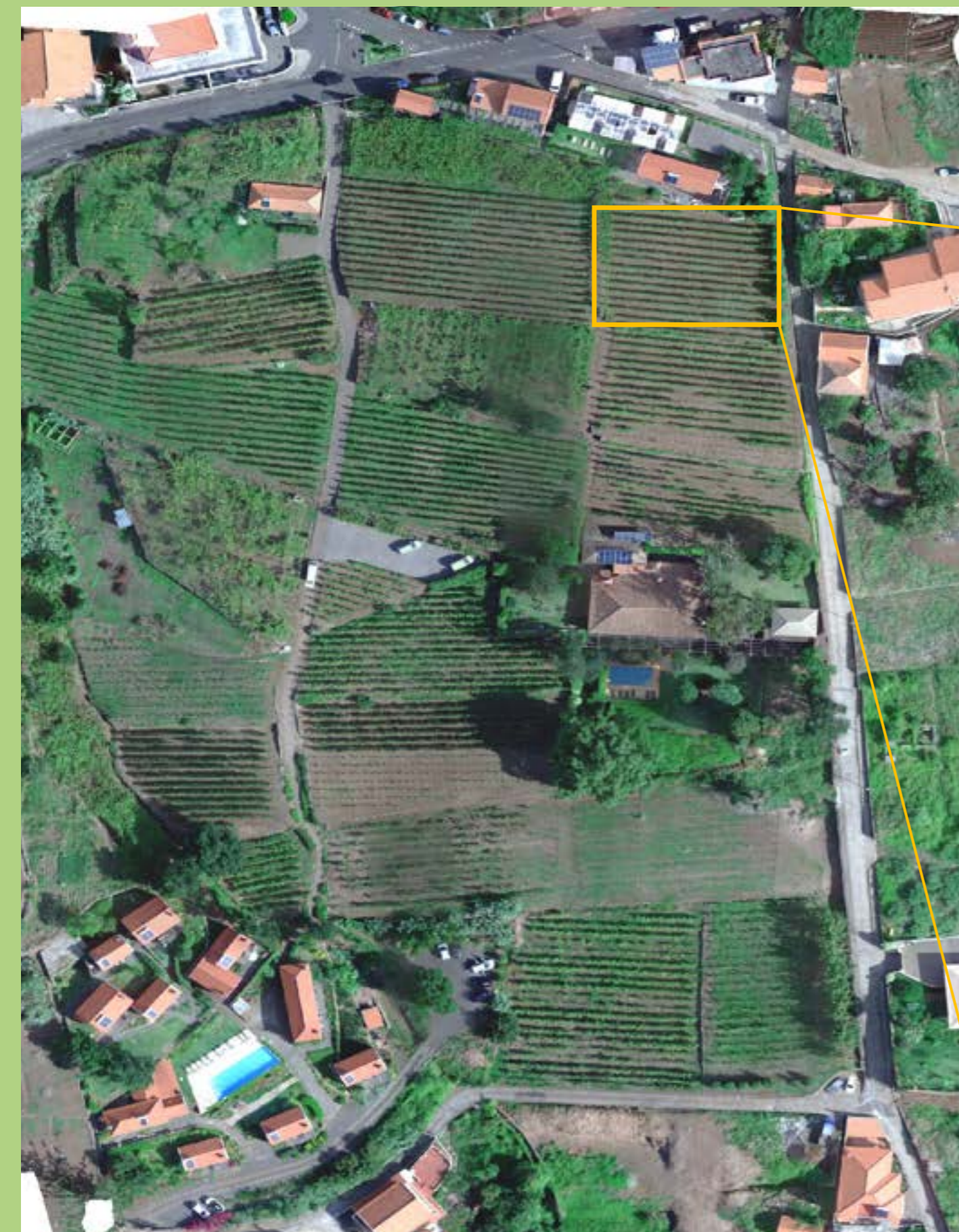


# WP6. Research Project

- Study areas

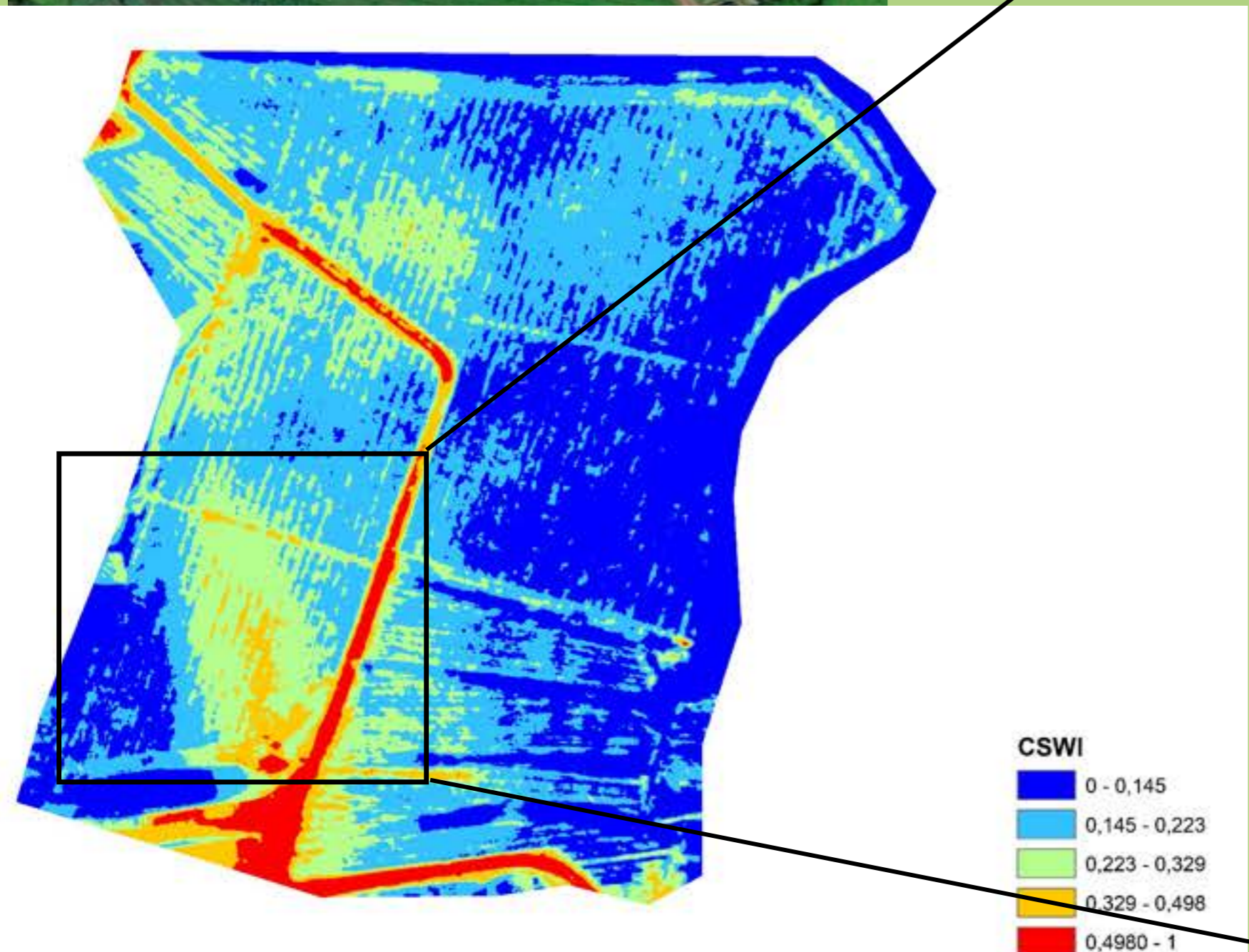


✓ Quinta das Vinhas, Arco da Calheta (south)





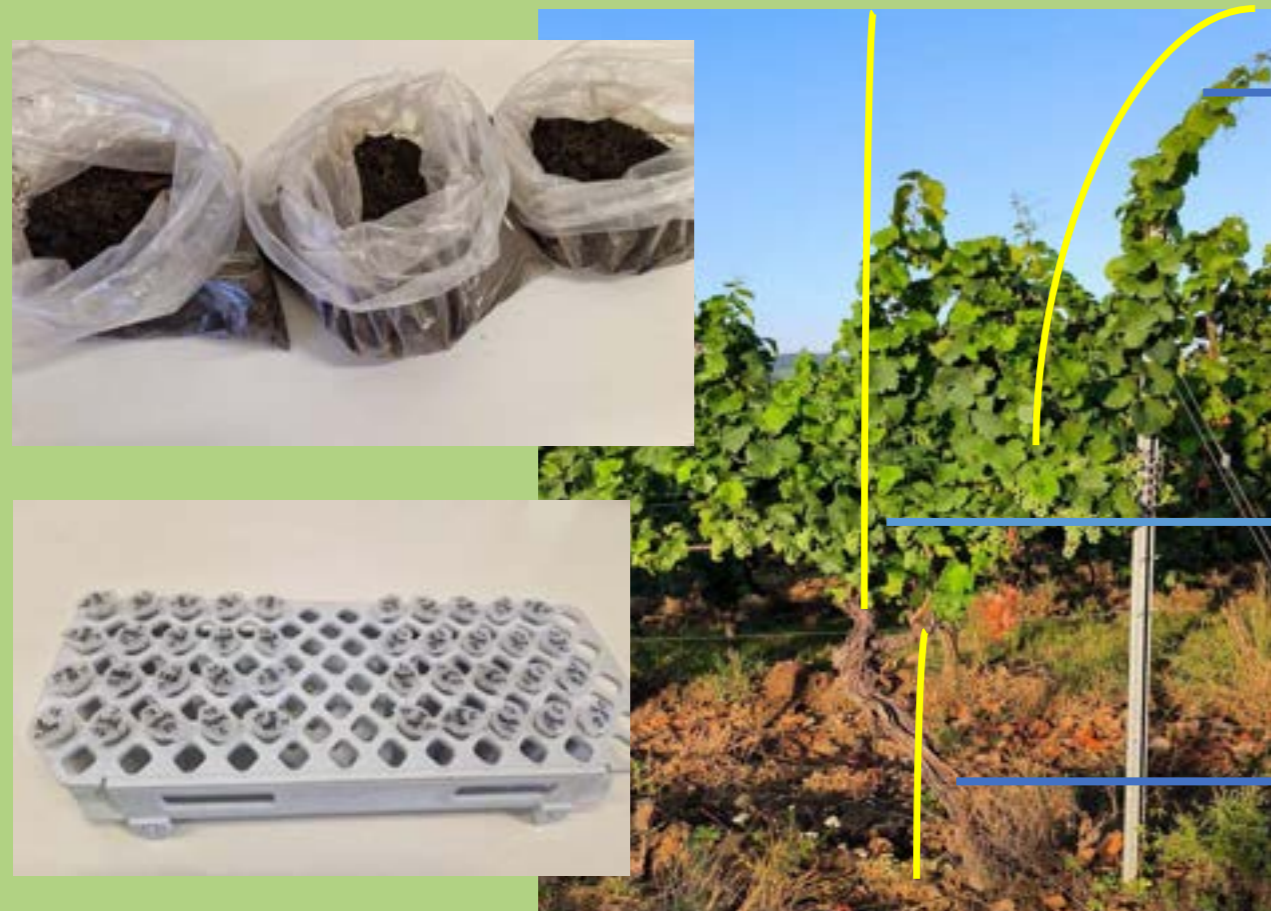
✓ Vinhas do Tico, Lamaceiros Porto Moniz (north)



- Crop ecophysiology and soil biodiversity (M9-M29)



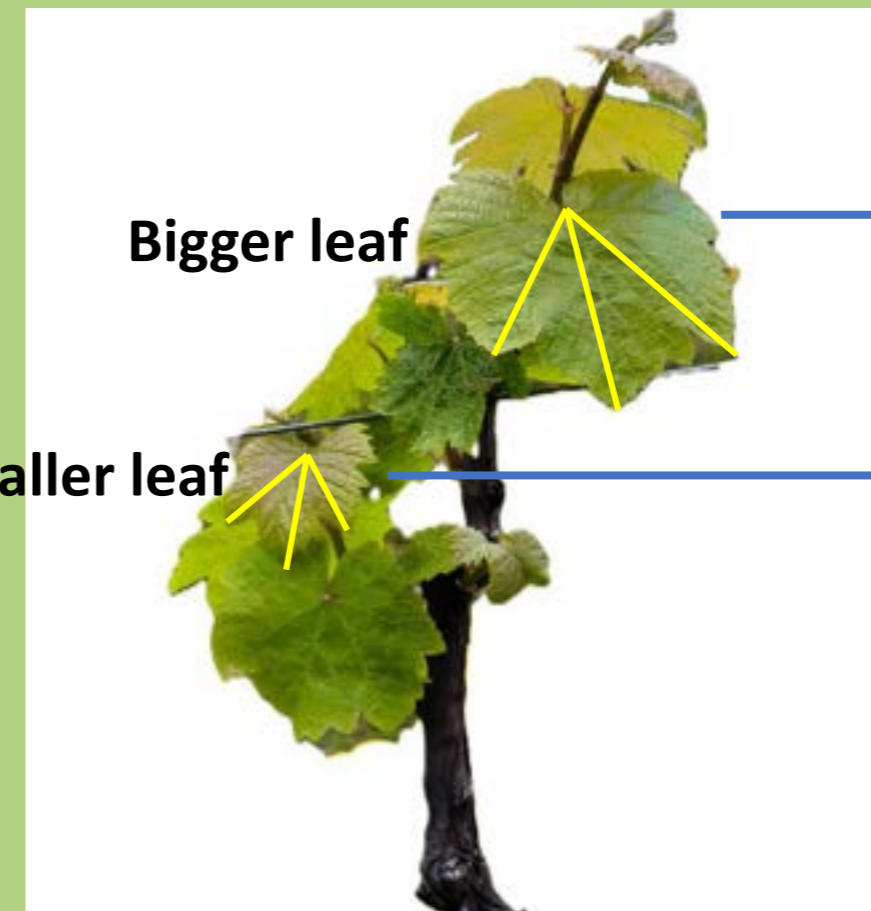
• **Weekly:** IRGA, drone, and soil humidity/temperature



Branch length  
Nº of leaves

Crown height

Base height



Bigger leaf

Smaller leaf

Left nerve  
Midner vein  
Right nerve

Left nerve  
Midner vein  
Right nerve

• **Phenological stages:** = weekly + biometric, soil microbiome

- Productivity and Quality (M18-M29)
- Valorization and circularity (M18-M29)
- Data systematization, analysis, and dissemination (M25-M35)



• **Harvest:** fruit biometric and quality + by products



- Total weight of the bunch
- Weight of 3 bunches
- Total number of bunches on the plant
- Bunch length
- Berry diameter



- Installation of the intelligent monitoring system



- **Meteorological station ( measures of precipitation, temperature, humidity, wind, etc)**
- **Soil Temperature and humidity probes,**
- **Soil electroconductivity sensor**
- **Sap flow and dendrometers sensors**

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**WP2**

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**WP3**

Staff Exchange



**WP4**

Research Management, Networking, and  
Proposal Development



**WP5**

Communication and Dissemination



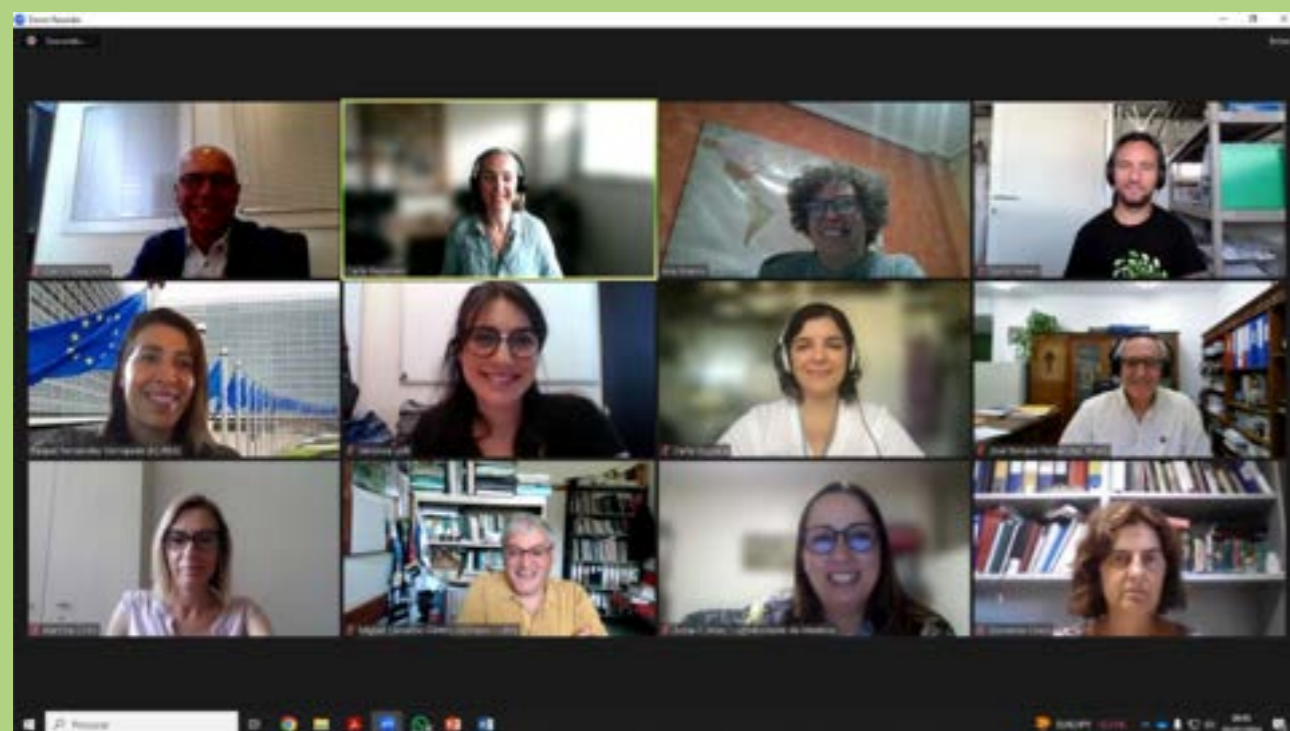
**WP6**

Exploratory Research Project

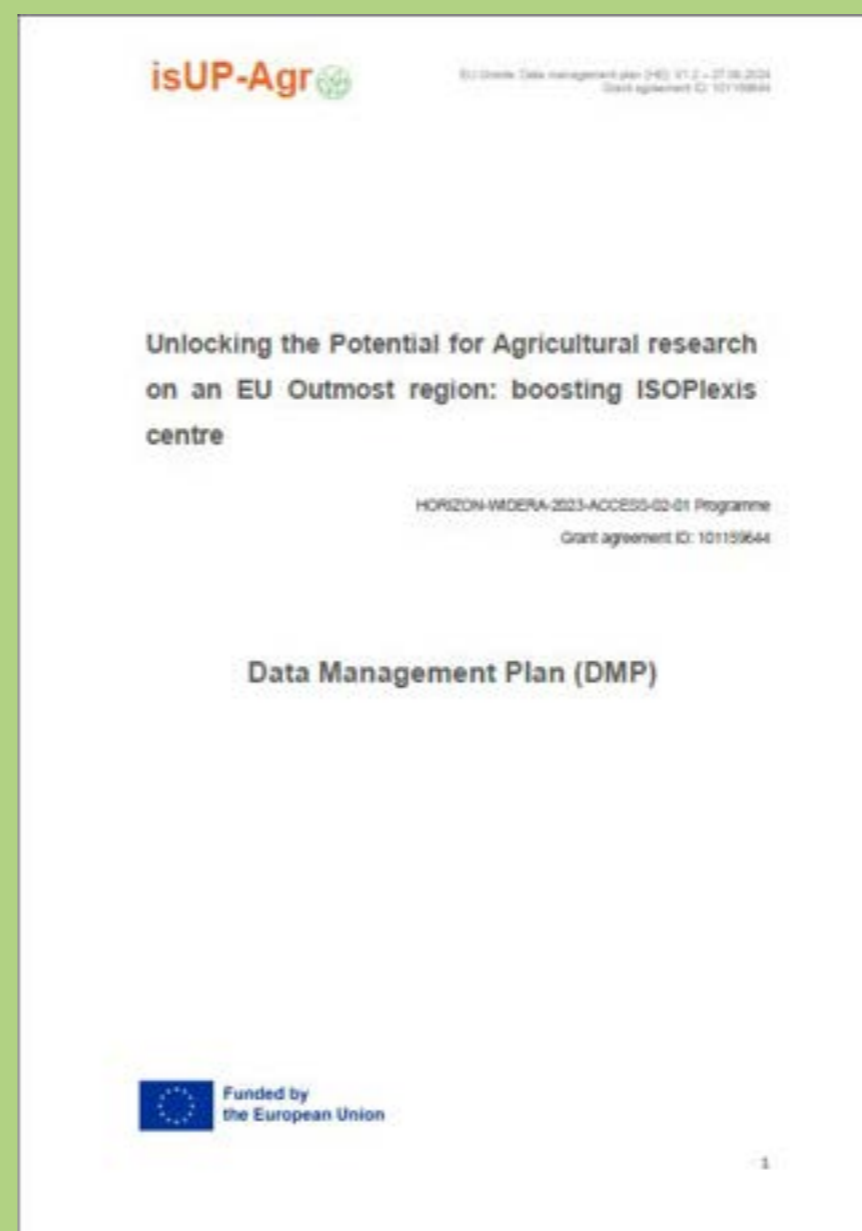


# WP1. Coordination and Project Management

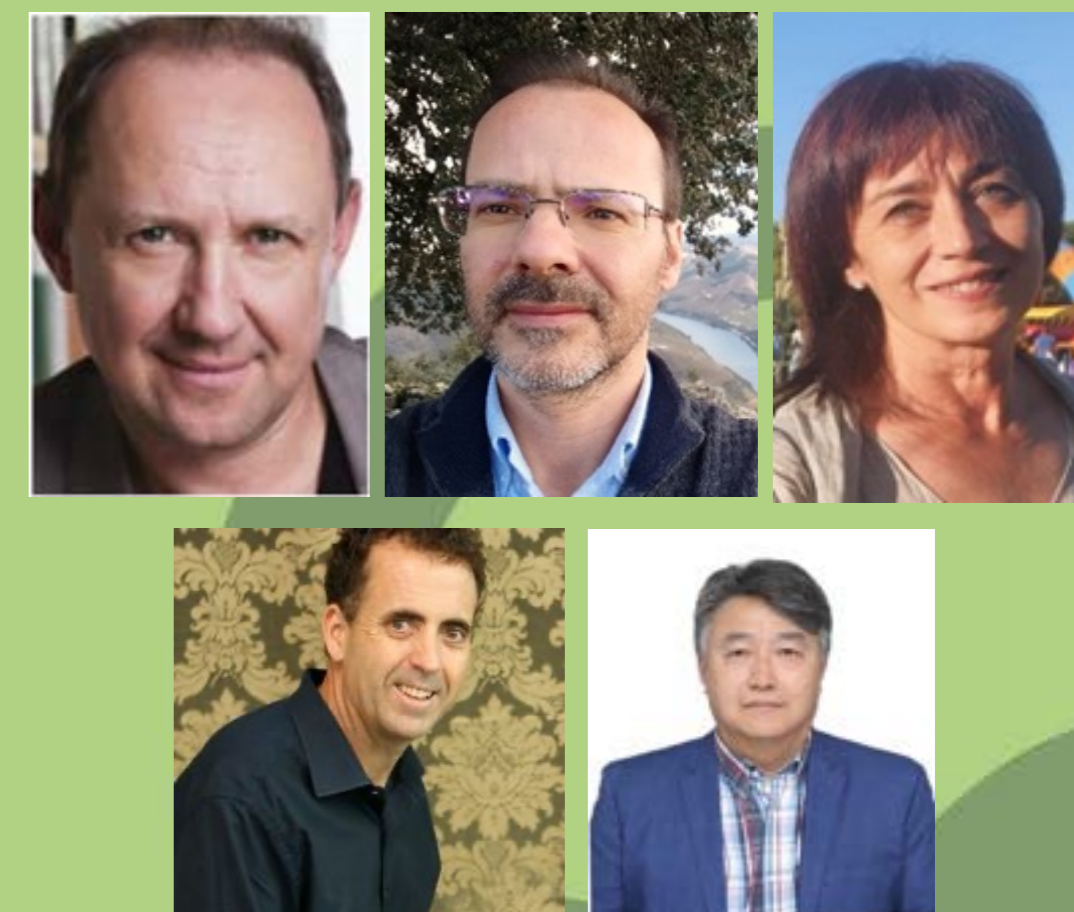
Kick-off Meeting (Month 1)



Data Management Plan (Month 4)



Advisory Board Purpose  
Balanced EU/non-EU representation



# WP2. Training School & International Workshops

- **Agrosystems and Crops Monitoring (M6), Leader: UMa, Participants: CSIC (18-22 of November 2024)**
- **Smart Irrigation Technologies (M8), Leader: UMa, Participants: CSIC (27-31 of January 2025)**
- **Soil Microbial Interactions - Challenges and Advanced Techniques (M16), Leader: UMa, Participants: CSIC, UNIPR (20-24 of October 2025)**
- **Add value to agriculture and food chain by-products (M22), Leader: UMa, Participants: UNIPR (13-17 of April 2026)**



# WP3. Staff Exchange

- **Crop ecophysiology and abiotic stresses research techniques (M3, M9), Leader: CSIC, Participants: UMa**
- **Smart crops irrigation technologies and strategies (M12), Leader: CSIC, Participants: Uma**
- **Metabolomic and omics tools (M20), Leader: UNIPR. Participants: UMa**



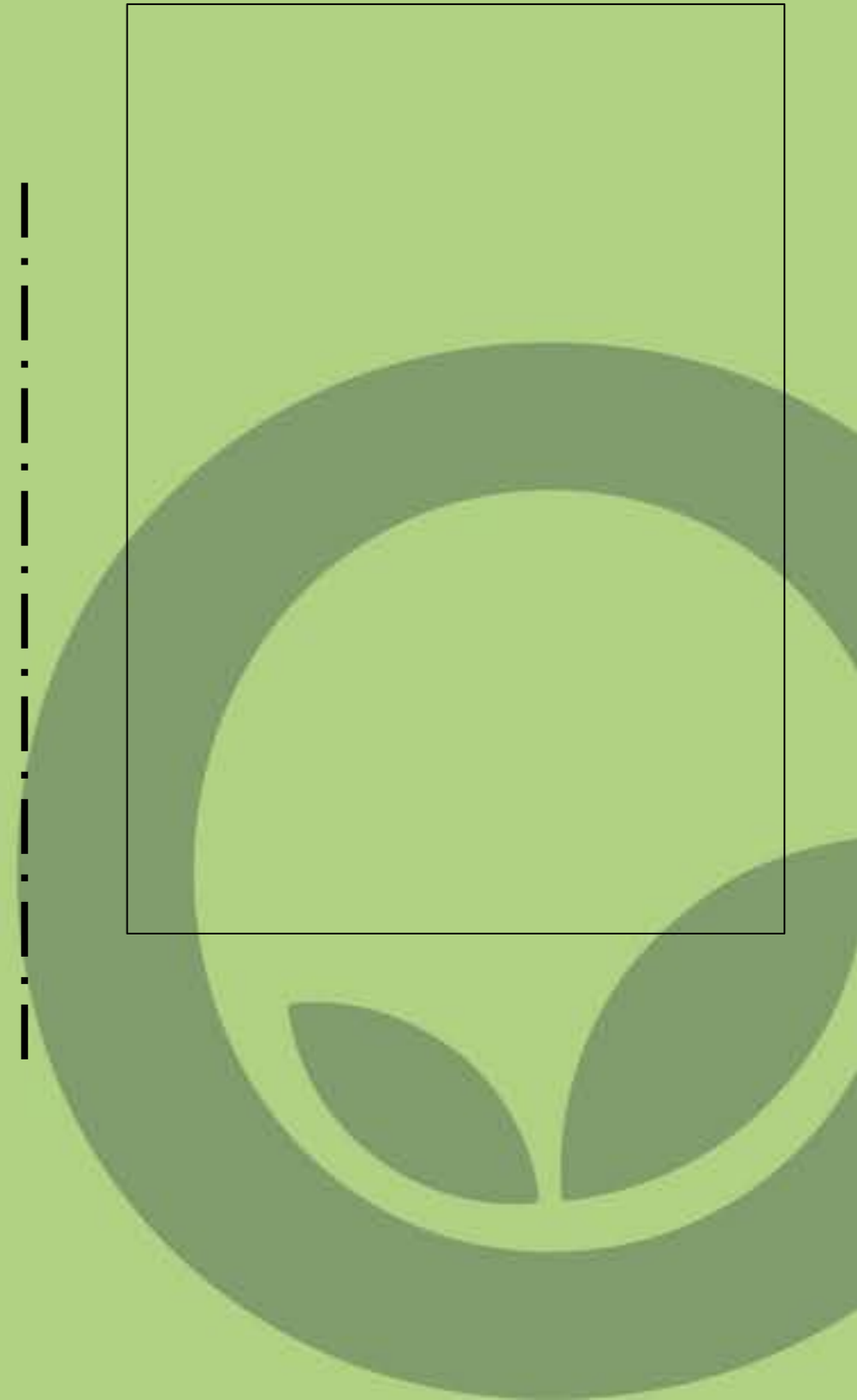
# WP4. Research Management, Networking & Proposal Elaboration

- Project Management (06-07 of January 2025)
- Administrative and Research Management Expert Stays in UMa (18-19 of February 2025)
- Staff Exchange - Administrative and Research Management Improvement (M12), Leader: Saturntech, Participants: UMa (June 2025)
- Training in the elaboration of international R&D proposal (20-21 of February 2025)



# WP5. Communication & Dissemination

- **Communication & Dissemination Strategy (M1-M36), Leader: Saturntech, Participants: All**
- **International Symposium (3rd year) (M24-M36), Leader: UMa, Participants: All (June 2027)**
- **Ensure community awareness and the dissemination of relevant knowledge (M6-M36), Leader: UMa, Participants: All**
- **Training school: scientific writing and academic publishing (M18), Leader: CSIC, Participants: UMa (10-11 December 2025)**
- **Participation in International Events (M1-M36), Leader: UMa, Participants: CSIC and UNIPR**
- **Promote Open Science Publications (M6-M36), Leader: UMa, Participants: All**
- **Improving Gender in Agriculture sector (M6-M36), Leader: UMa, Participants: All**
- **Local Policy Support (M24-36), Leader: Saturntech Participants: All**



# Dissemination Exploitation and Communication

## ✓ Communication & Outreach Achievements (Month 1–20)

- Overview of all dissemination actions from Months 1 to 20
- Combined contributions from all project partners
- Key outreach activities led by ISOPlexis
- Multiple communication channels used to reach diverse audiences

Type of activities	Publications / Actions
Newsletter	4
Radio / TV	6
Social Media	68
Website	34
Schools visits	4
Others major outreach initiatives	5
Participation in International Events	5



# Dissemination Exploitation and Communication

## ✓ Gender in Agriculture Initiative

- Three interviews published with women in agriculture
- Testimonials highlight challenges & opportunities
- School outreach featuring female researchers
- Promoting diversity and inclusiveness in the sector



**Fátima Rodrigues**



**Margarida Neto**



**Cláudia Alves**



**Maria Rosalinda Mourinho**

# isUP-AgrO - Twinning Project

## Main activities/achievements during the period (~20 months)

### Main Activities:

- 4 Training Schools + 4 Workshops.
- 4 Staff Exchanges (Seville and Parma) + 4 Knowledge transfer sessions at UMa.
- 2 Trainings on Project Management & Proposal Preparation.
- Dissemination & Communication Plan (M6) and toolbox launched.
- Participation in international events and multiple outreach activities.
- 4 Improving Gender in the Agriculture sector interviews
- School visits at ISOPlexis Centre (> 120 students) + outreach initiatives to students/public.

### Main Achievements:

- Strengthened ISOPlexis scientific and innovation capacity.
- Improved administrative and research management systems.
- Enhanced skills in proposal writing and financial management.
- Elaboration of 17 R&D proposals at regional, national, and international, including 7 Horizon Europe (HE) proposals by ISOPlexis Center.
- Expanded European network and institutional visibility.



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