Funded Projects 2024

PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA

Co-funded by
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Funded Projects 2024

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IN THE MEDITERRANEAN AREA

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Co-funded by the European Union

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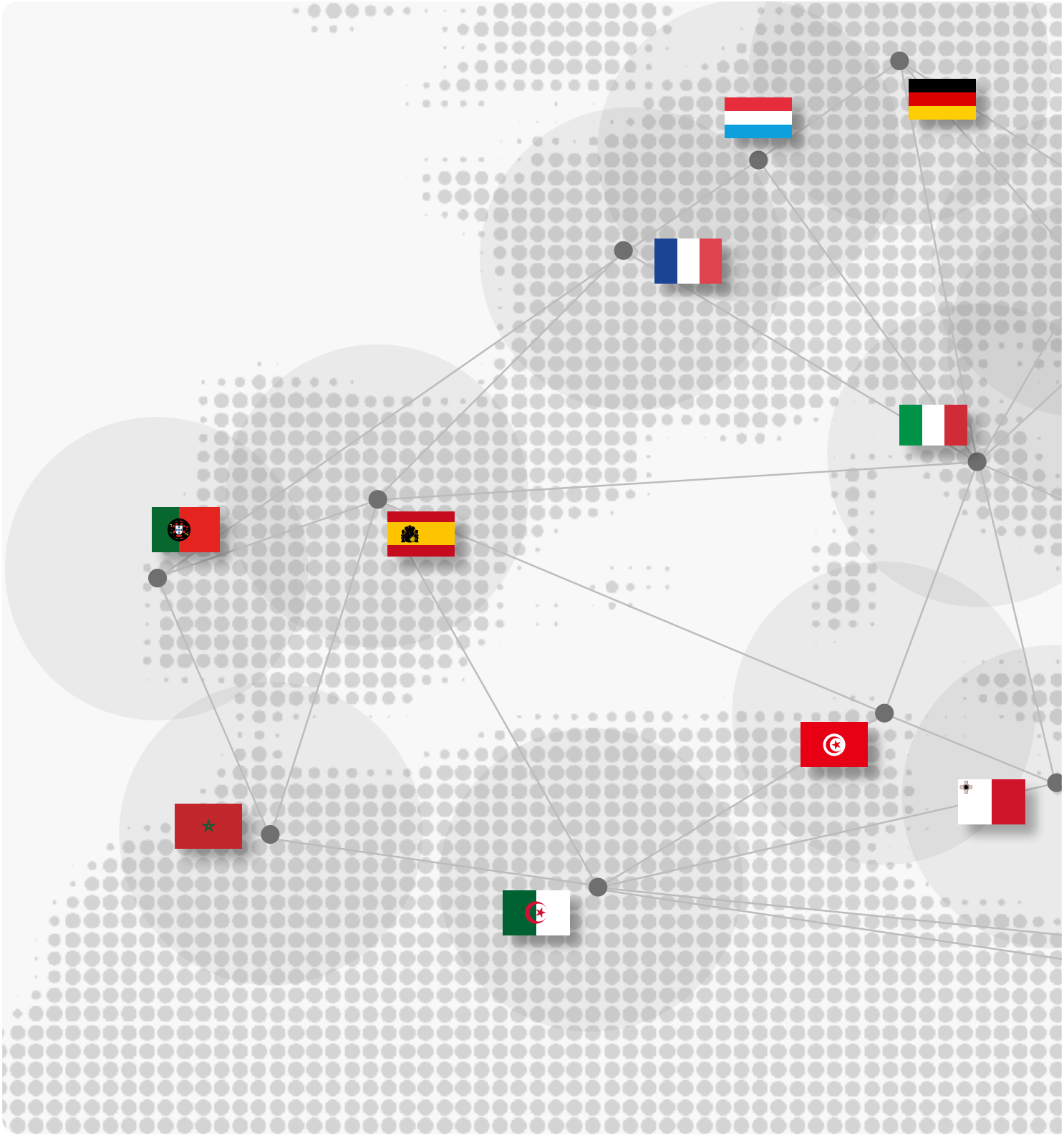
PRIMA, Funded Projects 2024 - January 2026

CALL REPORT PRIMA 2024

Index



PORTUGAL /PT

SPAIN /ES

FRANCE /FR

LUXEMBOURG /LU

GERMANY /DE

MOROCCO /MA

ALGERIA /DZ

TUNISIA /TN

ITALY /IT

MALTA /MT

SLOVENIA /SI

REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION, SCIENCE AND SPORT

GREECE /GR

GSRT
GENERAL SECRETARIAT FOR RESEARCH AND TECHNOLOGY

BULGARIA /BG

BULGARIAN SCIENCE FUND

TÜRKIYE /TR

TÜBİTAK

LEBANON /LB

CNRS
National Council for Scientific Research

CYPRUS /CY

Research Promotion Foundation

CROATIA /HR

REPUBLIC OF CROATIA
Ministry of Science and Education

EGYPT /EG

Academy of Scientific Research And Technology

STDF

ISRAEL /IL

משרד המדע, הטכנולוגיה והחלל
Ministry of Science, Technology & Space

רשות החדשנות
Israel Innovation Authority

ISERD

JORDAN /JO

Call Report **PRIMA 2024**

CALL REPORT PRIMA 2024

Section 1
S1
at a glance

12
PARTICIPATING STATES/PS
of which

5 EU PS — FR GR IT PT ES

7 NON-EU PS — DZ EG JO LB MA TN TR

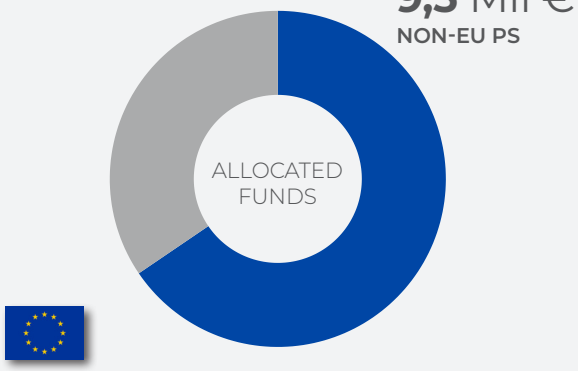
6
FUNDED PROJECTS
of which

Projects per nationality of coordinating RU

2 1 1 1 1

174 SUBMITTED PROPOSALS

27,5 Mil€
EU BUDGET



9,5 Mil €
NON-EU PS

18 Mil €
EU PS

PROJECTS
PER THEMATIC AREA

2 2 2

ACTIONS
PER THEMATIC AREA

6 IAs

2 IAs | 2 IAs | 2 IAs

SECTION 1 /S1
Projects per thematic area

Water Management in the Nexus

Farming Systems in the Nexus

Agro-food Value Chain in the Nexus

Funded Projects		Participating States	Partners	Budget
1 **MORFEUS** Mediterranean Operational Resilience Framework for nexus-based territorial Solutions Project factsheet on page 20	IA	Algeria, France, Morocco, Portugal, Tunisia — 6	17	4.542.830 €
2 **NEXUSLABS** Nexus Living Labs for Multi-Level Innovation in Mediterranean Irrigated Agriculture (NexusLabs) Project factsheet on page 22	IA	Greece, Italy, Jordan, Morocco, Spain, Tunisia, Türkiye — 7	15	4.588.540 €
3 **NUSTALGIC** Neglected and Underutilized Species for waTer hArvesting and buiLdinG clImate Change resilience Project factsheet on page 24	IA	Greece, Italy, Jordan, Lebanon, Morocco, Portugal, Spain, Tunisia — 8	12	4.409.996 €
4 **WATERMELLON** Using water harvesting techniques to address extreme drought in arid and semi-arid environments of the Mediterranean region to create sustainable and resilient agricultural systemsincluding saline and drought resilience species Project factsheet on page 26	IA	Algeria, Cyprus, Egypt, Greece, Italy, Lebanon, Morocco, Portugal, Spain, Tunisia, Türkiye — 11	20	4.790.000 €

SECTION 1

Funded Projects		Participating States	Partners	Budget
5		Egypt Greece Italy Jordan Lebanon Spain Tunisia Türkiye 8	18	4.549.535 €
FUSION Comprehensive and sustainable solution to minimize food loss and waste and promoting food security in the Mediterranean region Project factsheet on page 28	**IA**			
6		Algeria Greece Italy Spain Tunisia Türkiye 6	13	4.530.693 €
OLIWA Repurposing OLIve WAste in circular economy solutions for feeds, additives, packaging, and biogas Project factsheet on page 30	**IA**			

CALL REPORT PRIMA 2024

Section 2
S2
at a glance

12
PARTICIPATING STATES/PS
of which

6 EU PS — HG, FR, DE, IT, PT, ES

6 NON-EU PS — DZ, EG, JO, MA, TN, TR

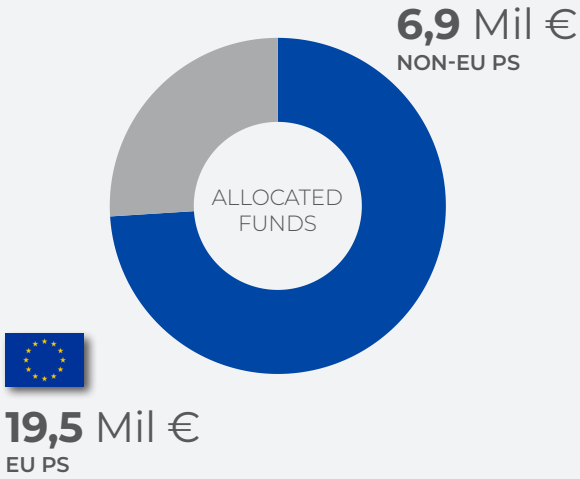
25
FUNDED PROJECTS
of which

76 SUBMITTED PROPOSALS

Projects per nationality of coordinating RU

1 | 4 | 3 | 9
1 | 1 | 3 | 1
2

26,4 Mil€
EU BUDGET



PROJECTS
PER THEMATIC AREA

7	11	7

ACTIONS
PER THEMATIC AREA

25 RIAs

7 RIAs	11 RIAs	7 RIAs

SECTION 2 /S2
Projects per thematic area

Water Management in the Nexus

Farming Systems in the Nexus

Agro-food Value Chain in the Nexus

Funded Projects		Participating States	Partners	Budget
1 **AI4WATER** Optimizing Water Resources in Coastal Areas using Artificial Intelligence Project factsheet on page 33	RIA	Algeria, Egypt, France, Italy, Spain, Tunisia **6**	6	1.298.249 €
2 **AQUEDUCT** Accounting for the water interconnectedness within Mediterranean catchments Project factsheet on page 35	RIA	France, Italy, Morocco, Spain, Tunisia **5**	8	1.234.925 €
3 **EMPOWERMED** Enhancing Management of Water Scarcity through Proactive and InnOvative WatER Accounting Approaches in Mediterranean Regions Project factsheet on page 37	RIA	Algeria, France, Germany, Jordan, Morocco, Slovenia, Tunisia, Türkiye **8**	9	1.044.466 €
4 **PHYBIOMED** Integration of wastewater treatment through physicochemical and biological processes for sustainable water management in Mediterranean countries: a circular economy approach towards the UN Sustainable Development Goals Project factsheet on page 39	RIA	Algeria, France, Egypt, Morocco, Portugal, Spain, Türkiye **7**	9	813.000 €

Funded Projects		Participating States	Partners	Budget
5	RIA	Algeria, Egypt, France, Germany, Italy, Morocco, Portugal, Spain, Tunisia (9)	14	2.101.482 €
SAVE WATER GeoSpatial and Artificial intelligence technologies: InnovatiVE approach for water resources management Project factsheet on page 41				
6	RIA	Italy, Morocco, Spain, Tunisia (4)	6	1.081.076 €
TWISTT TWISTT: who twist the tap? Bridging soil-plant-atmosphere dynamics with advanced EO data to address water accounting in the Mediterranean Project factsheet on page 43				
7	RIA	Algeria, Italy, Portugal, Tunisia (4)	6	1.154.124 €
WATER-FRUITPRINT WATER management systems for sustainable FRUIT PRoduction under INTense drought conditions Project factsheet on page 45				
8	RIA	Italy, Spain, Tunisia, Türkiye (4)	5	864.244 €
AGROFIG Fostering agroforestry benefits through fig tree cultivation in the Mediterranean Project factsheet on page 47				
9	RIA	Algeria, France, Italy, Morocco, Portugal, Spain, Tunisia (7)	10	1.194.687 €
AGROFORESTEAM AGROFORESTry for TErritorial sustAinable Management Project factsheet on page 49				

Funded Projects		Participating States	Partners	Budget
10 **ASPMED** Agroforestry practices for Agroecological transition towardssustainable Sheep and Poultry farming in the Mediterranean region. Project factsheet on page 51	**RIA**	Algeria Croatia Egypt France Italy Morocco Portugal Spain Türkiye **9**	**11**	1.625.768 €
11 **CORKMED** Cork Quality Yield Provision Monitoring for Revitalising Sustainable Agroforestry in the Mediterranean Basin Project factsheet on page 53	**RIA**	Algeria Portugal Spain Tunisia **4**	**5**	593.000 €
12 **COSMOS** Coordinated Optimization for Sustainable Mediterranean Agroforestry with Truffles and High-Value Species Project factsheet on page 55	**RIA**	Algeria Croatia Egypt France Italy Morocco Portugal Spain Türkiye **9**	**11**	1.667.530 €
13 **FORECAST** Fostering Resilient Agroforestry Systems with climate-ready Tree and Herbaceous Germplasm Project factsheet on page 57	**RIA**	Algeria Cyprus France Germany Italy Portugal Tunisia **7**	**11**	1.624.562 €
14 **RIVAGROFORMED** REVitalization of AGROFORestry systems through agroecological transition for increasing farm productivity in the MEDiterranean Project factsheet on page 59	**RIA**	Algeria France Italy Jordan Slovenia Spain **6**	**7**	1.197.204 €

Funded Projects		Participating States	Partners	Budget
15 **SCALARE** SCaling Agroforestry by living LAbs for Resilient Mediterranean agro-Ecosystems Project factsheet on page 61	RIA	Egypt Germany Italy Spain Tunisia **5**	**5**	1.255.500 €
16 **SHARE** Shared Innovations for Mediterranean Agroforestry Systems Project factsheet on page 63	RIA	Cyprus France Italy Morocco Portugal Tunisia **6**	**8**	1.545.976 €
17 **SUSTAGRI** Promote sustainable agroforestry systems Project factsheet on page 65	RIA	Algeria Germany Italy Morocco Tunisia **5**	**7**	948.583 €
18 **TAIE** Truffle Agroforestry Innovate & Empower Project factsheet on page 67	RIA	Germany Italy Morocco Spain Türkiye **5**	**7**	956.516 €
19 **BIO-TEAM** Biopolymer production for mycotoxins management in cereal grains To Enhance Agricultural yield and sustainability in the Mediterranean Basin Project factsheet on page 69	RIA	Algeria Egypt France Portugal Tunisia Türkiye **6**	**10**	728.000 €
20 **BLUMI-MED** Boosting Local Urban Markets In The Mediterranean Project factsheet on page 71	RIA	Algeria Croatia Spain Germany Jordan Lebanon Portugal Spain Tunisia Türkiye **11**	**13**	1.812.724 €

Funded Projects		Participating States	Partners	Budget
21  **CAMELAIT4MED** Pierre-Guy Project factsheet on page 73	 **RIA**	Algeria France Italy **3**	**7** 	747.458 €
22  **FIGURE** Fig Waste Into Green Ultra-Resilient Eco-coatings Project factsheet on page 75	 **RIA**	Egypt Germany Italy Tunisia Türkiye **5**	**8** 	668.486 €
23  **INNOVALGAFOOD** Innovative Algal Biorefinery to contribute to novel Food sources, promoting health and environment preservation Project factsheet on page 77	 **RIA**	France Spain Tunisia **3**	**4** 	956.516 €
24  **MEDAGRICYCLE** Green Urban AgriCycle: Transformative Approachesfor Climate-Resilient Agriculture and Waste Valorization Project factsheet on page 79	 **RIA**	Egypt France Italy Morocco Tunisia Türkiye **6**	**10** 	695.921 €
25  **NUSYC** Novel Urban cultivation SYstems enforcing green and Circular economy Project factsheet on page 81	 **RIA**	Algeria Italy Tunisia Türkiye **4**	**6** 	928.848 €

CALL REPORT PRIMA 2024

Section S1+S2 overall data

14
PARTICIPATING STATES/PS
of which

7 EU PS — HG, FR, DE, GR, IT, PT, ES

7 NON-EU PS — DZ, EG, JO, LB, MA, TN, TR

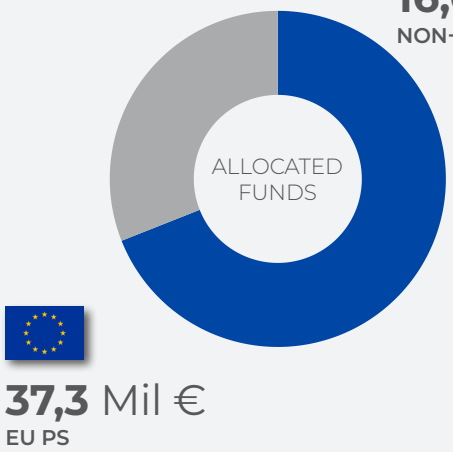
31
FUNDED PROJECTS
of which

250 SUBMITTED PROPOSALS

Projects per nationality of coordinating RU

1 | 5 | 3 | 1
10 | 1 | 2 | 5
1 | 2

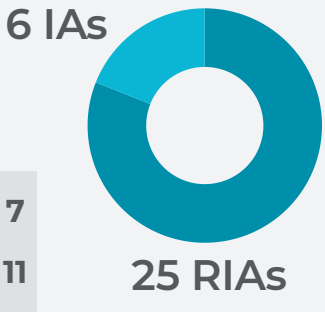
53,9 Mil€
EU BUDGET



PROJECTS
PER THEMATIC AREA

9 | 13 | 9

ACTIONS
PER THEMATIC AREA



IAs	RIAs
2	7
2	11
2	7

Funded Projects 2024

Project factsheets
Section 1/S1

Project factsheets follow the order by Thematic Area (Water management in the Nexus; Farming Systems in the Nexus; Agri-food Value Chain in the Nexus)

7 **Water Management in the Nexus**

MORFEUS, NEXUSLABS

11 **Farming Systems in the Nexus**

NUSTALGIC, WATERMELLON

7 **Agro-food Value Chain in the Nexus**

FUSION, OLIWA

Section 1

MORFeuS

Mediterranean Operational Resilience Framework for nexus-based territorial Solutions

Thematic Area

Water Management

Action and Topic

IA

Budget

4.542.830 €

Duration

36 months

State and Coordinator Entity

FRANCE

INRAE (National Research Institute for Agriculture, Food and Environment)

Scientific Coordinator: HOSSARD, Laure

Participating States 5

Research Units 17

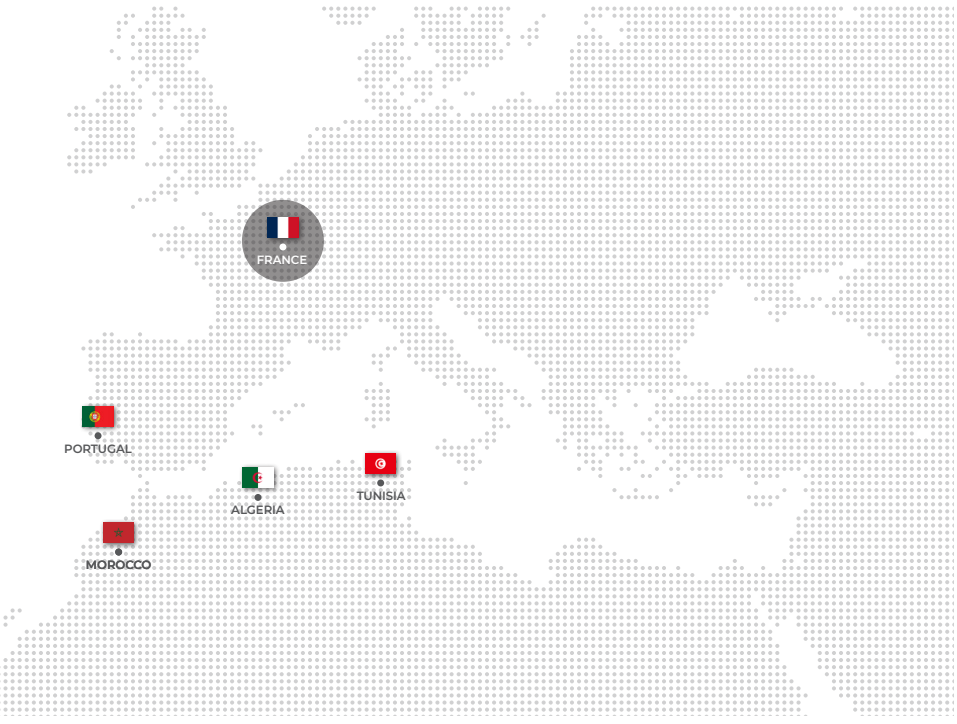
Context

Climate change affects both agricultural water resource demand and availability. This will exacerbate water crisis in the Mediterranean region in the coming years. All sectors depend on water, calling for cross-sectoral approaches promoting shared use of resources at individual and collective levels. Current WEFE nexus approaches rely primarily on “nexus thinking”, failing to include multiple actors in the design of new solutions that develop systemic perspectives towards effective transition.

Objective and contents

MORFeuS aims to operationalize the mainstreaming (within MORFeuS sites) and disseminate the Nexus cross-sectoral combined solutions (technical, organizational and policies) through a combination of Demonstration Sites (DS) and Exploration Sites (ES). DS will be structured around territorial multi-stakeholder Nexus platforms. MORFeuS will rely on intense participation of a large arena of participants, including Nexus stakeholders. Specific objectives are to:

SO#1: Develop a Nexus resilience framework providing guidelines for co-design, operationalization and assessment of the combination of cross-sectoral solutions.



SO#2: Co-design and operationalize Nexus combined solutions, focusing on existing small-scale solutions and compatible exogenous innovative ones, by mobilizing key WEFE stakeholders in MORFeuS territories.
SO#3: Disseminate solutions, via the creation of the MORFeuS innovation network, which will capitalize on operationalization of combined cross-sectoral solutions.

Expected impacts and results

MORFeuS aims to support the WEFE Nexus approach as a tool to foster territorial resilience by designing and testing Nexus solutions. Solutions target more efficient use of water at plot scale, species diversification at farm and territorial scale towards lower use of pesticides and water pollution, and collective water and energy development strategies. These solutions will be translated in effective guidelines easily applicable in different study areas towards sustainable development, including recommendations for their implementation. To foster impact, MORFeuS innovation network will disseminate a) solutions and associated regulatory/ policy requirements for territorial resilience and b) an operational resilience framework easily applicable to sites located in the Mediterranean basin.

Keywords

#Territory #Resilience #Combined Solutions #Innovation #Multi-actor approach #Mediterranean #WEFE-Nexus #Agroecology #WEFE_operational_adaptation_solutions

Demo sites/ Case studies

5

Other in Consortium 16

Centre de coopération internationale en recherche agronomique pour le développement (CIRAD) – FR

Réseau international Formation Agricole et Rurale (FAR) – FR

Soil moisture probes (HSTI) – FR

Institut de recherche pour le développement (IRD) – FR

Parc Naturel Régional de la Narbonnaise (PNR) – FR

Fondation Amidoule (AMI) – DZ

Centre de Recherche en Économie Appliquée pour le Développement (CREAD) – DZ

Groupement d'intérêt Economique de Pomme M'semrir-Tilmi (AEG) – MA

École Nationale d'Agriculture de Meknès (ENA) – MA

Institut Agronomique et Vétérinaire Hassan II (IAV) – MA

Orvignon Stratégie et Management (ORV) – MA

University of Algarve (UAlg) – PT

Lisbon School of Economics and Management (ISEG) – PT

Rizoma Cooperativa Integral (RCI) – PT

Accompagnement et Recherche pour le Développement (ACCORD) – TN

Institut National Agronomique de Tunisie (INAT) – TN

Section 1

NexusLabs

Nexus Living Labs for Multi-Level Innovation in Mediterranean Irrigated Agriculture (NexusLabs)

Thematic Area

Water Management

Action and Topic

IA

Budget

4.588.540 €

Duration

36 months

State and Coordinator Entity

SPAIN
University of Castilla-La Mancha
UCLM

Scientific Coordinator:
PIQUERAS, Jose

Participating States 7

Research Units 6

Context

The NexusLabs project addresses the critical need for sustainable irrigation management in Mediterranean agriculture through the Water-Energy-Food-Ecosystems (WEFE) Nexus approach. The project acknowledges that while innovative agricultural practices are already available and mature for implementation, significant barriers are hampering their effective and large-scale adoption. The project responds to the urgent need to improve efficiency and sustainability of water, energy, and food use in Mediterranean irrigated agriculture, while accounting for climate change impacts and the diverse socio-economic, technological, and institutional contexts across the region.

Objective and contents

NexusLabs will deliver innovative, user-centered solutions through a three-step iterative process. First, it combines and tests sector-level technologies and strategies at pilot sites adapted to local conditions. Second, it evaluates their impacts using WEFE-nexus assessments, scenario analysis, and advanced tools such as a nexus index, integrated modeling, and multi-actor analysis. Third, it supports upscaling and adoption by helping user communities overcome implementation barriers.

The project operates through Nexus Living Labs in seven Mediterranean countries, with nine demonstration areas. Its solutions include smart farming, ICT tools, agroecological practices, nature-based solutions, and alternative water and energy sources. NexusLabs also introduces an expanded Readiness Level framework that links technological maturity with social, economic, financial, and institutional contexts. Gender considerations and stakeholder knowledge are integrated throughout all stages.

Expected impacts and results

NexusLabs aims to deliver market-ready solutions that cut water use and energy demand in agriculture while protecting ecosystems and strengthening climate resilience. It will provide stakeholders with tested, real-world solutions supported by holistic WEFE-nexus tools for scenario analysis and impact assessment. The project will identify and address adoption barriers through co-designed policies and easier-to-use technologies.
NexusLabs will create training programs, business models, policy mixes, and upscaling strategies to support wider implementation across diverse regions and user groups. Through its Living Labs and active user participation, the project will help align technologies with local contexts and integrate innovative practices into everyday agriculture across the Mediterranean.

Other in Consortium 14

Agrisat Iberia SL – ES

Technical University of Crete – GR

Hellenic Agricultural Organization – DIMITRA – GR

Global Water Partnership – Mediterranean – GR

DRAXIS Research Ventures – GR

University of Padova – IT

National Research Council – IT

Etifor SRL Società Benefit – IT

Council for Agricultural Research, CREA – IT

National Agricultural Research Center – JO

Cadi Ayyad University – MA

OMNINEX – TN

International Agricultural Research and Training Center – TR

EA-TEK International R&D, Engineering, Software and Consultancy Company – TR

Keywords

#Living Labs #Nature-based Solutions #Precision Agriculture #Serious Game #Participatory System Dynamics Model #Wastewater reuse #WEFE nexus index

Demo sites/Case studies

9

Author: Borisshin - https://commons.wikimedia.org/wiki/File:Button_dripper.JPG

Section 1

NUSTALGIC

Neglected and Underutilized Species for waTer hArvesting and buiLdinG clImate Change resilience

Thematic Area

Farming System

Action and Topic

IA

Budget

4.409.996 €

Duration

36 months

State and Coordinator Entity

PORTUGAL

Centro de Biotecnologia e Química Fina - Universidade Católica Portuguesa

Scientific Coordinator: VASCONCELOS, Marta

Participating States 8

Research Units 8

Context

Climate change poses serious challenges to agriculture, especially in dry Mediterranean regions, leading to crop loss, soil degradation and social inequality. Current responses focus on new water sources, ignoring the potential of drought-tolerant neglected and underutilised species (NUS) and ancestral water harvesting techniques. NUSTALGIC revives ancient water harvesting techniques and promotes resilient NUS to improve dryland farming systems, empower women and young and strengthen the economic sustainability of smallholder farmers.

Objective and contents

NUSTALGIC aims to build climate-resilient Mediterranean agriculture by promoting neglected and underutilised species (NUS) and reviving ancestral water harvesting techniques. It seeks to enhance biodiversity, food security, and sustainable livelihoods. Objectives include: (1) increasing water availability and efficiency through low-cost, community-driven harvesting systems; (2) Diversify agricultural systems, improve soil health and enhance resilience to climate change; (3) Create job opportunities for women and youth developing new products and value chains using NUS;
(4) fostering inclusive multi stakeholder engagement via

DRy-farming system multi-actor Innovation PlatformS (DRIPs), encouraging co-creation, capacity building, and behavioural change among farmers, consumers, and policymakers. NUSTALGIC combines traditional knowledge and innovation to transform dryland farming to empower rural communities across the Mediterranean.

Expected impacts and results

Expected impacts and results: NUSTALGIC will activate DRIPS in arid and semi-arid areas, reviving 6 ancestral water harvesting techniques and introducing 7 NUS as food/feed, increasing yields by 15–20%. It will develop 3 new value chains for food, feed, and biocontrol, support 12 social enterprises, and create 10 jobs per DRIPS. Soil health will improve (up to 15% organic matter), and water retention will increase by 20%. The project aims for 20% adoption by smallholders, 30% consumer behaviour change, and 20% policy uptake, fostering sustainable agriculture and resilient rural livelihoods. Women and youth will gain greater decision-making power through inclusive training and fair employment. Widespread engagement and outreach will help scale up solutions beyond project sites.

Keywords

#Water harvesting #Dry farming system #Soil health #Mechanisation #Circular economy #Gender equity #Youth #Resilience #New feed and food markets #Healthy diets

Other in Consortium 11

Universidade Católica Portuguesa (CBQF-UCP) – PT

International Center for Agricultural Research in the Dry Areas (ICARDA) – MA

Lebanese Agricultural Research Institute (LARI) – LB

American University of Beirut (AUB) – LB

Lebanese American University (LAU) – LB

National Institute of Agronomic Research of Tunisia (INRAT) – TN

National Research Institute of Rural Engineering, Water and Forests (INRGREF) – TN

Consejo Superior de Investigaciones Científicas (CSIC) – ES

Methods of Irrigation and Agriculture (MIRRA) – JO

OXFAM (OIT) – IT

Global Water Partnership - Mediterranean (GWP-Med) – GR

Demo sites/Case studies

6

Platform/hub

4

New products and solutions

4

Section 1

WaterMellon

Using water harvesting techniques to address extreme drought in arid and semi-arid environments of the Mediterranean region to create sustainable and resilient agricultural systems including saline and drought resilience species

Thematic Area

Farming System

Action and Topic

IA

Budget

4.790.000 €

Duration

42 months

State and Coordinator Entity

GREECE

Center for Renewable Energy Sources and Saving, CRES

Scientific Coordinator: ALEXOPOULOU, Efthimia

Participating States 10

Research Units 16

Context

The WATERMELLON initiative tackles the severe water crisis facing Mediterranean agriculture, one of the world's most water-stressed regions and increasingly affected by climate change. Farmers are confronted with longer droughts, extreme heat, and shrinking water supplies, putting crops, incomes, and rural communities at risk. Rainfed farming in particular is struggling as lower rainfall and higher temperatures reduce yields and drive rural depopulation. The project highlights how traditional water-harvesting methods—once widely used in arid regions but later abandoned—can be combined with modern, eco-friendly farming practices to create agricultural systems that work with, rather than against, natural processes.

Objective and contents

WATERMELLON strengthens the resilience of Mediterranean dry farming to climate change and water scarcity by combining traditional and modern hydro-technologies with innovative agricultural practices across 20 partners in 10 countries. The project follows seven strategic approaches built around new farming systems. It promotes eight drought- and salt-tolerant crops (quinoa, sorghum, opuntia, carob, teff, millet, lupin, and tritordeum); revives ancient water-harvesting methods enhanced with modern technology; applies smart irrigation using drip systems supported by satellite and drone monitoring; and improves soil health through

mulching, no-tillage, and intercropping. It also develops sustainable food products and animal feeds from resilient crops, builds new business models and value chains to boost farm profitability, and uses data-driven tools—including drones, satellites, GIS, and a dedicated Decision Support System—to support informed farming decisions.

Expected impacts and results

WATERMELLON aims to deliver practical, affordable solutions that strengthen the resilience of Mediterranean agriculture, especially for small-scale farmers facing climate stress. The project expects to improve water security by combining traditional and modern water-harvesting techniques and to show that drought- and salt-tolerant crops can offer productive, profitable, and nutritious alternatives. Smart irrigation and soil protection methods should boost water-use efficiency and soil health, while new food products and animal feeds from resilient crops create added income opportunities. By developing stronger value chains and business models, the initiative aims to support local economies and reduce rural depopulation. A data-driven Decision Support System will further enable informed farm management. Ultimately, WATERMELLON seeks to establish scalable models for climate-resilient farming that are sustainable, economically viable, and socially equitable, helping protect livelihoods and regional food security.

Keywords

#Mediterranean agriculture #Water scarcity #Climate resilience #Drought and salt-tolerant crops #Smart irrigation

Demo sites/ Case studies
7

Platform/hub
19

New products and solutions
19

Other in Consortium 19

Hellenic Association for the Promotion of Conservation Agriculture – GR

Agricultural University of Athens – GR

KOINSEP AGRIMA – GR

University of Skikda – DZ

Frederick University – CY

City of Scientific Research and Technological Applications – EG

Cooperativas Agro-alimentarias de España – ES

Iniciativas Innovadoras S.A.L., INI – ES

Council for Agricultural Research and Economics, CREA – IT

Alma Mater Studiorum – University of Bologna – IT

University of Catania – IT

Consortium for Land Reclamation of the Emiliano-Romagnolo Canal, CER – IT

Institute for University Cooperation, ICU – LB

International Center for Agricultural Research in the Dry Areas, ICARDA – MA

Centre for the Development of the Tensift Region, CDRT – MA

Nova University of Lisbon, Faculty of Science and Technology – PT

Center for Waste Valorization, CVR – PT

National Agronomic Research Institute of Tunisia, INRAT – TN

Field Crops Central Research Institute, TARIM – TR

Section 1

FUSION

Comprehensive and sustainable solution to minimize food loss and waste and promoting food security in the Mediterranean region

Thematic Area

Agro-Food Value chain

Action and Topic

IA

Budget

4.549.535 €

Duration

36 months

State and Coordinator Entity

SPAIN
Universidad Politécnica de Cartagena

Scientific Coordinator:
AGUAYO GIMÉNEZ, Encarna

Participating States 8

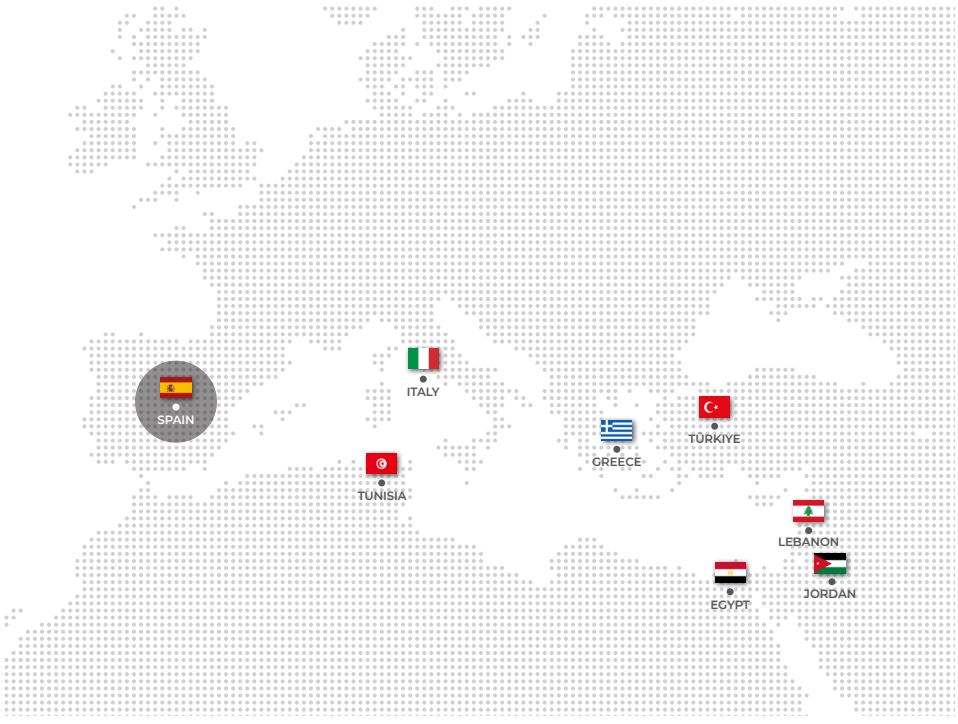
Research Units 17

Context

The Mediterranean region faces critical challenges related to food loss and waste, climate change, and resource inefficiency. FUSION addresses these issues by developing sustainable, scalable solutions across the agri-food value chain, promoting circularity, stakeholder engagement, and cross-border collaboration to enhance food security and resilience in one of the world's most climate-vulnerable regions.

Objective and contents

FUSION aims to reduce food loss and waste by implementing innovative, circular technologies. Among them, solar-powered, portable preservation chambers play a central role: they integrate ethylene removal systems and real-time monitoring tools to assess shelf life extension. The project also develops edible coatings, cold plasma disinfection, and AI-based traceability and continuous improvement tools. FUSION valorizes fruit and vegetable by-products into new, healthy food products and tests climate-resilient varieties of tomato and pepper. Through co-creation and training with stakeholders across the value chain, the project ensures adoption and relevance. Demonstrations in nine Mediterranean countries, together with environmental, economic,



and social assessments, support impact evaluation and replication. Communication, ethics, and gender equality are embedded in the project structure to ensure long-term value and scalability.

Expected impacts and results

FUSION will reduce food loss and waste by at least 40% and extend shelf life by 25% through innovative technologies such as solar-powered, portable preservation chambers with ethylene control and real-time monitoring. It will deliver edible coatings, AI-based traceability tools, and new food products from discarded fruits and vegetables. The project will generate training materials, impact assessments, and co-creation models. By involving actors across the value chain in 9 Mediterranean countries, FUSION will enhance local capacities, promote circular practices, and support the replication of results throughout the region.

Keywords

#Food Loss and Waste #Circular Economy #Postharvest #Fruit and Vegetable By-products #Solar-powered Chambers #Ethylene Removal #Real-time Shelf-life #Edible Coatings #Cold Plasma Disinfection #AI-based Traceability Tools #S-LCA #Climate-resilient Varieties #Life Cycle Assessment #LCA #LCC

Demo sites/ Case studies
6

Platform/hub
1

New products and solutions
1

Other in Consortium 17

Universidad Politécnica de Cartagena – UPCT – ES
Instituto per la Cooperazione Universitaria – ICU – IT
Agriculture Research Centre – ARC – EG
Nuevas Tecnologías Agroalimentarias – KEEP – ES
Consumers-Lebanon – CONL – LB
MH Refrigeration Solution – MHRE – LB
Sunconnection Worldwide – SUNC – IT
Qartia Smart Technologies – QUART – ES
Participatory Development Solutions – PDS – JO
Green Transformation in Industry – SAYIBA – TN
Foundation for Research and Technology Hellas – FORTH – GR
Ramiro Arnedo – RASA – ES
KAPAK European Innovations – KAPAK – TR
Association for Green Development and Innovation – GDI – LB
Methods for Irrigation and Agriculture – MIRRA – JO
Nuclear Research Centre – EAEA – GR
Sakata Seed Iberica – SAKATA – ES

Section 1

OLIWA

Repurposing OLIve WAste in circular economy solutions for feeds, additives, packaging, and biogas

Thematic Area

Agro-Food Value chain

Action and Topic

IA

Budget

4.530.693 €

Duration

36 months

State and Coordinator Entity

ITALY
University of Turin

Scientific Coordinator:
CAPUCCHIO, Maria Teresa

Participating States 6

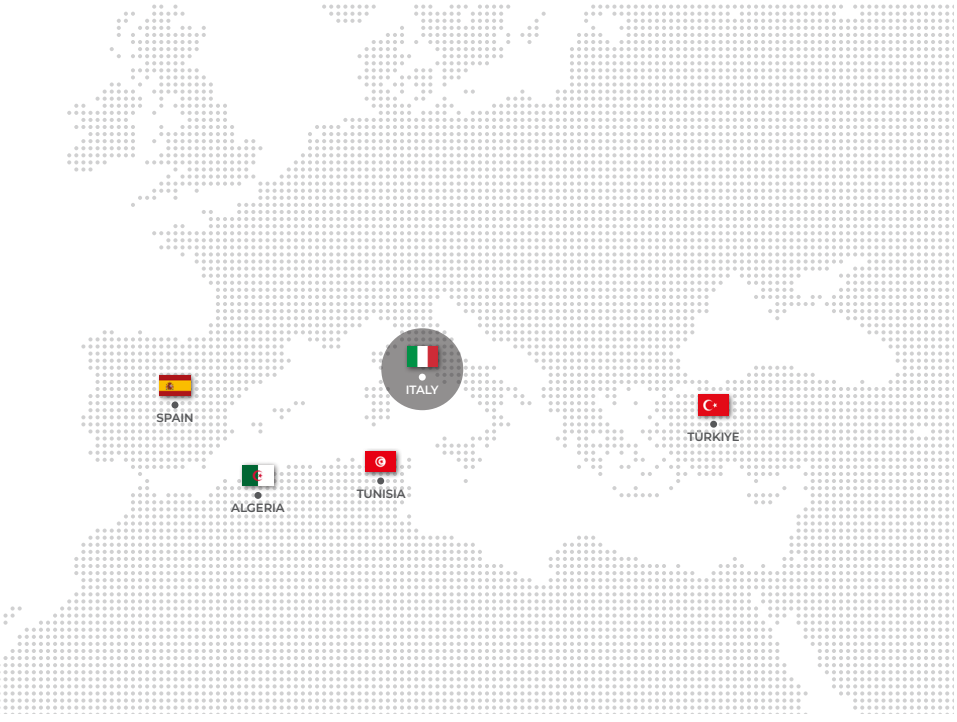
Research Units 13

Context

Olive is the main agricultural product of Mediterranean countries. Olive oil production results in waste and by-products (OBs) containing potential bioactive compounds. This project aims to create a circular economy model applicable at the local level and to reduce food loss and waste across six Mediterranean countries (Italy, Spain, Greece, Türkiye, Algeria and Tunisia). Here, OBs will be used to feed insects that will become feed for poultry and fish, and to produce sustainable bio packaging.

Objective and contents

OLIWA aims to repurpose olive waste, fostering waste reduction and sustainability through the creation of feed, functional ingredients, packaging and biogas. More specifically, the project will: a) explore OB's use in insect rearing by evaluating insect meal quality; b) investigate the effects of olive natural extracts (NE), insect meals and their association on the intestinal barrier by means of in-vitro testing; c) investigate the effects of olive NE on animal models to evaluate their antioxidant effects in-vivo; d) investigate and demonstrate the use of olive NE and insect meals as feed additives for poultry and fish farming, with the aim of enhancing animal gut health and product quality; e) investigate



OB's potential in food packaging to enhance preservation and minimise food loss; f) assess the sustainability of these novel processes; and g) use insect frass, poultry manure and olive waste for biogas production to provide energy to animal or insect farms and/or local industries.

Expected impacts and results

The OLIWA project will reduce food losses and waste, innovate packaging, improve food quality, and produce alternative sources of sustainable energy (biogas). By proposing insects as an alternative source of proteins for animal feed and utilising OBs for insect meal production, OLIWA addresses the EU's need for sustainable food security and reduced reliance on imported feeds. Furthermore, repurposing OBs to extend the shelf life of animal products will offer consumers healthier products and producing new active bio packaging material will prolong the shelf life of such products while simultaneously reducing food waste.

Other in Consortium 12

Kontor 46 – IT
Lucchi & Guastalli – IT
Solstar – DZ
Oleocoop Soummam – DZ
NATAC BIOTECH S.L.U – ES
Metanogenia SL – ES
Myrolion – GR
Hay-Green Sarl – TN
Esa Group Energy Co Inc – TR
Buta Assos Gida San ve Tic Ltd Sti – TR
Consorzio Italiano Compostatori – IT
Association for the Development and Preservation of the Environment and Heritage – TN

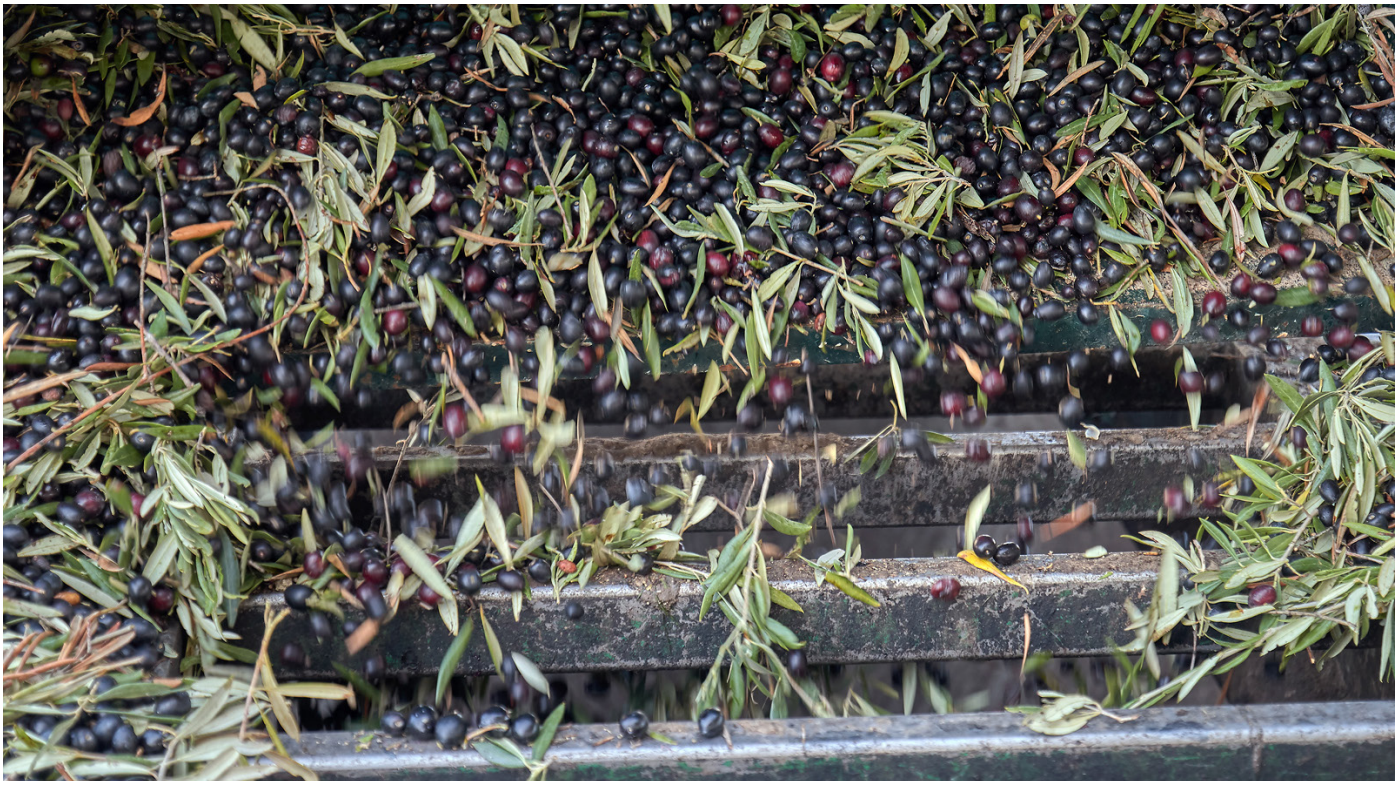
Keywords

#Olive waste #Natural extracts #Insects #Feed additives #Poultry #Fish #Gut health #Animal products quality #Circular economy #Bio-packaging #Biogas

Demo sites/ Case studies
5

Platform/hub
1

New products and solutions
1



Project factsheets
Section 2/S2

Project factsheets follow the order by Thematic Area (Water management in the Nexus; Farming Systems in the Nexus; Agri-food Value Chain in the Nexus)

7 **Water Management in the Nexus**

AI4WATER, AQUEDUCT, EMPOWERMED, PHYBIOMED, SAVE WATER, TWISTT, WATER-FRUITPRINT

11 **Farming Systems in the Nexus**

AGROFIG, AGROFORESTEAM, ASPMED, COSMOS, CORKMED, FORECAST, RIVAGROFORMED, SCALARE, SHARE, SUSTAGRI, TAIE

7 **Agro-food Value Chain in the Nexus**

BIO-TEAM, BLUMI-MED, CAMELAIT4MED, FIGURE, INNOVALGAFOOD, MEDAGRICYCLE, NUSYC

Section 2

AI4Water

Optimizing Water Resources
in Coastal Areas using Artificial Intelligence

Thematic Area

Water Management

Action and Topic

RIA

Budget

1.298.249 €

Duration

36 months

State and Coordinator Entity

Italy
University of Brescia (UNIBS)

Scientific Coordinator:
SERINA, Ivan

Participating States 6

Research Units 6

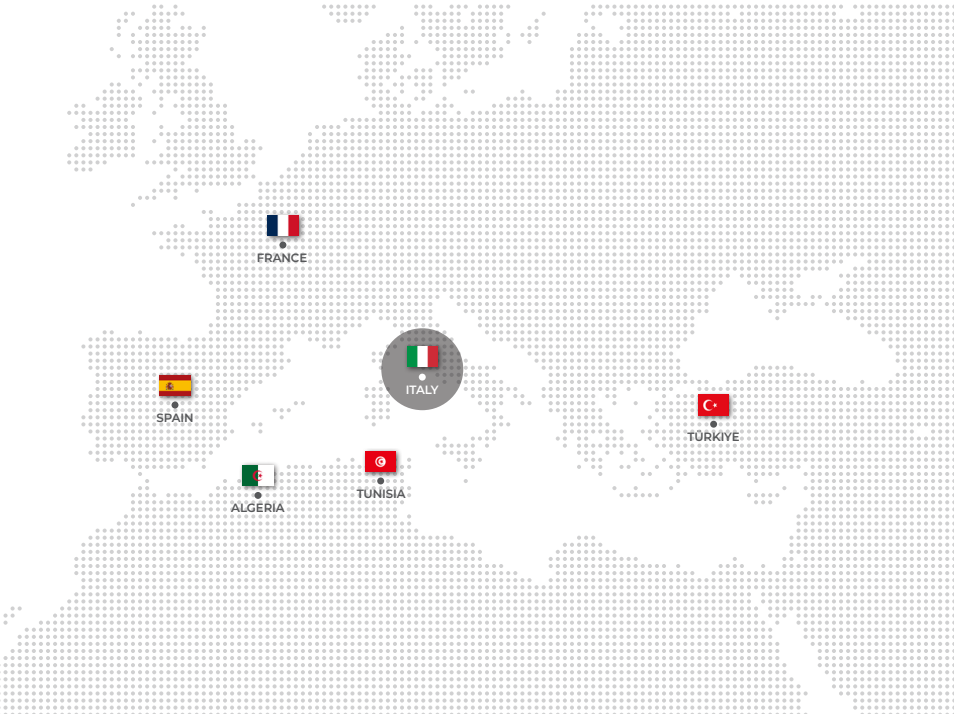
Context

The AI4Water project addresses water scarcity, pollution, and salinization in four Mediterranean coastal areas (Tunisia, Algeria, Italy, Egypt) using AI and ML. It aims to optimize water use by predicting demand and resource levels, involving stakeholders in a bottom-up approach. Advanced models and sensors support data-driven decisions, while flexible regulations promote sustainable, inclusive, and resilient water management strategies under current and future climate conditions.

Objective and contents

The AI4Water project aims to optimize water allocation in four Mediterranean coastal basins—Ras Jebel (Tunisia), the Coastal Constantinois & Seybouse (Algeria), the Capitanata irrigation district (Italy) and the Nile Delta (Egypt)—by developing AI-driven prediction and optimization tools alongside a bottom-up, stakeholder-engaged planning approach.

It will predict water quality, salinization, pollution and demand, and applying AI techniques to balance availability and consumption, enhance agricultural production under scarcity, set sustainable withdrawal targets and integrate economic water accounting. The project combines real-time monitoring, remote sensing, hydrologic



modeling and machine learning to forecast key water metrics, while optimization modules produce tailored control policies. A decision-support system, policy briefs and guidelines will translate insights into region-specific strategies. Active stakeholder involvement through living labs ensures alignment with local needs and fosters resilient, data-driven water management under current and future climate conditions.

Expected impacts and results

The project will deliver a fully open-source Decision Support System integrating AI-driven optimization modules, hydrologic models, datasets and sensors for four case studies, alongside policy briefs, training materials and at least three open-access journal papers and presentations at three international conferences and workshops. Expected impacts include enhanced water security and ecosystem preservation through smarter resource allocation, reduction in water stress, gains in water-use efficiency, transparent, equitable allocation mechanisms, increased resilience to salinization and scarcity, and innovative pricing frameworks—all contributing to SDGs 6, 13 and 14 and fostering sustainable, stakeholder-driven governance in Mediterranean coastal regions.

Other in Consortium 5

Badji Mokhtar-Annaba University (UBMA) – DZ

University of Sadat City (USC) – EG

Universitat Politècnica de València (UPV) – ES

University of Lille (ULILLE) – FR

Ecole supérieure des Ingénieurs de Medjez el Bab (ESIM) – TN

Keywords

#AI Planning #Artificial Intelligence #Climate Change #Coastal Areas #Genetic Algorithms #Competing water requirements #Groundwater modeling #Machine Learning #Salt Water Intrusion #Hydrologic modeling #Water accounting #Water Management #Optimization Water quality

Demo sites/Case studies

4

Platform/hub

1

New products and solutions

1

Section 2

AQUEDUCT

Accounting for the water interconnectedness within Mediterranean catchments

Thematic Area

Water Management

Action and Topic

RIA

Budget

1.234.925 €

Duration

36 months

State and Coordinator Entity

FRANCE

INRAE (National Research Institute for Agriculture, Food and Environment)

Scientific Coordinator: MOLÉNAT, Jérôme

Participating States 5

Research Units 7

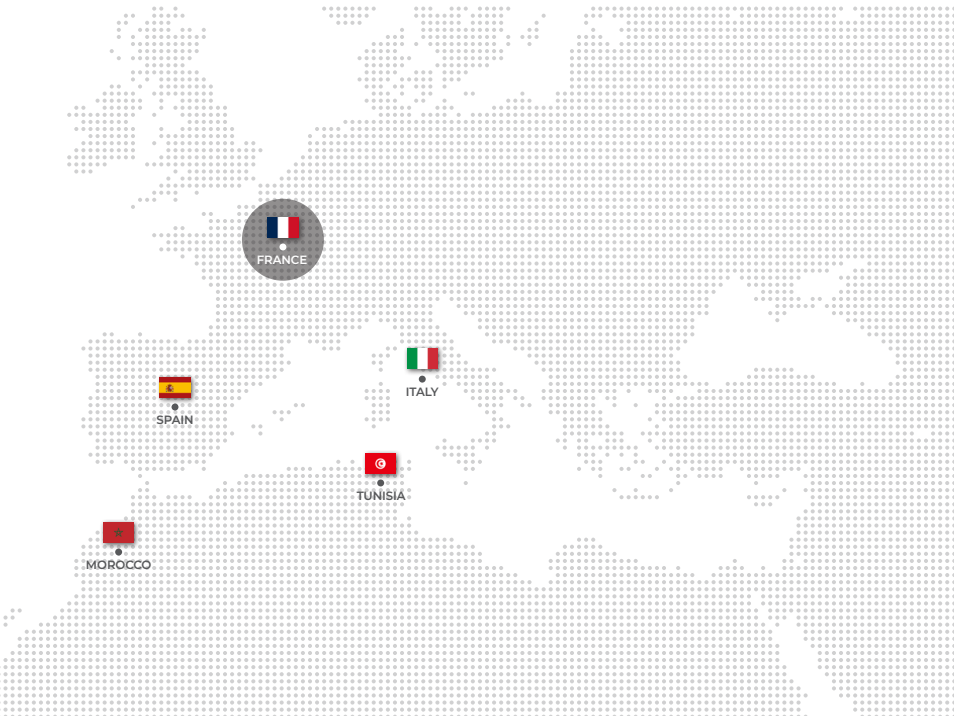
Context

Mediterranean agriculture, both rainfed and irrigated, along with forest cover, is facing drought and water scarcity. Solutions can be implemented locally at the field or forest stand level, or globally at the catchment or irrigated district level. Regardless of the solution chosen, comprehensive and sustainable water management requires detailed water accounts (stocks, fluxes, demands) that reflect the interconnectedness, specifically accounting for the effect of local solutions on the resource at the global level, and vice versa.

Objective and contents

The AQUEDUCT project aims to develop and evaluate innovative methods and tools for managing water resources in collaboration with stakeholders. It focuses on the interconnectedness of water resources, fluxes, demands, and uses across spatial and temporal scales relevant to agricultural and water management decisions. The project is organized into four axes:

1. Designing tools to characterize, understand, and quantify water resources, fluxes, and uses in Mediterranean agrosystems and ecosystems using high-resolution remote sensing, monitoring technologies, and AI.



2. Developing integrated water accounting tools for Mediterranean catchments, employing various modeling approaches to provide accounts of interconnectedness between different spatial and temporal scales.
3. Providing water accounts for typical agrosystems and forested ecosystems based on different sites in the Mediterranean.
4. Evaluating the added value of these innovative accounting methods with stakeholders for tactical and strategic management, aiming for transparent, multisectoral, and fair governance to adapt to water scarcity.

Expected impacts and results

The main scientific results and socioeconomic impacts of AQUEDUCT are:

· Quantifying water use efficiency by cultivated, forested, and natural vegetation cover.
· Identifying, with stakeholders, the solutions and strategies in farming systems, water allocation, and forest management to address current and future water scarcity.
· Providing accounts for each solution and strategy to analyze, with stakeholders, its efficiency, relevance, and impacts on other fluxes, resources, and water uses in the catchment.
· Providing accounting methods and tools that offer accurate knowledge and accounts for current and future availability of water resources (considering green and blue water), as well as current and future water uses depending on current and future water and farming system management.

Other in Consortium 7

Research Institute for Development - IRD – FR
University of Cagliari – IT
University Mohammed VI Polytechnic – MA
University Cadi Ayyad Marrakech – MA
IRTA – ES
INRGREF – TN
CERTE – TN

Keywords

#Water linkages
#Catchment #Irrigation
#Rainfed agriculture
#Forested ecosystem
#Remote sensing #Model
#Artificial intelligence
#Transparent governance

Demo sites/Case studies

7

Section 2

EMPOWERMed

Enhancing Management of Water Scarcity through Proactive and InnOvative WatER Accounting Approaches in Mediterranean Regions

Thematic Area

Water Management

Action and Topic

RIA

Budget

1.044.466 €

Duration

36 months

State and Coordinator Entity

Morocco

Mohammed VI Polytechnic University (UM6P)

Scientific Coordinator: OUARANI, Mohamed

Participating States 7

Research Units 9

Context

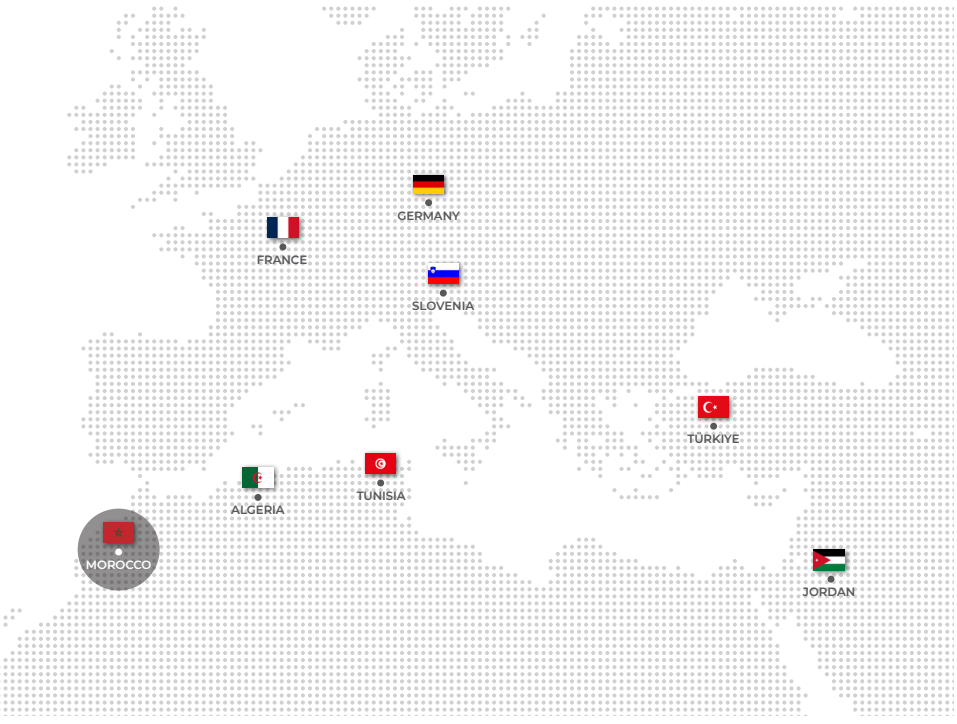
The Mediterranean region faces severe water scarcity due to irregular rainfall, rising demands from agriculture, industry, and urban growth, and climate variability. Current water management practices need enhancement. EMPOWERMed integrates multidisciplinary water accounting approaches to effectively address these regional challenges through innovative and sustainable strategies.

Objective and contents

EMPOWERMed aims to:
Develop advanced water accounting methodologies.
Implement DSS tools for optimized inter-basin water transfers.
Establish demo sites for improved agricultural water efficiency in Morocco, Tunisia, Jordan, and Türkiye.
Utilize real-time monitoring and community-driven Living Labs.
Support policy reforms and sustainable practices enhancing regional resilience and equity.

Expected impacts and results

Development and deployment of practical water accounting tools and a robust Decision Support System (DSS) tailored for Mediterranean water management.



Generation of scientific insights that improve the efficiency of agricultural water use across the region.
Strengthening of water policy frameworks informed by evidence-based recommendations.
Enhanced engagement and collaboration among stakeholders, including policymakers, farmers, and local communities.
Implementation of equitable and sustainable water management practices through community-driven Living Labs, fostering local ownership and adaptation.

Keywords

#Water accounting #Water scarcity #Agricultural irrigation water #Water supply #Water demand #Inter-basin water transfer #Resilient water management #Agricultural water management #Mediterranean #Sustainable agriculture #Socio-economic #Rural women empowerment

Other in Consortium 8

National Institute of Research (INRA) – TN

Ibn Zohr University (UIZ) – MA

International Agricultural Research and Training Center (IARTC) – TR

Society for Water Irrigation and Environmental Management (SWIEM) – JO

Centre for Project Management / Science and Research Centre Koper (ZRS Koper) – SI

Technical University of Berlin, Workgroup for Infrastructure Policy (TUB-WIP) – DE

Regional Research Centre on Horticulture and Organic Agriculture (CRRHAB) – DZ

The University of Montpellier (UM) – FR

Demo sites/Case studies

5

Platform/hub

1

New products and solutions

1

Author: Alejandro Navarro López - https://commons.wikimedia.org/wiki/File:Trasvase_Tajo-Segura_por_Albacete.jpg

Section 2

PHYBIOMED

Integration of wastewater treatment through physicochemical and biological processes for sustainable water management in Mediterranean countries: a circular economy approach towards the UN Sustainable Development Goals

Thematic Area

Water Management

Action and Topic

RIA

Budget

813.000 €

Duration

36 months

State and Coordinator Entity

FRANCE
INSA
de Rouen

Scientific Coordinator:
LOKMANE, Abdelouahed

Participating States 7

Research Units 9

Context

The PHYBIOMED initiative addresses the intersection of environmental challenges and economic opportunities in Mediterranean countries, where sustainable water management has become a pressing necessity for agri-food and agriculture industries. The project responds to critical water scarcity issues while confronting climate change impacts across the Mediterranean region. It operates within a framework that embraces circular economy principles and aligns with the United Nations Sustainable Development Goals, particularly focusing on the need to transform wastewater treatment from a disposal challenge into an opportunity for resource recovery. The initiative recognises the importance of fostering autonomy and minimising the impact of energy expenses on treatment processes, particularly during periods of crisis such as surging prices or geopolitical conflicts.

Objective and contents

PHYBIOMED integrates physicochemical and biological processes to purify wastewater and recover valuable resources. It combines advanced oxidation methods (photocatalytic and photo-Fenton treatments) with flocculation and coagulation to degrade pollutants, followed by biological treatment using

microalgae and bacterial communities through biodigestion. The project produces recycled water, low-carbon renewable energy (biogas, biohydrogen, electricity), agricultural biostimulants from microalgae, and explores bio-oil production. Coordinated by INSA Rouen, the consortium includes ten Mediterranean partners across six countries. The initiative supports SDG 7 (clean energy), SDG 12 (sustainable consumption and production), and sustainable water management.

Expected impacts and results

PHYBIOMED aims to provide sustainable water management solutions for Mediterranean agri-food and agriculture sectors through circular economy practices. The project will supply recycled water for agricultural reuse, generate renewable energy (green heat and electricity), and produce biostimulants to support sustainable farming. By promoting resource recovery and reuse, it enhances autonomy in water and energy management, reduces vulnerability to economic and energy market fluctuations, and strengthens climate resilience. PHYBIOMED seeks to advance greener agriculture and offer a replicable model aligned with multiple UN Sustainable Development Goals.

Other in Consortium 8

University of Pau and Pays de l'Adour – FR

National Polytechnic School Constantine – DZ

University of Constantine 3 – DZ

Galala University – EG

Institute of Molecular Biology, Genomics and Proteomics, University of León – ES

Mohammed Premier University – MA

University of Porto – PT

Istanbul University-Cerrahpasa – TR

Keywords

#Biodigestion #CO2 capture #Microalgae #Physicochemical treatment #Wastewater treatment

Author: Honeywell- https://commons.wikimedia.org/wiki/File:Algae_fuel_in_a_beaker.jpg

Section 2

SAVE water

GeoSpatial and Artificial intelligence technologies: InnovatiVE approach for water resources management

Thematic Area

Water Management

Action and Topic

RIA

Budget

2.101.482 €

Duration

36 months

State and Coordinator Entity

TUNISIA

Faculty of Sciences of Tunis-University of Tunis El Manar

Scientific Coordinator: SAIDI, Salwa

Participating States 9

Research Units 13

Context

The context on which the proposal is founded is that water needs for irrigation and municipal use, in many regions of the world including the Mediterranean and European areas, are expected to increase in the context of climate change and external shocks. Consequently, the water demand has become increasingly complex and problematic. This issue also extends to the protection of water resources against various types of pollution, and over-abstraction of water, which are often associated with the governance of water resources. Moreover, land use changes can detrimentally affect water resource reserves.

Objective and contents

The overall objective of the project is to develop an intelligent system capable of addressing the challenges facing the water sector. Additionally, we aim to ensure cooperation and propose management policies for water resources considering the specificity of each study area. SAVE water will consider the economic feasibility of the actions, including the proposed approach's efficiency and the social acceptance of AI-driven models in managing water resources, in a participatory process involving local and regional stakeholders throughout the project lifecycle

The specific objectives can be summarized as the following:

- Create 9 SAVE water living labs and a Mediterranean-adapted water system database.
- Develop intelligent monitoring, predictive models, and a local vulnerability assessment.
- Analyze land use, climate change impacts, and socio-economic/environmental factors.
- Propose sustainable pricing, a GIS-based dashboard, and integrate insights from Berlin.

Expected impacts and results

Expected impacts of the SAVE water project are:
Scientific impact: by the the creation of SAVE water living-lab and website, the development of a multi-scale and multi-sensors water database and digital and dynamic platform to reinforce coordination between all stakeholders for an integrated water resources management.
Technologic impact: by the use of innovative technologies for water management
Socio-economic: by the involvement the socio-economic factor and promote gender equity in water management process
Policy and Regulatory Impact: Revision of insurance programs and subsidies related to water management.

Keywords

#Mediterranean and European areas #Artificial intelligence #Remote sensing #Stakeholders #Sensors #Models #Vulnerability #Dashboard #Gender equity #Database #Water decision support #Climate change

Other in Consortium 14

University of Badji Mokhtar Annaba – DZ

Technical University of Berlin – DE

Faculty of Agriculture, Fayoum University – EG

Engineering Department of University of Santiago de Compostela – ES

Gustave Eiffel University – FR

Research Center of International Cooperation in Agronomic Research for Development – FR

Institute of Applied Sciences and Intelligent Systems CNR – IT

Azienda Agricola Agrianto di Maria Consilia Antonelli – IT

Faculty of Sciences and Techniques – IT

Tanger University of Abdelmalek Essaadi – MA

Institute of Agronomy and Veterinary Medicine Hassan II – MA

FCiências.ID - Association for Science Research and Development – PT

Faculty of Sciences of Tunis, University of Tunis El Manar – TN

Manouba School of Engineering – TN

Demo sites/Case studies

9

Platform/hub

2

New products and solutions

1

Section 2

TWISTT

Who twist the tap? Bridging soil-plant-atmosphere dynamics with advanced EO data to address water accounting in the Mediterranean

Thematic Area

Water Management

Action and Topic

RIA

Budget

1.081.076 €

Duration

36 months

State and Coordinator Entity

SPAIN

Consejo Superior de Investigaciones Científicas
ICA CSIC

Scientific Coordinator:
NIETO, Héctor

Participating States 4

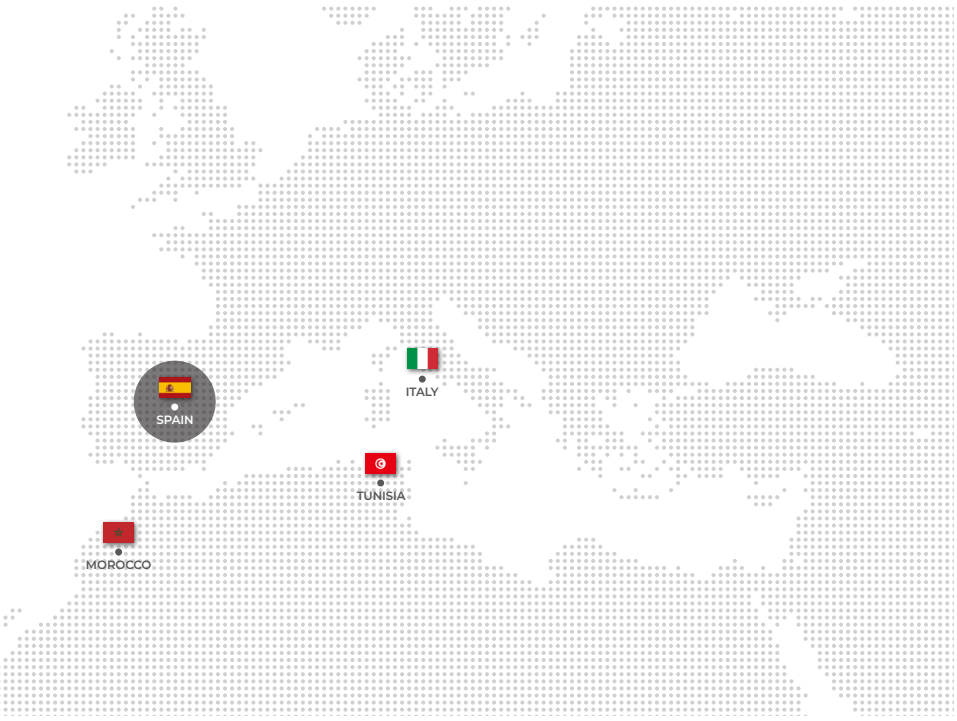
Research Units 6

Context

In the Mediterranean, the sustainable management of water in the face of scarcity and shortages is becoming increasingly complex. Water accounting, especially crucial during economic and environmental crises, provides essential insights into the hydrological cycle, user demand and infrastructure needs, facilitating better and more informed decision-making and governance. In TWISTT we will collaborate with partners who oversee field sites affected by crisis conditions due to climate change and external shocks but with varying local issues, irrigation managements policies, but also in their level of adoption of new technologies.

Objective and contents

Defining target levels of sustainable water withdrawal and consumption for water using sectors and/or users (including ecosystems), that match the available resources and natural recharge patterns implies to differentiate between water accounting in natural ecosystems and water/irrigation systems. The project aims to use Earth Observation (EO) data of evapotranspiration and topsoil moisture at field and irrigation district scale to account and differentiate between blue water footprint (the water extracted from reservoirs, rivers and aquifers,



mainly for irrigation) and green water footprint (the water extracted from the soil matrix). In addition, our multidisciplinary team will incorporate in the modelling framework geophysical techniques, which provide non-invasive ways to observe subsoil physical characteristics like electrical conductivity and soil density over different time periods (even when EO optical data is unavailable) and can evaluate moisture content not only in the topsoil but also in deeper soil layers (groundwater).

Expected impacts and results

TWISTT will result in a multi-source calibrated soil water model that will allow a better understanding of spatiotemporal trends in water flows and water availability, improving thus the water security and preservation of environmental flows. In addition, we will provide near-real time water stress metrics that will define better plant water needs, enhancing the adoption of sustainable, effective strategies to address water scarcity. On the other hand, at policy level TWISTT would allow for a better and more transparent decision-making by the accounting for blue and green water footprints and with a better quantification of irrigation efficiency. Finally, climate and socio-economic scenarios will be run with the calibrated soil water balance for addressing water-related risks and thus increase the resilience of our societies and the environment.

Other in Consortium 5

Politecnico Milano – IT

Faculté Pluridisciplinaire de Nador, Université Mohammed Premier – MA

Chouaib Doukkali University – MA

National Institute of Agricultural Research of Tunisia – TN

Xcalibur – ES

Keywords

#Earth Observation

#Applied geophysics

#Hydrological modelling

#Water accounting

#Blue and green water footprints

#Irrigation accounting

Demo sites/Case studies

5

Section 2

WATER-FRUITPRINT

WATER management systems for sustainable FRUIT PRoduction under INTense drought conditions

Thematic Area

Water Management

Action and Topic

RIA

Budget

1.154.124 €

Duration

36 months

State and Coordinator Entity

ITALY
University of Milano

Scientific Coordinator:
BIANCHI, Davide

Participating States 4

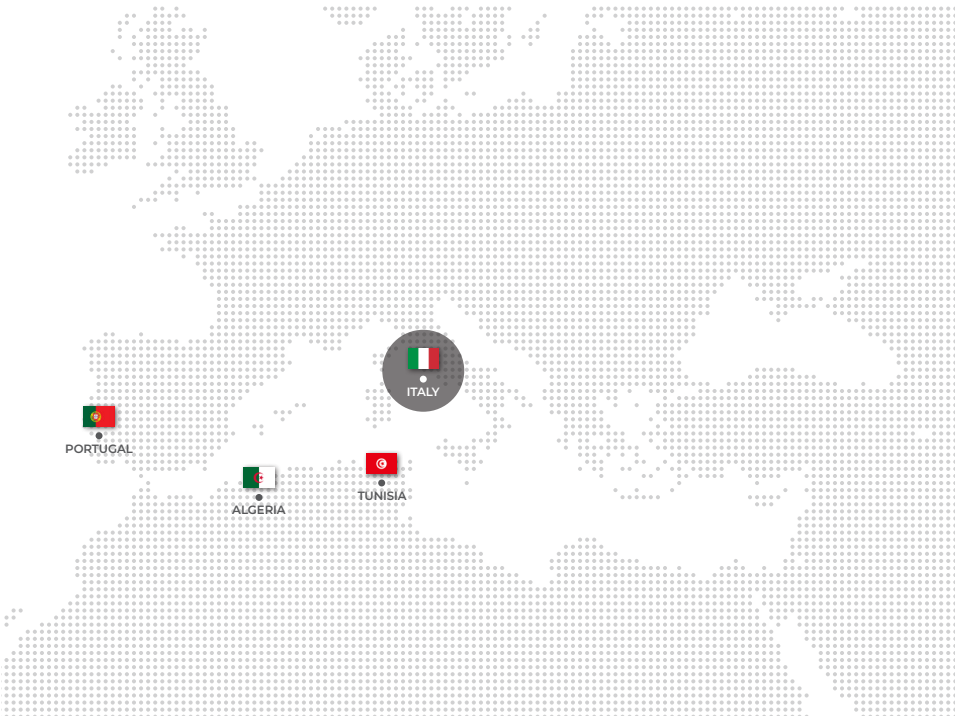
Research Units 5

Context

The Mediterranean region frequently experiences long drought periods, which are expected to intensify due to climate change. During droughts, limited water availability restricts agricultural production and increases competition with other sectors. In woody crop systems, water consumption can be reduced by optimizing water management and adopting innovative agronomical practices, enhancing water use efficiency while supporting economic and environmental sustainability.

Objective and contents

The overall objective of the project is to optimize the water management in Mediterranean woody crop systems under water scarcity or extreme drought conditions, reducing the water used for irrigation and improving fruit production and quality. Specific objectives are: 1) to improve water use efficiency in orchards and vineyards adopting short/medium/long-term sustainable practices (e.g. transpiration-limiting agronomical practices, precision irrigation, water use efficient genetic material); 2) to increase the water productivity, yield and fruit quality by optimizing the use of water and regulating the plant water status; 3) to provide a support system to drive water management in woody crop systems under



water scarcity conditions. All specific objectives contribute to improving the sustainability of water management at socio-economic and environmental levels. The proposed approach will be tested and demonstrated in different pilot areas, to ensure its wide applicability and reliability.

Expected impacts and results

The project's expected impacts include improved water preservation in Mediterranean fruit-growing regions through enhanced knowledge of water availability and increased water use efficiency of woody crops systems. The adoption of sustainable practices is expected to reduce irrigation volumes by up to 30% and increase water productivity by 20%. Improved decision-making will enable equitable water allocation across sectors, supported by a decision support system optimizing irrigation. The project also boosts resilience to water scarcity through innovative water accounting and scenario mapping. Additionally, it supports risk quantification for insurance and policy measures, and fosters economic innovation via cost-benefit analyses and water footprint assessments, encouraging sustainable pricing and incentives.

Other in Consortium 4

University of Minho – PT

University of Skikda – DZ

Center of Biotechnology of Borj-Cedria – TN

Center of Water Researches and Technologies – TN

Keywords

#Water Use Efficiency
#Water Saving
#Water Accounting
#Woody Crops
#Fruit Production
#Fruit Quality
#Sustainable Production
#Climate Change Adaptation
#Water footprint

Demo sites/Case studies

24

Platform/hub

5

New products and solutions

5

Section 2

AGROFIG

Comprehensive and sustainable solution to minimize food loss and waste and promoting food security in the Mediterranean region

Thematic Area

Farming System

Action and Topic

RIA

Budget

864.244 €

Duration

36 months

State and Coordinator Entity

ITALY
University of Pisa

Scientific Coordinator:
GIORDANI, Tommaso

Participating States 4

Research Units 5

Context

Intensive Mediterranean agriculture causes environmental issues, prompting a shift to sustainable practices like agroecology and agroforestry. These systems, involving trees like fig, improve soil, water, and biodiversity, while providing economic benefits. Despite challenges, participatory approaches and local genotypes are key. Projects like AGROFIG promote fig-based agroforestry, through living labs, demonstration sites with integrating crops, enhancing resilience, soil health, and farmer income in Mediterranean regions .

Objective and contents

The overall goal of AGROFIG is to promote agroforestry through fig cultivation across the Mediterranean basin. The project aims to identify and address barriers to the wider adoption of agroforestry systems, considering the socio-economic context and exploring viable value chain alternatives. It will conduct participatory research activities to engage key stakeholders in living labs, fostering collaboration and knowledge exchange. Additionally, AGROFIG seeks to establish strong links with regulatory bodies and market actors to support the revitalization of agroforestry practices in the region. The project will test the performance of fig trees within agroforestry systems at various demonstration sites, evaluating their adaptability and benefits. It will also explore and valorize

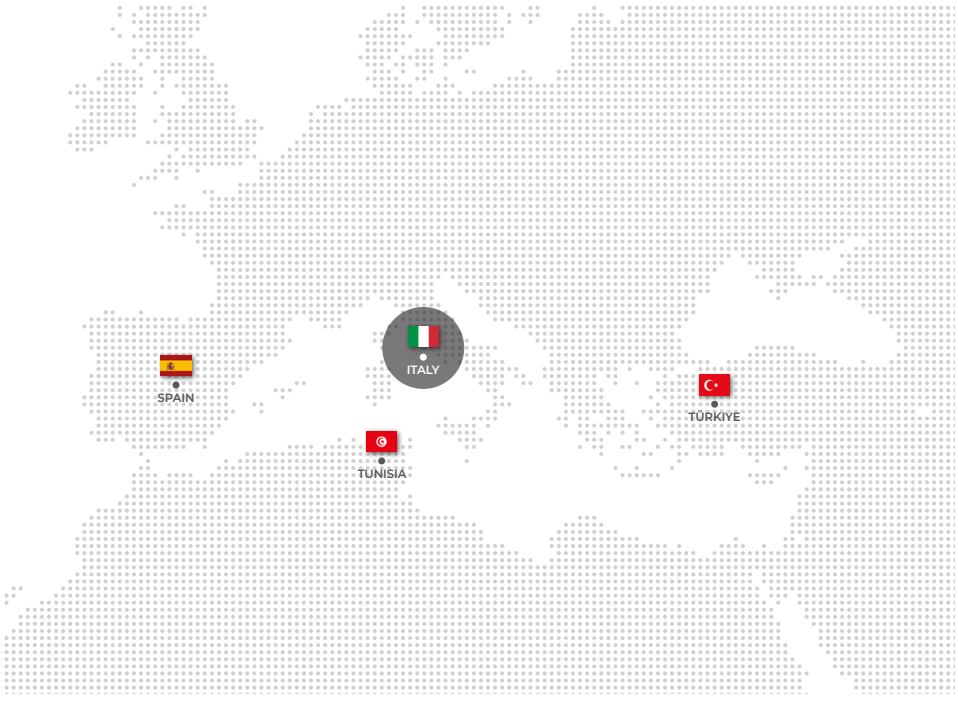


fig genetic diversity by examining an Italian collection, selecting genotypes with traits suitable for agroforestry based on stakeholder needs. Finally, AGROFIG will promote the dissemination of results, encourage collaboration among stakeholders and other projects with similar objectives, and maximize the impact and exploitation of its findings to support sustainable land use and rural development in the Mediterranean.

Expected impacts and results

Promoting agroforestry through fig cultivation across the Mediterranean, AGROFIG aligns with EU policies like Green Deal, Biodiversity, and Farm to Fork. It will integrate socio-economic data and stakeholder insights to inform policies, conserving biodiversity, especially under-utilized crops like figs, by exploring 130 genotypes. The project enhances environmental benefits such as biodiversity, soil health, water conservation, and climate mitigation. Economically, it supports farmers with low-input, adaptable fig varieties, boosting income and market opportunities, especially in degraded areas. Socially, we intend to engage at least 100 stakeholders per year through the establishment of living labs, promoting innovation and knowledge exchange to encourage the adoption of agroforestry solutions, resilient and inclusive rural communities, and gender-sensitive training.
Scientific impacts include breeding programs based on genetic diversity.

Other in Consortium 4

Centro de Investigaciones Científicas y Tecnológicas de Extremadura – ES

Université de Tunis El Manar – TN

Aydın Adnan Menderes University – TR

Azienda Agricola Dimostrativa I Giardini di Pomona – IT

Keywords

#Agroforestry Living labs

#Ficus carica

Demo sites/Case studies

4

Platform/hub

1

New products and solutions

1

Author: AxelRohdeElias - https://commons.wikimedia.org/wiki/File:Ficus_carica_Panasc%C3%A8.jpg

Section 2

AGROFORESTEAM

AGROFOREStry for TErritorial sustAinable Management

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.194.687 €

Duration

36 months

State and Coordinator Entity

SPAIN

University of Barcelona (UB)

Scientific Coordinator: ARMENGOT MARTÍNEZ, Laura

Participating States 7

Research Units 10

Context

Globalised and standardised agriculture has pushed towards simplified systems that have generated negative externalities for the environment and society.

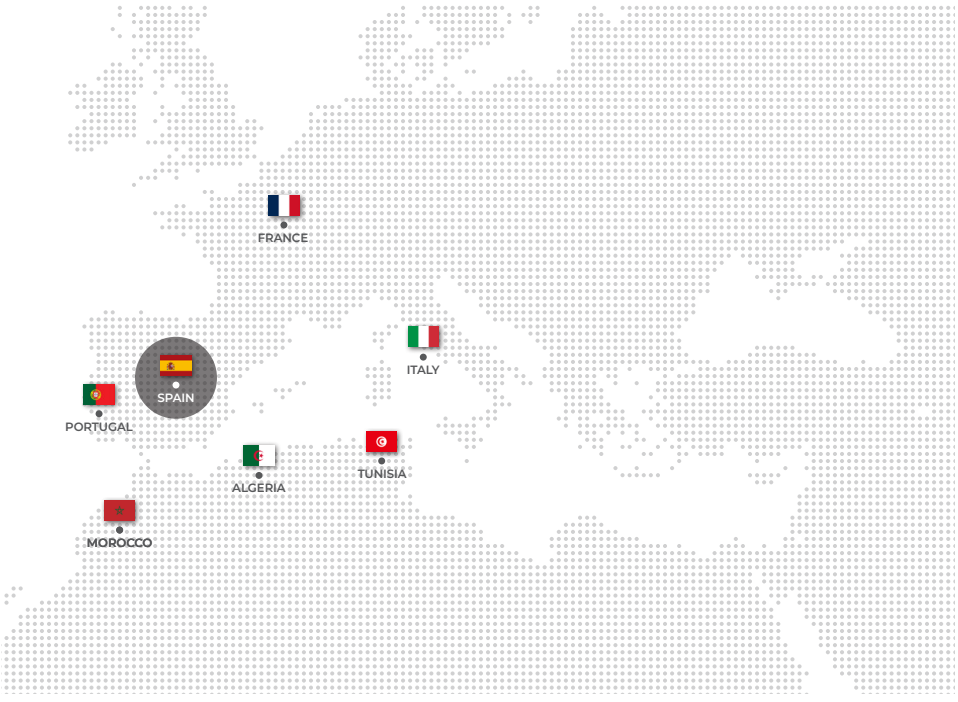
Agroforestry systems has been attracting increasing interest to sustainable (agroecological) intensification. The Mediterranean region holds an important tradition in agroforestry, which has the potential to increase productivity and sustainability of agricultural systems. However, the (re)turn to agroforestry systems requires important efforts in innovation and knowledge, but also the re-thinking of the entire food supply.

Objective and contents

AGROFORESTEAM will support the adoption of agroforestry systems in the Med region by creating territorialised multi-actor platforms, to face the technical, political and socio-economic barriers for agroforestry implementation.

AGROFORESTEAM is based on transdisciplinary dialogue and on the agroecological Living Lab approach. These two concepts are at the core of AGROFORESTEAM, as the most efficient tool to achieve the overall goal of fostering AFs adoption.

AGROFORESTEAM will set up 7 Multi-Actor Platforms (MAPs), in 7 different countries, i.e., Morocco, Algeria, Tunisia, Portugal, Spain,



France and Italy. Each MAP will identify a transformative process and guide a co-creation among the actors to develop innovations, supported by scientific data. Stakeholder mapping will help to understand their interests and influences to increase the impact of the MAPs. AGROFORESTEAM has the aim of being well embedded in the territory to design well adapted agroforestry systems. Experts and trainings on gender perspective and on efficient engagement of stakeholders will be programmed to ensure improved relationships and sound decision-making during the project implementation and beyond it. Learning material and outreach activities will support AFs adoption.

Expected impacts and results

In the 7 working regions, AGROFORESTEAM will include AFs case studies that are adapted to local context (e.g., oasis), represent alternative/innovative practices (e.g., successional AFs), or urgent action is needed to preserve the systems (e.g., Montado). AGROFORESTEAM will:

- Increase awareness and facilitate co-creation of knowledge and capacity building on the technical challenges and the benefits of agroforestry systems by bringing together different stakeholders
- Set up a network of ongoing experiences, map & document them, and co-design tailored solutions
- Provide scientific evidences on the agronomic, environmental and socio-economic benefits of AFs
- Gather traditional and local knowledge on AFs
- Contribute to developing fair business models to sustain AFs and valorise their products
- Implement an efficient exploitation, communication, and dissemination strategy to reach relevant stake-holders

Demo sites/Case studies

10

Other in Consortium 9

Council for Agricultural Research and Economics (CREA) – IT

Research Institute for Organic Agriculture (FIBL) – FR

University of Évora (UÉvora) – PT

University Mohamed Khider of Biskra (UMKB) – DZ

University of León (ULE) – ES

Institut des Régions Arides (IRA) – TN

Ecole Nationale d'Agriculture de Meknes (ENAM) – MA

Université Sidi Mohamed Ben Abdellah (USMBA) – MA

French National Research Institute for Agriculture, Food and Environment (INRAE) – FR

Keywords

#Multi-actor platforms
#Co-creation
#Living labs
#Silvo-pastoral
#Silvo-arable
#Successional agroforestry
#Oasis
#Gender perspective
#Educational and learning material
#Trainings

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Section 2

ASPmed

Agroforestry practices for Agroecological transition towards sustainable Sheep and Poultry farming in the Mediterranean region

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.625.768 €

Duration

36 months

State and Coordinator Entity

Italy

University of Torino, UNITO

Scientific Coordinator: SCHIAVONE, Achille

Participating States 8

Research Units 11

Context

The ASPmed initiative responds to the anticipated 60% increase in global food production requirements necessary to support growing populations, recognising that agricultural practices have become increasingly crucial for addressing this pressing challenge. The project acknowledges that agroforestry, which integrates trees with crops and livestock, offers a holistic approach to enhance agricultural efficiency, mitigate greenhouse gas emissions, and promote sustainable land use. The combination of agroforestry with animal farming, specifically poultry and sheep production, presents opportunities for more effective utilization of marginal lands. However, the widespread adoption of agroforestry faces significant obstacles including knowledge gaps and technical constraints that limit its implementation. The initiative operates within the Mediterranean regional context where challenges related to food security, environmental sustainability, land degradation, and socio-economic development require integrated solutions that promote resilience, biodiversity conservation, and inclusive economic growth while addressing gender equality concerns.

Objective and contents

ASPmed aims to develop a sustainable agroforestry model integrating poultry and sheep production while minimizing environmental impact, enhancing food quality, and promoting animal health. The project strengthens biodiversity, local resilience, and socio-economic growth with a focus on gender equality in Mediterranean regions. Key objectives include sustainable land use, high-quality food production, improved animal welfare, local economic development, and knowledge sharing through a multi-actor participatory approach. Activities enhance ecosystem services—carbon sequestration, soil health, and biodiversity—while empowering communities and stakeholders, including farmers, policymakers, and researchers, to adopt sustainable agricultural practices. The project is structured into seven work packages covering management, research, and dissemination to maximize impact and promote best practices.

Expected impacts and results

ASPmed aims to transform Mediterranean agriculture through replicable agroforestry models for poultry and sheep production. Expected outcomes include improved efficiency, reduced greenhouse gas emissions, sustainable land use, enhanced ecosystem services (carbon sequestration, soil health, biodiversity), and strengthened local economies. Social benefits include better animal welfare, gender equality, and community empowerment through participatory approaches. By building resilience and sharing best practices, ASPmed fosters sustainable, equitable, and environmentally friendly agricultural systems that support long-term food security, inclusive development, and climate-smart farming across the Mediterranean.

Other in Consortium 10

University of Florence – IT

University of Oran – DZ

University of Zagreb – Faculty of Agriculture – HR

Cairo University – EG

University of Murcia – ES

INRAE – Experimental Unit for Alternative Poultry Farming Systems – FR

Sultan Moulay Slimane University – MA

Polytechnic Institute of Viana do Castelo – PT

International Agricultural Research and Training Center – TR

Ege University – TR

Keywords

#Agroecology

#Agroforestry

#Heritage

#Poultry

#Sheep

#Sustainability

Section 2

CorkMed

Cork Quality Yield Provision Monitoring for Revitalising Sustainable Agroforestry in the Mediterranean Basin

Thematic Area

Farming System

Action and Topic

RIA

Budget

593.000 €

Duration

36 months

State and Coordinator Entity

PORTUGAL

Instituto Nacional de Investigação Agrária e Veterinária, I.P.

Scientific Coordinator: COSTA, Augusta

Participating States 4

Research Units 5

Context

Cork oak agroforestry systems are highly vulnerable to the effects of climate change, likely limiting tree and cork growth. Trees act as ecological engineers in these systems, providing vital ecosystem services, while cork yield provides the economic cornerstone for sustainable agroforestry. However, efforts to improve cork quality yield towards effective sustainable farming have largely been neglected and detached from the broader cork oak tree conservation global issues.

Objective and contents

CorkMED aims to enhance the cork value chain globally while delivering important ecosystem services. The core concept of CorkMED is that the cork quality yield reflects the ecological functioning of cork oak agroforestry systems, providing smallholder farmers with essential information for management and decision-making. CorkMED seeks certification schemes for sustainable agroforestry practices and aims to secure the assignment of a Geographical Identification (GI) for cork origin to be included in the cork industry standards.

The CorkMED approach includes monitoring selected cork quality yield indicators, which will be made publicly available on

a globally comprehensive map. This will enhance access to the cork market, extend the value chain for cork products, strengthen competitiveness and promote sustainable cork oak agroforestry in the Mediterranean cork-producing countries.

Expected impacts and results

The CorkMED project has groundbreaking objectives, which include implementing cork quality yield indicators to secure a Geographical Indication (GI) for cork origin at SIX demonstration sites. The project also aims to adopt new sustainable agroforestry practices through FOUR training missions. These missions will cover innovative cork harvesting techniques such as mechanical harvesting, ferti-irrigation, agricultural set-aside schemes, and long-term automated monitoring of tree vigour. Additionally, CorkMED will enhance data for capacity building and establish TWO new suberotecas in Algeria and Tunisia. These new facilities will be fully equipped for cork quality yield assessment and serve as archives for cork samples from North African countries.

Other in Consortium 4

CICYTEX – ES
Université de Tlemcen – DZ
INRF – DZ
INRGREF – TN

Keywords

#Quercus suber #Montado #Dehesa #Cork harvesting #Renewable forest resources #Non-timber forest products #Sustainable agroforestry #Geographical Information System for Mediterranean basin cork oak forest

Demo sites/Case studies

6

Platform/hub

1

New products and solutions

1

Credit: CorkMed

Section 2

COSMOS

Coordinated Optimization for Sustainable Mediterranean Agroforestry with Truffles and High-Value Species

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.667.530 €

Duration

36 months

State and Coordinator Entity

SPAIN

Fundació Centre de Recerca en Agrotecnologia - AGROTECNIO

Scientific Coordinator: BONET, José-Antonio

Participating States 6

Research Units 10

Context

There is a growing demand for sustainable food produced without pesticides and chemical fertilizers that can be harmful. Moreover, climate change, urbanization, industrialization & overtourism are threatening agricultural productivity, particularly in the Mediterranean. The unpredictability of forestry & agricultural production requires financial intervention to sustain profitability, which can discourage farmers and contribute to rural depopulation. COSMOS addresses these challenges while enhancing livelihoods, diversifying income sources & fostering business.

Objective and contents

The project aims to identify and optimize innovative agroforestry strategies in the Mediterranean region, combining truffles, medicinal and aromatic plants, fruit trees, vineyards and plant species suitable for pollen and honey production. Objectives include developing sustainable practices, investigating market access and value chains, analyzing regulatory frameworks, and raising awareness among stakeholders through gender-sensitive training and outreach programs, with a focus on small-holder farmers, especially women, and promoting ecosystem services.

The novel approach of COSMOS is to promote the combined production of high-value products while developing new business ideas and models, self-employment strategies, improved livelihoods for farmers and equal opportunities for women. The overarching ambition of the project is to use multi-actor and multi-faceted approaches to promote substantial progress in the agroforestry sector. This goal is pursued through boosting tree cover, enhancing landscape resilience, and promoting soil health and biodiversity on farmland.

Expected impacts and results

By raising awareness of innovative agricultural techniques and promoting increased adoption of sustainable agroforestry practices, in addition to their potential impact on financial income through participation in the global market, the project will directly contribute to the expansion of resilient agricultural lands in the Mediterranean region. These areas will be able to adapt to individual demands and capabilities and respond to societal needs and challenges, thereby improving rural livelihoods and enhancing ecosystem services on a wider scale.

Expected impacts include increased adoption of sustainable agroforestry practices by Mediterranean farmers, improved agricultural productivity, improved soil health and biodiversity (as well as fertility, carbon sequestration of efficient water use), increased resilience to climate change or better livelihoods for farmers.

Keywords

#Agricultural diversification #Agroforestry #Truffles #Honey #Pollinators #Medicinal/aromatic plants #Precision agriculture #Soil health #Water optimization #Mediterranean food systems #Mycotouris

Other in Consortium 10

University of Florence – IT

University of Oran – DZ

University of Zagreb – Faculty of Agriculture – HR

Cairo University – EG

University of Murcia – ES

INRAE – Experimental Unit for Alternative Poultry Farming Systems – FR

Sultan Moulay Slimane University – MA

Polytechnic Institute of Viana do Castelo – PT

International Agricultural Research and Training Center – TR

Ege University – TR

Demo sites/Case studies

12

Platform/hub

6

New products and solutions

6

Credit: COSMOS

Section 2

FORECAST

Fostering Resilient Agroforestry Systems with climate-ready Tree and Herbaceous Germplasm

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.624.562 €

Duration

36 months

State and Coordinator Entity

Italy
University of Pavia

Scientific Coordinator:
BALESTRAZZI, Alma

Participating States 6

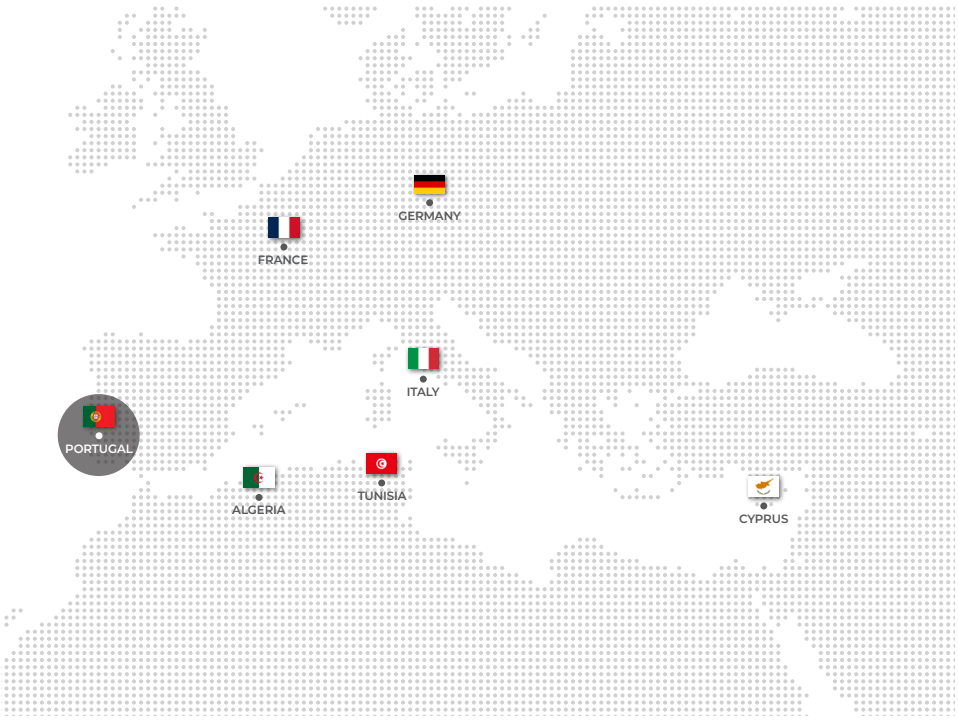
Research Units 10

Context

Agroforestry provides multifunctional systems for biodiversity preservation but the input of diversified climate-resilient germplasm is now required. Participatory agroforestry, combining local knowledge and technological advances will boost the proactive management of FORECAST tree germplasm in combination with orphan legumes. Pre-germination treatments for both trees and orphan legumes seeds will be updated, to provide smart tools for gaining in climate-ready agroforestry biodiversity.

Objective and contents

FORECAST will provide sustainable technical solutions to revitalise Mediterranean agroforestry under the challenge of climate change, exploiting orphan legumes, seed technology, precision agriculture, and climate data analysis. This will bring diversification in silvoarable/silvopastoral agroforestry, allowing farmers' access to selected climate-resilient, locally-adapted tree/legume germplasm, enhance productivity under challenging environments, improving/integrating traditional practices with precision agriculture, and diversification of value chains. FORECAST will promote novel products and tailored certification schemes/new business models. By using a Multi-Actor Approach, FORECAST will ensure that real



needs of stakeholders are addressed, in terms of advisory services/solutions requested across the Mediterranean area. Such efforts will be integrated by extensive communication/dissemination, including gender-sensitive activities.

Expected impacts and results

The project results are expected to contribute to increased adoption of sustainable agroforestry/orphan legumes-based practices. Groundbreaking knowledge/technologies co-created/co-developed within FORECAST, targeting the needs of each stakeholder/region, will be translated into new sustainable solutions based on valorization of resilient, locally-adapted agroforestry/orphan legumes-based systems. FORECAST will provide scientific evidences about sustainability/resilience/profitability of agroforestry/orphan legumes-based systems for each country, focusing on improved soil health, biodiversity, and ecosystem services. Policy interventions across value chains will be envisaged and promoted. FORECAST will deliver a toolkit of genetic resources, farming pratices, decision driven tools to support information, shaped to each target geographical/socio-economical region.

Keywords

#Agroforestry #Orphan Legumes #Seed Technology #Precision Agriculture #Circular Bioeconomy #Mediterranean Region #Sustainable Transition

Other in Consortium 10

CREA-Research Centre for Forestry and Wood (CREA-FW) – IT

Consiglio Nazionale delle Ricerche – Istituto di Ricerca sugli Ecosistemi Terrestri (CNR) – IT

University of Constantine (UC1) – DZ

Karlsruhe Institute of Technology – Institute of Meteorology and Climate Research (KIT) – DE

HIT Hypertech Innovations Ltd (HIT) – CY

Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE) – FR

AgroParisTech (APT) – FR

Laboratório Colaborativo Montanhas de Investigação – Associação (MORE) – PT

DEIFIL TECHNOLOGY, LDA (DEIFIL) – PT

University of Sfax (US) – TN

Demo sites/Case studies

5

Credit: FORECAST

Section 2

RivAgroforMed

REVitalization of AGROFORestry systems through agroecological transition for increasing farm productivity in the MEDiterranean

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.197.204 €

Duration

36 months

State and Coordinator Entity

Italy

University of Florence
Department of Agriculture, Food, Environment and Forestry, UNIFI - DAGRI

Scientific Coordinator:
PACINI, Cesare

Participating States 6

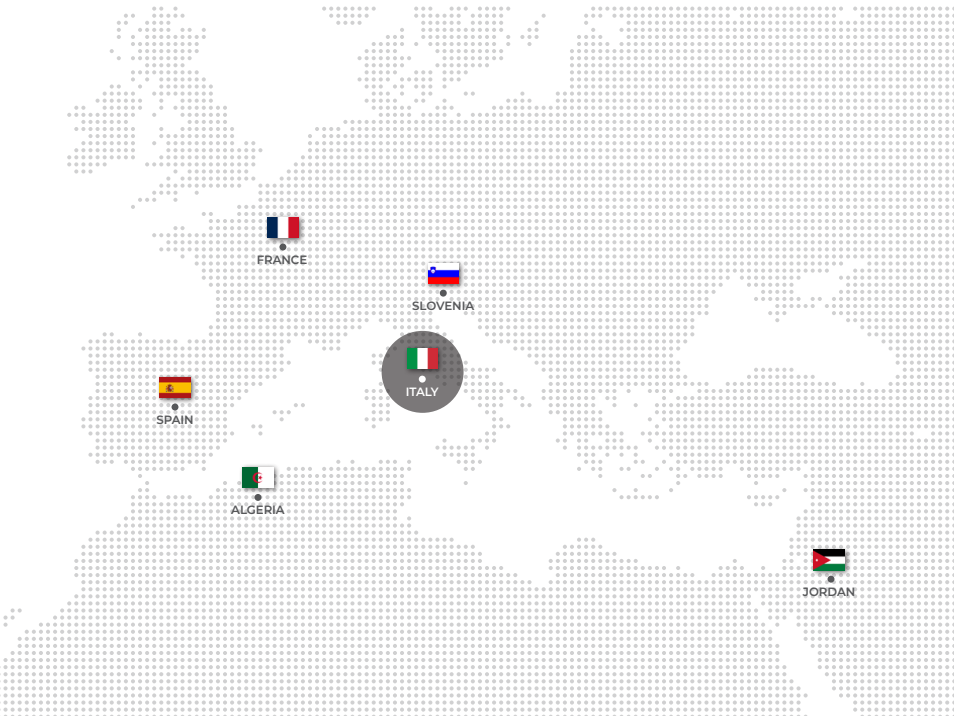
Research Units 7

Context

The RivAgroForMed initiative draws upon traditional Mediterranean agroecosystems that historically integrated olives, vines, and wheat within unified management units. The project recognises that these original systems can inspire contemporary agroecological transitions that increase farm productivity while maintaining biodiversity. The initiative addresses the need to revitalize agroforestry systems across the Mediterranean region in response to soil degradation, climate vulnerability, and the imperative for sustainable agricultural intensification within the framework of agroecology, organic farming, and precision agriculture.

Objective and contents

RivAgroForMed aims to revitalize Mediterranean agroforestry systems to enhance productivity while improving soil quality and increasing climate resilience. The project employs two complementary strategies: updating traditional agroforestry through revitalizing practices such as cover crops, mulching, diversified rotations, participatory genetic improvement, animal integration, and advanced certification systems; and integrating agroforestry with ecologically intensified organic and precision farming techniques. The project operates through a living lab approach, structured around lighthouse farms as focal analysis



points supported by networks of action and target farms for innovation implementation. Impact assessment encompasses land use efficiency, energy and water management, productivity, biodiversity, soil quality, environmental pollution, climate resilience, and soil biodiversity through microbiome and microarthropod analysis. Stakeholder engagement includes workshops on soil quality assessment methods, digitization of soil quality mapping, demonstration activities at farm networks, and a summer school on metagenomic technologies for young researchers.

Expected impacts and results

RivAgroForMed anticipates substantive contributions to Mediterranean agricultural sustainability through revitalized agroforestry systems demonstrating enhanced productivity and environmental performance. Expected outcomes include improved soil quality, increased climate resilience, enhanced biodiversity conservation, and accelerated adoption of innovations through demonstration activities. The project expects to deliver new technical and socio-economic business models supporting agroforestry transitions, certification of ecosystem services strengthening market valorization, and digitized farmer networks facilitating knowledge exchange. Policy briefs will inform regional frameworks while gender action components ensure equitable participation. Ultimately, RivAgroForMed expects to establish replicable agroecological transition models that balance productive efficiency with ecological integrity, providing pathways for sustainable, resilient Mediterranean agriculture.

Other in Consortium 6

Rete Semi Rurali – IT

University of Oran – DZ

University of Lleida – ES

Paul-Valéry University Montpellier 3 – FR

Royal Scientific Society – JO

Agricultural Institute of Slovenia – SI

Keywords

#Mediterranean agroforestry

#Agroecological transition

#Soil quality

#Climate resilience

#Biodiversity conservation

#Sustainable intensification

Section 2

SCALARE

SCaling Agroforestry by living LAbs
for Resilient Mediterranean agro-Ecosystems

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.255.500 €

Duration

36 months

State and Coordinator Entity

Germany
Technical University Munich

Scientific Coordinator:
SAUER, Johannes

Participating States 5

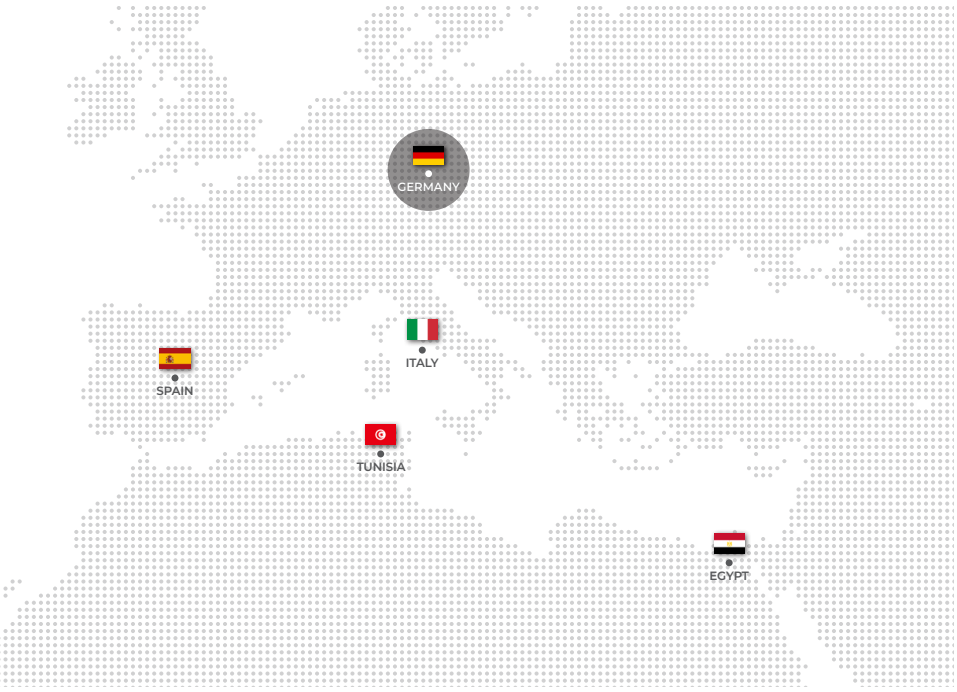
Research Units 5

Context

International and EU policies, such as the Paris Agreement and the EU Common Agricultural Policy, promote agroforestry for its carbon sequestration, productivity, water management, and biodiversity benefits. Yet, farmers often hesitate to adopt these practices due to low short-term returns and limited markets. Studies show that accounting for ecosystem services and emerging opportunities, like carbon markets and PES schemes, can improve profitability. To scale agroforestry sustainably, innovative practices and business models must address social norms, market integration, and producer–consumer preferences while managing socio-economic and institutional risks.

Objective and contents

SCALARE aims to advance agroforestry as a sustainable land management strategy in the Mediterranean, balancing productivity, socio-economic viability, and environmental goals. Over three years, the project will co-develop an innovation ecosystem that generates scientific knowledge, enhances knowledge transfer, and assesses opportunities for innovative agroforestry systems—such as diversified production, climate adaptation, carbon sequestration, soil improvement, and water retention—while exploring scalability through supply chains, PES, carbon projects, and labels.



The project's five specific objectives are:
1. Co-create real-world Living Labs for stakeholder collaboration and solution testing.
2. Develop a Mediterranean agroforestry knowledge hub to share best practices.
3. Generate on-site knowledge through testing of novel and existing systems.
4. Co-develop business cases addressing adoption barriers, financing, and market demand.
5. Build an expert system and training materials to support exploitation, capacity building, and inclusion of women and vulnerable groups.

Expected impacts and results

SCALARE aims to expand knowledge and promote the adoption of agroforestry in the Mediterranean by testing new systems and assessing their impacts on the environment, farmers, and society. The project will also address adoption barriers and showcase innovations to support value chain actors. Key contributions include:
Testing and documenting novel Mediterranean agroforestry systems in demo sites, assessing their environmental, economic, and resilience impacts, and identifying adoption enablers and barriers.
Exploring innovative business cases to create value for farmers and consumers, with a focus on gender-inclusive models.
Bringing together diverse stakeholders in Living Labs to build a unique knowledge hub.
Developing learning materials, training programs, outreach initiatives, and an expert system to support practitioners during and after the project.
Generating scientific evidence on the agronomic, environmental, and economic potential and scalability of agroforestry systems to inform policy and practice.

Other in Consortium 4

Cairo University (CU) – EG

University of Messina (UniME) – IT

Forest Science and Technology Center of Catalonia (CTFC) – ES

National Research Institute of Rural Engineering, Water and Forests (INRGREF) – TN

Keywords

#Agroforestry #Living Labs #Demonstration Sites #Business Models #Expert System

Demo sites/Case studies

4

Platform/hub

1

New products and solutions

1

Section 2

SHARE

Shared Innovations for Mediterranean Agroforestry Systems

Thematic Area

Farming System

Action and Topic

RIA

Budget

1.545.976 €

Duration

36 months

State and Coordinator Entity

Italy

Università Politecnica delle Marche

Scientific Coordinator: D'OTTAVIO, Paride

Participating States 6

Research Units 7

Context

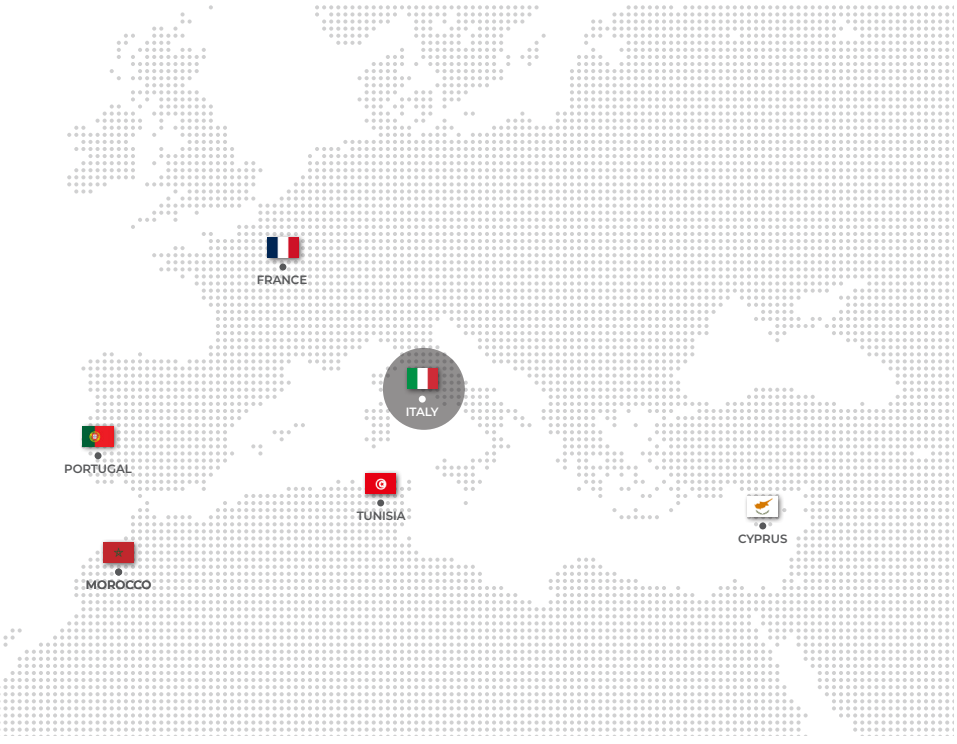
Mediterranean agroforestry systems offer crucial ecosystem services such as habitat provision, food production, and soil carbon sequestration. However, their potential is limited by challenges like the abandonment of maintenance practices, low farm productivity, and insufficient technical knowledge.

Objective and contents

SHARE project addresses these issues through ecosystem service analysis, efficiency assessments, and policy development across six demonstration sites in six Mediterranean countries. Using a transdisciplinary and multi-actor approach, SHARE establishes Living Labs (LL) in each case study area to engage stakeholders in co-identifying barriers, testing new practices, and co-designing models, strategies, and innovations.

Expected impacts and results

The LLs will enable the creation of Communities of Practice (CoP) to promote knowledge exchange and empower vulnerable actors. This collaborative approach supports the replicability of solutions across regions and allows cross-site comparisons.



Specifically, SHARE tackles the abandonment of practices by co-designing and promoting best practices informed by ecosystem service analysis. To improve productivity, the project identifies high-performing farms as models. SHARE also supports viable value chains and policy adjustments—such as proposing a new eco-scheme—to enhance farmer income. Finally, through LLs and CoPs, the project fosters ongoing stakeholder learning and capacity building to address technical gaps and ensure sustainable agroforestry management.

Other in Consortium 7

Università Politecnica delle Marche (UNIVPM) – IT

Università degli Studi di Firenze (UNIFI) – IT

Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE) – FR

Universidade de Évora - Instituto Mediterrâneo para a Agricultura Ambiente e Desenvolvimento (UÉvora) – PT

Cyprus Institute for Rural and Regional Development (CIRRD) – CY

Arid Regions Institute (IRA) – TN

University Ibn Zohr of Agadir (UIZ) – MA

Keywords

#Participatory approaches #Living Labs #Community of practice #Ecosystem services #Hybrid Knowledge #Co-design #Co-learning

Demo sites/Case studies

6

Platform/hub

1

New products and solutions

1

Section 2

SustAgri

Promote sustainable agroforestry systems

Thematic Area

Farming System

Action and Topic

IA

Budget

948.583 €

Duration

36 months

State and Coordinator Entity

GERMANY

Reiner Lemoine Institut gGmbH

RLI

Scientific Coordinator: FLEISCHMANN, Julian

Participating States 5

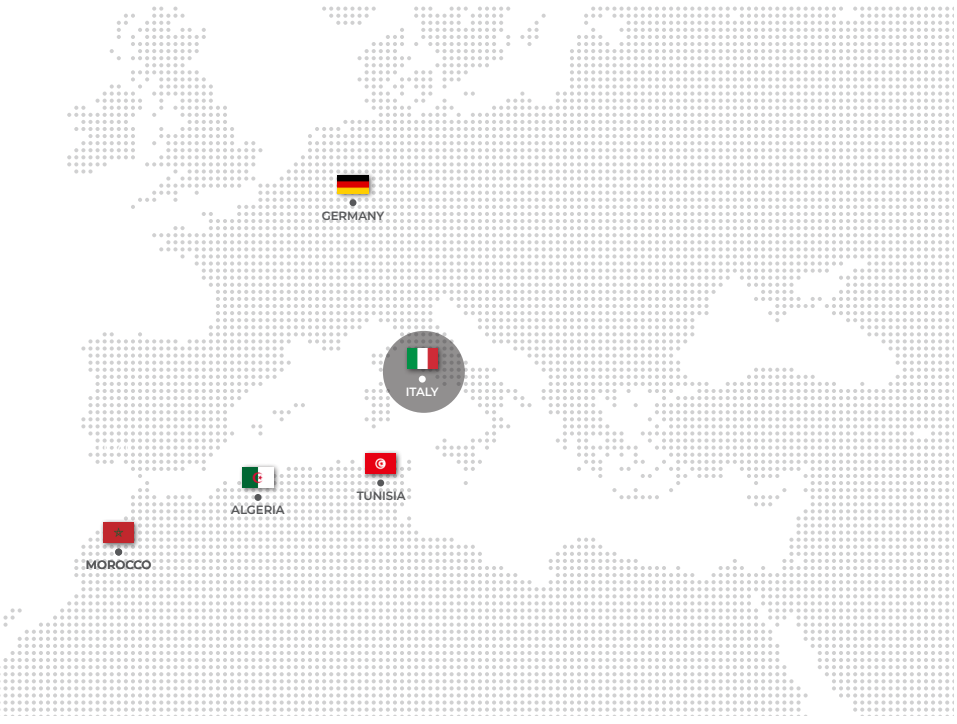
Research Units 6

Context

The SustAgri initiative addresses the critical need to foster sustainable agroforestry practices in the MENA region within the broader Mediterranean context. The project responds to challenges related to sustainable land use and climate resilience, recognising the importance of revitalizing both traditional and innovative agroforestry systems. The project operates within a framework that emphasises transdisciplinary research, capacity development, and gender-responsive approaches to agricultural transformation.

Objective and contents

SustAgri promotes sustainable agroforestry through international, transdisciplinary research and capacity-building across five objectives: stakeholder engagement, identification and training on agroforestry systems, development of an open-access decision-support tool, creation of business models and financing options, and empowerment of local farmers, especially women. The project addresses soil and water management, crop diversity, climate adaptation, technology integration, and social benefits. Operating through four Living Labs in Algeria, Tunisia, Morocco, and Italy, SustAgri develops a web application for site-specific



agroforestry planning and business model recommendations, while prioritizing gender-inclusive training and activities.

Expected impacts and results

SustAgri aims to enhance sustainable land use and climate resilience in the Mediterranean by revitalizing agroforestry practices. The project will strengthen local farming capacities, especially among women, provide an open-access decision-support tool for site-specific agroforestry planning, and develop viable business models with financing options. By integrating traditional knowledge with innovative practices, SustAgri seeks to promote inclusive, climate-resilient agroforestry systems and establish replicable approaches for sustainable land management across the region.

Other in Consortium 6

University of Khemis Miliana – DZ

EnGreen Solutions – IT

Hassan II Institute of Agronomy – MA

National School of Computer Science and Systems Analysis, Mohammed V University of Rabat – MA

Institute for Solar Energy and New Energies, IRESEN – MA

National Agronomic Institute of Tunisia – TN

Keywords

#Agroforestry

#Innovation

#Traditional practices

#Water-energy-food nexus

Section 2

TAIE

Truffle Agroforestry
Innovate & Empower

Thematic Area

Farming System

Action and Topic

RIA

Budget

956.516 €

Duration

36 months

State and Coordinator Entity

Italy

Istituto per i Sistemi Agricoli e Forestali del Mediterraneo, ISAFOM CNR

Scientific Coordinator:
MASSACCESI, Luisa

Participating States 5

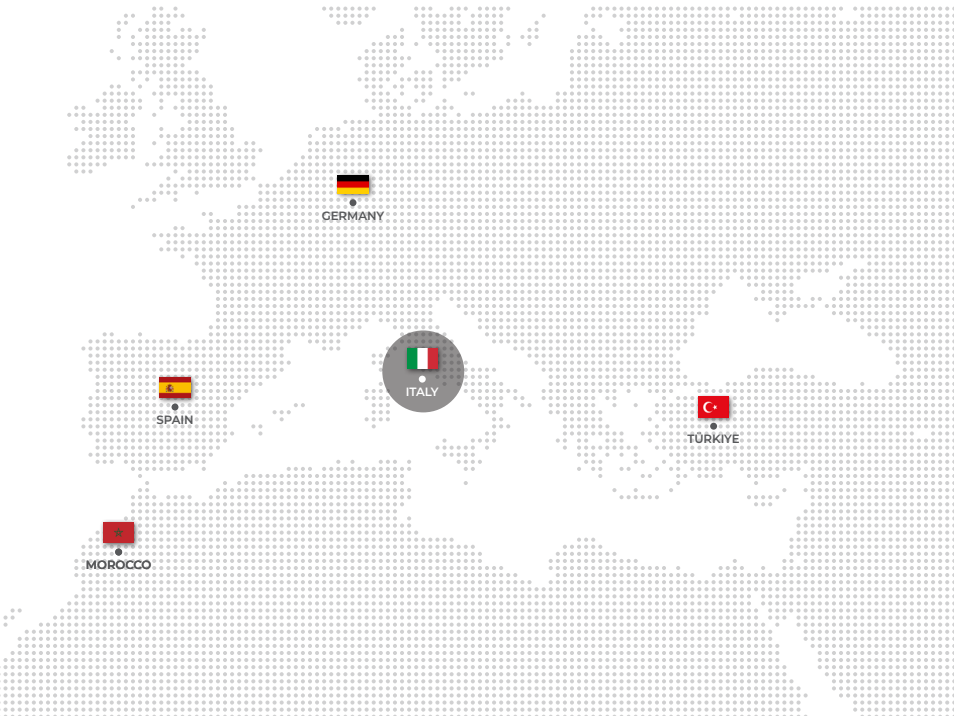
Research Units 7

Context

The TAIE project aims to transform truffle cultivation through agroforestry while addressing soil degradation, erosion, and climate resilience in the Mediterranean. By combining truffles with cover crops, grazing, beekeeping, and other activities, it enhances soil quality and carbon sequestration. The project aligns with the EU Soil Monitoring and Resilience Directive, incorporating soil health criteria, and supports the Common Agricultural Policy's goals of tree integration, crop diversification, and high-value cultivation in sensitive landscapes. TAIE also contributes to the European Green Deal and Horizon Europe missions.

Objective and contents

TAIE aims to transform truffle cultivation through agroforestry while empowering communities via innovative techniques, education, and gender equality initiatives. The project engages stakeholders to develop demonstrators and learning materials, equipping individuals to cultivate truffles alongside crops and grazing systems. Promoted agroforestry practices include cover crops, integrating grazing animals for natural weed control and fertilization, and beekeeping. The project assesses soil health improvements using indicators such as bulk density, pH, texture,



structural stability, soil organic carbon, nitrogen, exchange cations, phosphorus availability, microbial activity, and carbon sequestration.

Expected impacts and results

TAIE is expected to transform truffle agroforestry, delivering environmental, economic, and social benefits. Impacts include improved soil health, increased carbon sequestration, enhanced biodiversity, reduced erosion, and stronger ecosystem resilience. The project will strengthen value chains through certification, branding, and innovative business models, while precision farming enhances productivity and sustainability. By empowering communities with gender-inclusive approaches, TAIE will create replicable agroforestry models that support climate resilience, sustainable land use, and biodiversity in Mediterranean landscapes, aligned with EU Green Deal objectives.

Other in Consortium 6

Technical University of Munich – DE

Aragon Agri-Food Research and Technology Center (CITA) – ES

University of Murcia – ES

Mohammed V University of Rabat – MA

Çanakkale Onsekiz Mart University – TR

Tarsus University – TR

Keywords

#Agroforestry #DSS #Gender Equality #Precision Farming #Soil monitoring #Truffle and Terfezia Cultivation #Value chain and market analyses

Section 2

Bio-TEAM

Biopolymer production for mycotoxins management in cereal grains To Enhance Agricultural yield and sustainability in the Mediterranean Basin

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

728.000 €

Duration

36 months

State and Coordinator Entity

ALGERIA

Université ELOUED, UEO

Scientific Coordinator:
MEKHADMI, NourElhouda

Participating States 6

Research Units 8

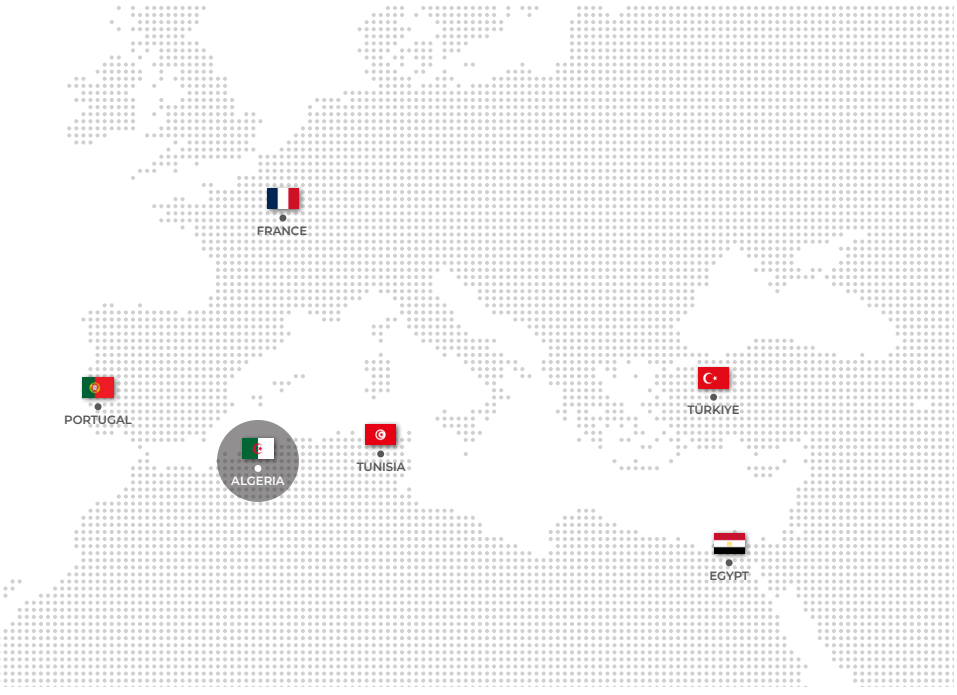
Context

Bio-TEAM introduces innovative, eco-friendly solutions to reduce mycotoxin contamination and improve cereal sustainability across the Mediterranean. The project combines expertise from academia, industry, and agriculture to develop three key innovations: (1) nano-biological treatments using natural nanoparticles and plant extracts to inhibit fungal growth, (2) a CRISPR/nanotech early-warning system for fungal detection, and (3) biodegradable antifungal packaging from agricultural waste. Tested from lab to field, these solutions enhance food safety, reduce chemical use and plastic pollution, support rural incomes, and promote circular, climate-resilient agriculture aligned with SDGs.

Objective and contents

The Bio-TEAM project tackles mycotoxin contamination in Mediterranean wheat and maize, which threatens health, food security, and economic stability. Its objectives are to:

- Identify and monitor mycotoxin-producing fungi across diverse agro-ecosystems.
- Assess economic and health impacts on food, feed, and communities.
- Develop antifungal nanoparticles and plant extracts as eco-friendly alternatives to chemical fungicides.
- Incorporate these nanoparticles into biodegradable plastics for safer grain storage.
- Apply beneficial microbes for biological control and detoxification.
- Create a predictive CRISPR/nanotech system for early fungal detection.
- Validate safety and efficacy through lab, field, and animal studies.
- Build capacity and engage stakeholders via training, workshops, and policy dialogues.
- Establish a sustainability framework using circular economy principles.
- Evaluate environmental and economic benefits versus conventional methods.



Expected impacts and results

The Bio-TEAM project is expected to deliver scientific, technological, socio-economic, and environmental outcomes to improve food safety, public health, and agricultural sustainability in the Mediterranean.

Expected Results:

1. Bio-based antifungal treatments using nanoparticles and plant extracts as eco-friendly alternatives to chemical fungicides.
2. Biodegradable plastic films from agricultural waste enriched with antimicrobial agents for extended grain shelf life and reduced plastic pollution.
3. CRISPR/Cas9-based predictive system for early fungal detection and intervention.
4. Validated biological control protocols using beneficial microbes and essential oil nanoemulsions.
5. Toxicity and environmental safety data for safe application.
6. Scientific publications, manuals, and open-access resources.
7. Capacity building through training, workshops, and stakeholder engagement.
8. Policy and communication tools for broad dissemination and adoption.

Expected Impact:

Health and food safety: Lower mycotoxin exposure for humans and livestock.
Economic benefits: Reduced post-harvest losses, improved grain quality, and income opportunities from valorizing agricultural waste.
Environmental sustainability: Reduced chemical inputs, biodegradable materials, and circular economy practices.
Scientific innovation: Advances in nanotechnology, molecular biology, and sustainable agriculture.
Policy and market transformation: Support for green regulatory frameworks and biological alternatives.
Scalability and replication: Demonstration sites across the Mediterranean as models for wider adoption.

Other in Consortium 9

Institut National de la Recherche Agronomique d'Algérie (INRAA) – DZ

Alexandria University (AU) – EG

The Egyptian Agricultural Company for Seed Production (EGAS) – EG

Matrouh University (MAU) – EG

Université du Littoral Côte d'Opale (ULCO) – FR

University of Coimbra (UC) – PT

Faculty of Sciences of Sfax TSS – TN

University of Selcuk (US) – TR

Usak University (UU) – TR

Demo sites/ Case studies

3

Platform/hub

1

New products and solutions

1

Keywords

#Mycotoxins #Cereal grains #Biocontrol #Nanoparticles #CRISPR/Cas9 #Biodegradable plastics #Food safety #Sustainable agriculture #Mediterranean region #Plant extracts #Fungal contamination #Climate resilience #Circular economy #Early detection #Antifungal agents

Section 2

BLUMI-Med

Boosting Local Urban Markets
In The Mediterranean

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

1.812.724 €

Duration

36 months

State and Coordinator Entity

GERMANY
University of Kassel
UNIKASSEL

Scientific Coordinator:
THIEL, Andreas

Participating States 10

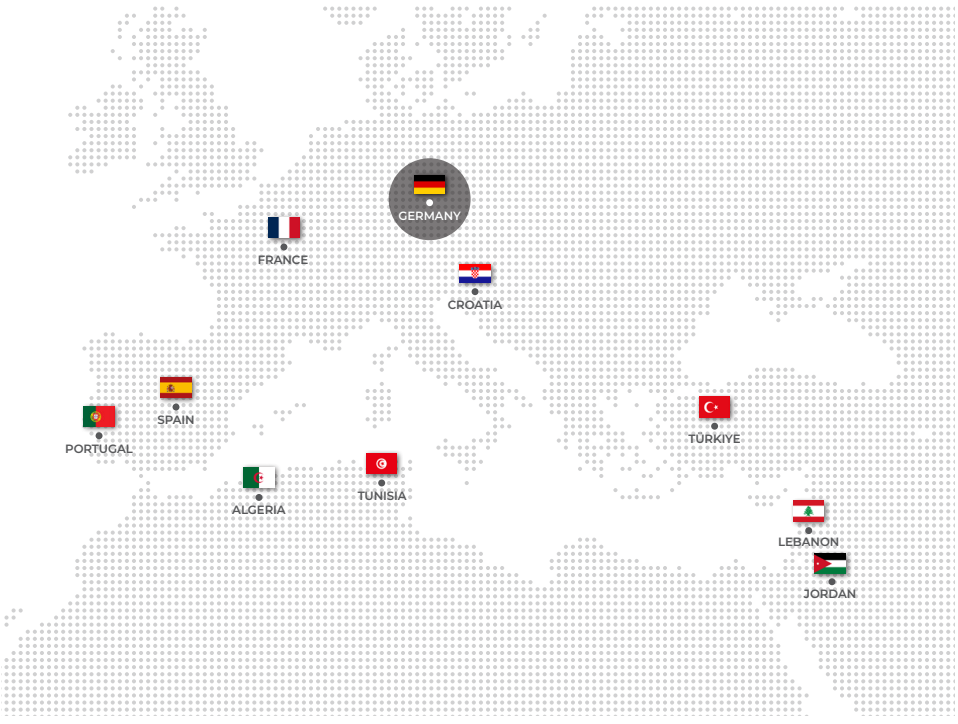
Research Units 13

Context

There is a great diversity of local markets across the Mediterranean, which are often crucial for local food security and nutrition or have significant economic, social, and environmental sustainability potentials. Yet, local urban markets are often marginalised politically, because their level of organisation, formalisation, and representation is low. A deeper understanding of local urban markets, their role in the food system and sustainability is therefore necessary.

Objective and contents

BLUMI-Med aims to understand local urban markets in a context-sensitive manner in order to develop pathways for enhancing their sustainability, upscale local urban markets and broader benefits, also for social and cultural values and the local economic fabric, and develop ICT-related business opportunities. In a transdisciplinary manner, the project will develop a conceptual and methodological framework relying on a Multi-Actor Approach (MAA) for capturing the characteristics, determinants, and sustainability of the diversity of local urban markets across the Mediterranean. It will study and engage with 17 local urban market cases in 9 countries across all Mediterranean regions. It will produce a typology of local markets



in urban areas across the Mediterranean that allows transferring project findings and upscaling recommendations. For each (type of) case, innovative stakeholder initiatives, ICT-related business opportunities, and policy- and regulatory approaches will be developed for improving the sustainability of the related food systems and for upscaling local urban markets.

Expected impacts and results

Key impacts of BLUMI-Med include 1) the development of new or enhanced regulatory frameworks and concrete pathways of their implementation; 2) the integration of agriculture (and horticulture) into urban landscapes to shorten supply chains; 3) the formalisation of informal markets according to the needs of diverse stakeholders; 4) the development of innovative distribution channels; 5) the reduction of food loss and waste; 6) exploring options for innovative circular bioeconomy practices; 7) the increase of the collaboration and engagement with diverse stakeholders; and 8) identification of comprehensive food policies coordinated across sectors.

Keywords

#Sustainability Assessment #Local urban markets #ICT-related business models #Typology #Enhance and upscale sustainability #Food system #Value chain #Production #Consumption #Multi-level governance

Other in Consortium 12

SEECON impact gGmbH (SEECON) – DE

Research Center in Applied Economics for Development (CREAD) – DZ

French National Institute for Research on Agriculture, Food and the Environment (INRAE) – FR

Royal Scientific Society (RSS) – JO

American University of Beirut (AUB) – LB

NOVA.ID.FCT (NOVA) – PT

Associação Portuguesa de Agricultura Biológica (AGROBIO) – PT

Universidad de la Laguna (ULL) – ES

Universidad de Seville (UNI SEVILLE) – ES

Institut National de la Recherche Agronomique de Tunisie (INRAT) – TN

Eskisehir Osmangazi University (ESOGU) – TR

Institute for Ethnology and Folklore Research Zagreb (IEF) – HR

Demo sites/ Case studies

17

Platform/hub

1

New products and solutions

1

Section 2

CAMELAIT4MED

Pierre-Guy

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

747.458 €

Duration

36 months

State and Coordinator Entity

FRANCE

INSTITUT AGRO Rennes-Angers Systèmes d'Elevage Méditerranéens et Tropicaux, UMR SELMET

Scientific Coordinator:
MARNET, Pierre-Guy

Participating States 4

Research Units 11

Context

In the Mediterranean area, water scarcity and climate change challenge conventional dairy systems. Camel milk (CM) offers a sustainable alternative due to lower resource demands and health benefits. Despite global market growth and rising demand, CM remains marginal in Southern Mediterranean markets, with low productivity, bad welfare and health of camels and limited commercialization circuits. CAMELAIT4MED aims to enhance CM value chains by integrating small producers, informing medical profession and advisors and improving supply chain efficiency.

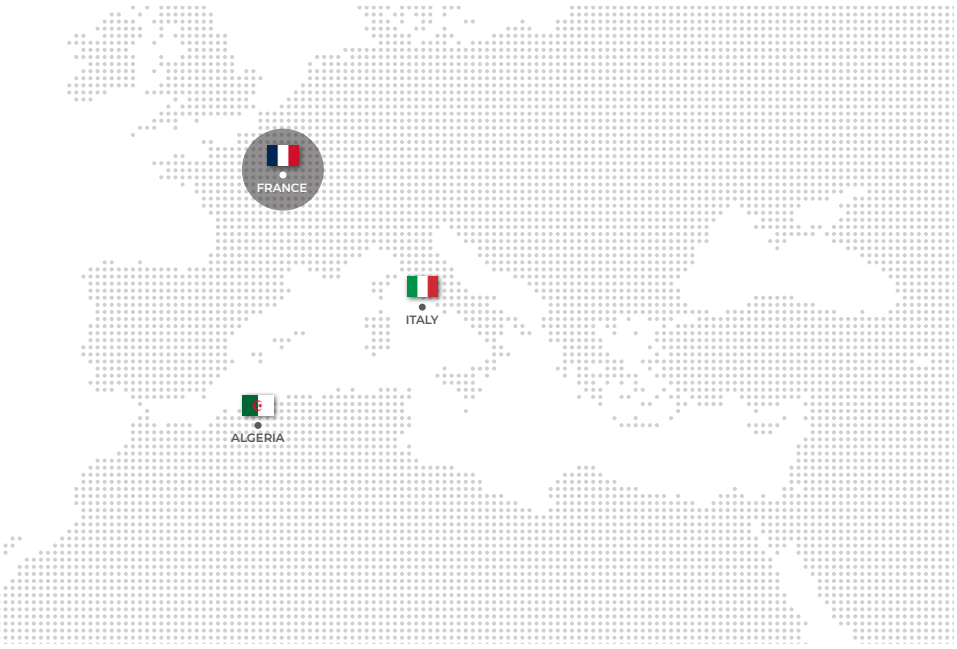
Objective and contents

The project aims to build a sustainable camel milk (CM) value chain in the Mediterranean by supporting smallholders, improving productivity, and promoting gender equity.

– It reduces feed costs and water use by integrating local by-products and drought-resistant forages, while evaluating their effects on CM quality.

– It proposes new breeding practices, adapted milking equipment, and precision livestock tools to enhance animal welfare and mechanization.

– A new supply chain will unite actors under a shared brand (DROMALAIT) to ensure traceability, quality, and fair profit distribution.



– Eco-friendly packaging solutions will extend shelf life, reduce food waste, and improve safety using biopolymers like silk fibroin.
– Awareness campaigns will inform stakeholders and consumers about CM production, health benefits, and sustainability.
The project targets climate resilience, food safety, and rural employment, especially for women and youth, in both local and international markets.

Expected impacts and results

- Improved machine milking management efficiency and minimizing waste through new diets with local by-products should reduce labor, boosts production and increase income.
- A.I. analysis of data from monitoring tools would contribute to animal health and welfare management, reducing the use of drugs and modernizing camel breeding.
- Training materials should strengthen capacity building when clinical studies and public sessions would highlight CM's health benefits, especially for diabetes.
- Creation of the DROMALAIT Consortium brand would structure the value chain and expands markets.
- Creating a new eco-designed packaging to enhanced hygiene standards and improving the welfare of camels should support competitiveness and EU export potential.
- Broad dissemination—factsheets, workshops, campaigns, conferences, and publications—would raise awareness, engage stakeholders, and increase visibility.

Demo sites/ Case studies

4

Other in Consortium 6

Centre d'Études et de Recherche en Informatique et Communications (CEDRIC) – FR

International Camel Expertise (ICE) – FR

Université de Souk Ahras (UNISA) – DZ

Université de Biskra (MKUBISKRA) – DZ

University of Tamanrasset (UNITMG) – DZ

Università degli Studi di Milano (UNIMI) – IT

Keywords

#Food Security #Camel Milk #Smallholders #Resilience #Climate Change #By-products #One health #Waste reduction #Sustainable food production #Precision livestock farming #Machine milking #Training #Milk quality #Information #Eco-designed packaging

Section 2

FIGURE

Fig Waste Into Green Ultra-Resilient Eco-coatings

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

668.486 €

Duration

36 months

State and Coordinator Entity

TÜRKIYE

Usak University, UU

Scientific Coordinator: OZGUR, Tarhan

Participating States 5

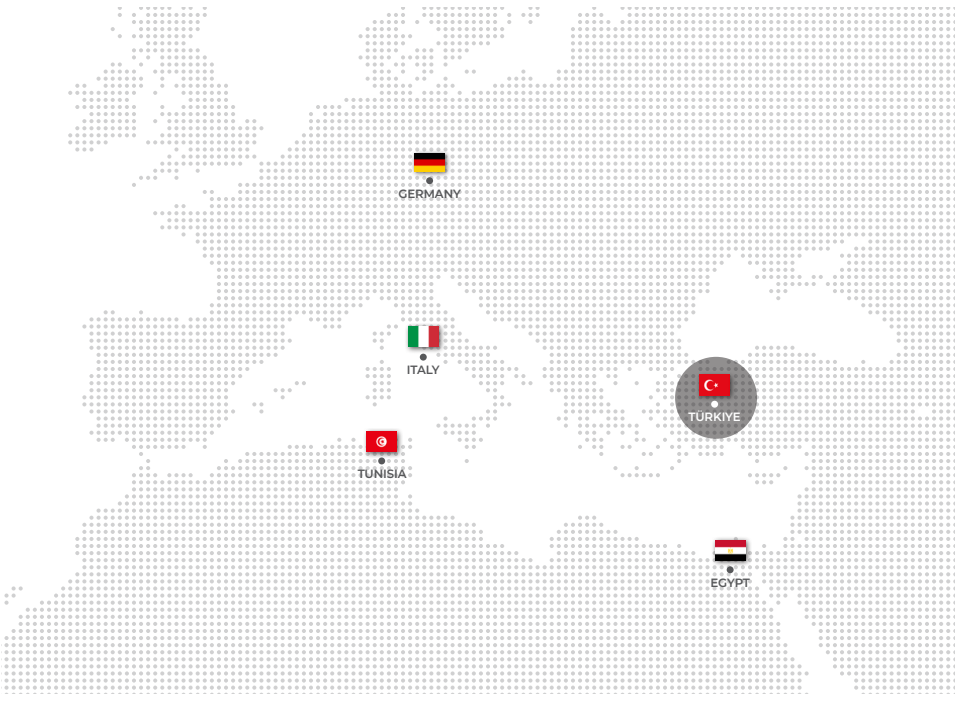
Research Units 8

Context

The FIGURE initiative addresses the significant role of figs, both fresh and dried, as a major agribusiness resource in the Mediterranean region, with Türkiye and Egypt representing the leading producers and exporters supplying markets primarily in Germany, France, and Italy. The project recognises substantial gaps along the fig value chain, particularly concerning production and marketing issues related to product quality, food losses, waste treatment, and economic losses that affect diverse stakeholders. The initiative responds to the necessity for novel preservation schemes including storage and packaging solutions that are adaptable to local supply chains, limit additive use while maintaining high nutritional value, and preserve shelf-life throughout the food chain for both dried and fresh figs. The project aligns with the call topic on leveraging urban and local food systems for sustainable food systems transformation, addressing the challenge of supporting local food producers while contributing to sustainable production and circular bioeconomy principles.

Objective and contents

FIGURE proposes the development of innovative strategies to improve product safety and quality, reduce postharvest losses, reuse wastes for production novelty, and adapt relevant knowledge



and technology to field applications. The project pursues four principal objectives. The first objective focuses on developing and characterizing a smart biocoating to reduce the impact of local wastes in fig production. The second objective promotes increased collaboration and engagement with diverse stakeholders, with particular emphasis on women's participation in the fig supply chain for waste reuse initiatives. The third objective introduces cost-effective technologies such as sonication and centrifugal spinning through training initiatives among partners to recover bioactive compounds and produce biocoatings. The fourth objective explores potential new markets for fresh products with extended shelf life in peri-urban areas. The initiative specifically addresses the need for preservation schemes adaptable to local supply chains that limit additive use while maintaining nutritional value and preserving shelf-life throughout the food chain. The project emphasizes contributing to gender equality by creating entrepreneurial opportunities for women in utilizing fig byproducts, supporting sustainable local, peri-urban, and urban agri-food chains.

Expected impacts and results

FIGURE aims to transform Mediterranean fig value chains through innovative smart biocoatings that reduce waste, extend shelf life, and improve product quality and safety. The project promotes circular economy approaches by converting fig byproducts into bioactive compounds and biocoatings, creating new market opportunities and economic benefits for local producers. Enhanced stakeholder collaboration, including women's participation, supports gender equality and supply chain sustainability. Through training and capacity building, FIGURE establishes replicable, sustainable models for local food systems that reduce waste, minimize environmental impact, and foster resilient urban and peri-urban food networks.

Other in Consortium 7

Adnan Menderes University – TR

Izmir Institute of Technology – TR

Incir Research Institute – TR

Leibniz University Hannover – DE

Agriculture Research Center – EG

University of Padova – IT

Center of Biotechnology of Sfax – TN

Keywords

#Smart biocoatings

#Circular economy

#Postharvest losses

#Shelf-life extension

#Bioactive compounds

#Fig value chains

#Sustainable food systems

#Gender equality

#Local capacity building

#Urban and peri-urban food networks

Author: Arnaud 25 https://commons.wikimedia.org/wiki/File:Figues.jpg

Section 2

InnovAlgaFood

Innovative Algal Biorefinery to contribute to novel Food sources, promoting health and environment preservation

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

526.050 €

Duration

36 months

State and Coordinator Entity

FRANCE
Clermont Auvergne INP
Institut
Pascal

Scientific Coordinator:
LAROCHE, Céline

Participating States 3

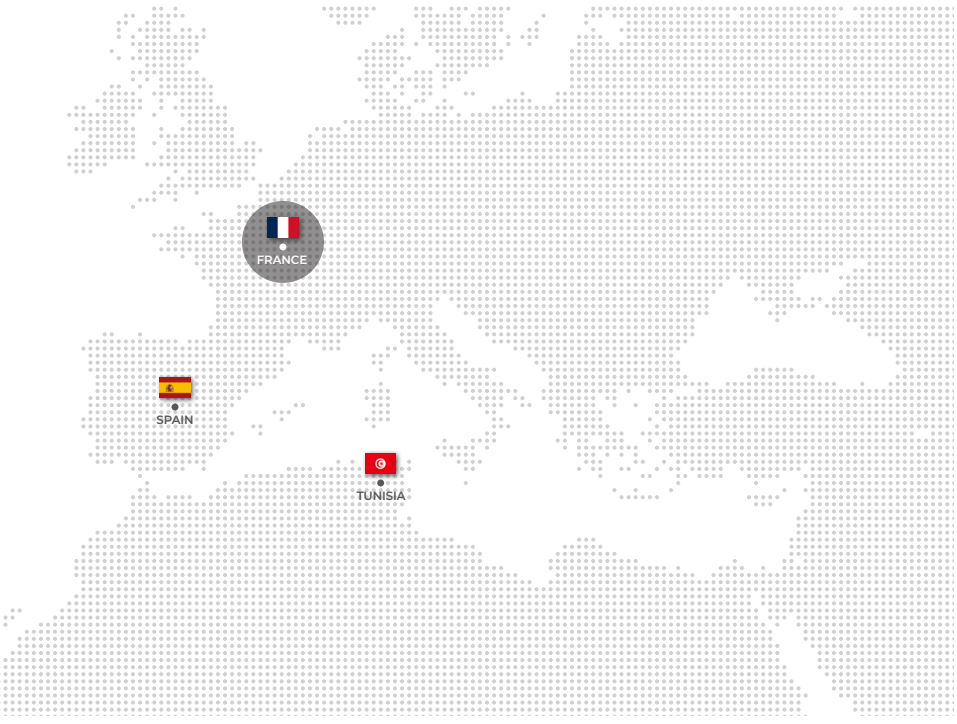
Research Units 4

Context

Seaweeds are a sustainable source of bioactive compounds, vitamins, minerals, and polysaccharides, offering antioxidant, anti-inflammatory, and antidiabetic benefits. The InnovAlgaFood project aims to develop a multiproduct biorefinery for Mediterranean brown, red, and green seaweeds, using advanced extraction technologies to produce nutritious, health-promoting food products. By applying in silico, in vitro, and cell-based analyses, and combining conventional and alternative extraction methods, the project maximizes resource use, minimizes waste, and integrates biotechnological research with human health and environmental preservation. Collaborative, cross-disciplinary research will drive innovation, knowledge sharing, and sustainable, competitive food solutions for the Mediterranean market.

Objective and contents

The scientific objective of InnovAlgaFood is to study Mediterranean seaweeds, evaluate seasonal variations in growth and composition, implement eco-friendly biorefinery processes, and assess their potential as novel or functional foods. WP2 focuses on resource availability and biomass composition, while WP3 develops sustainable extraction and fractionation methods (ultrasound,



microwave, pulsed electric fields, pressure-assisted extraction, and membrane technology) to obtain enriched fractions without degrading other compounds. Extracts will be characterized for composition and bioactivity (WP4), and formulated products will be evaluated for techno-functional properties, stability, and consumer acceptability (WP5).

Expected impacts and results

Expected impacts include promoting a regenerative, inclusive, circular bioeconomy by advancing scientific knowledge, maturing technologies for widespread deployment, and identifying sustainable algae farming practices. It will enhance Mediterranean resource independence, competitiveness, and sustainability by enabling new products from local resources.

Consumers will benefit from healthy, low-impact food and nutraceutical products with zero waste and full biomass valorization. The project also expands the societal and commercial potential of marine biological resources, with applications in food, health, and industrial sectors. Technological and economic spinoffs may drive local socio-economic development through large-scale production, harvesting, and market expansion.

Other in Consortium 3

Centre de Biotechnologie de Borj Cedria (CBBC) – TN

Universidade de Vigo (Uvigo) – ES

Institut National des Sciences et Technologies de la Mer (INSTM) – TN

Keywords

#Algae

#Bioprocesses

#Biorefinery

#Biological activities

Section 2

MedAgriCycle

Green Urban AgriCycle: Transformative Approachesfor Climate-Resilient Agriculture and Waste Valorization

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

695.921 €

Duration

36 months

State and Coordinator Entity

Turkiye
Erciyes University, ERU

Scientific Coordinator: SIMSEK, Özhan

Participating States 5

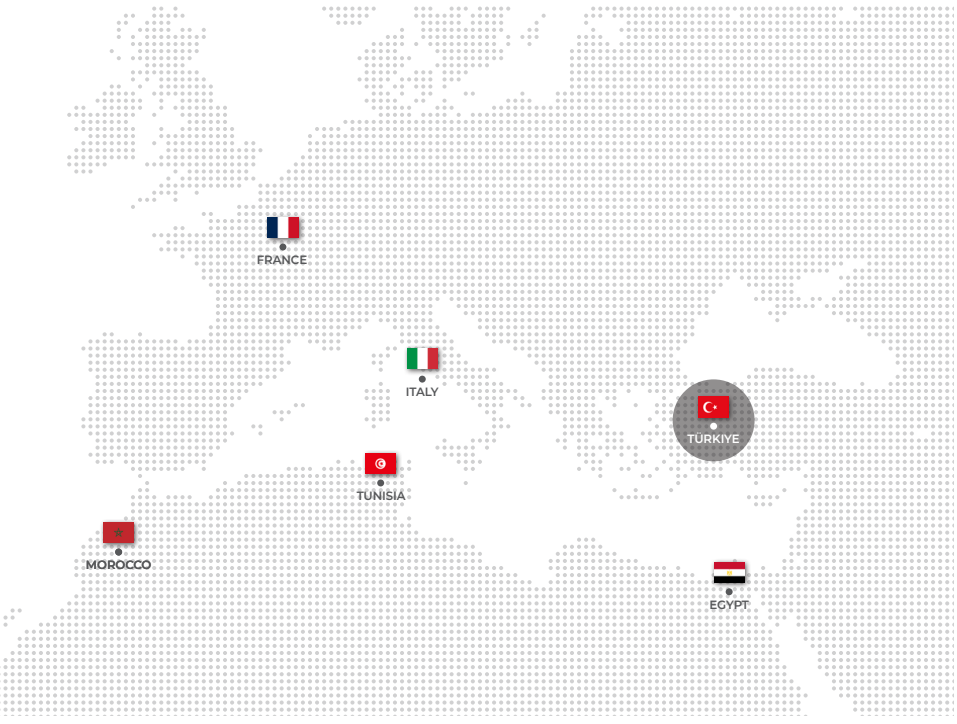
Research Units 8

Context

The MedAgriCycle initiative addresses critical contemporary challenges confronting Mediterranean urban environments, including rapid urbanization, climate variability, water resource scarcity, and food security imperatives. The project constitutes a strategic response to the urgent need for integrated waste management systems and sustainable food production paradigms in urban settings. The initiative demonstrates alignment with key international policy frameworks, including the United Nations Sustainable Development Goals (SDGs), the European Green Deal, and the Farm to Fork Strategy. Furthermore, it directly responds to the strategic priorities outlined in Topic 2.3.1 (RIA) – Leveraging Urban and Local Food Systems for Sustainable Food Systems Transformation.

Objective and contents

The project has five main objectives within an integrated framework: (1) reuse agricultural and urban wastewater with advanced treatment and irrigation to conserve freshwater and reduce environmental impact; (2) recycle urban agricultural residues and organic waste into high-quality compost, supporting a circular economy and improving soil fertility; (3) extract valuable



bioactive compounds such as proteins, pectin, carotenoids, and phenolics from agricultural waste; (4) develop evidence-based policies to ensure sustainable, scalable urban agriculture; and (5) create a digital management platform with IoT sensors, real-time monitoring, and decision-support tools to optimize operations. Implementation will integrate wastewater use, composting, controlled crop trials, digital infrastructure, and policy development through interdisciplinary collaboration.

Expected impacts and results

The MedAgriCycle project aims to strengthen the resilience and sustainability of urban food systems through evidence-based practices. It targets resource conservation, waste reduction, increased agricultural efficiency, and inclusive economic development, while enhancing food security and urban sustainability. The project emphasizes community capacity building, gender-responsive approaches, and the dissemination of innovative tools, creating a scalable model for Mediterranean regions and beyond to support green transitions in urban food systems.

Other in Consortium 9

Middle East Technical University – TR

TÜBITAK Marmara Research Center – TR

City of Scientific Research and Technological Applications – EG

JASSP SAS – FR

University of Reims Champagne-Ardenne – FR

University of Catania – IT

Sultan Moulay Slimane University – MA

National School of Agriculture of Meknès – MA

National Research Institute of Rural Engineering, Water and Forest – TN

Keywords

#Circular economy #Wastewater reuse #Food security #Climate resilience #Waste recycling #Sustainable food systems #Resource efficiency

Section 2

NUSYC

Novel Urban cultivation SYstems enforcing green and Circular economy

Thematic Area

Agro-Food Value chain

Action and Topic

RIA

Budget

928.848 €

Duration

36 months

State and Coordinator Entity

ITALY
Scuola Superiore Sant'Anna

Scientific Coordinator:
FERRANTE, Antonio

Participating States 4

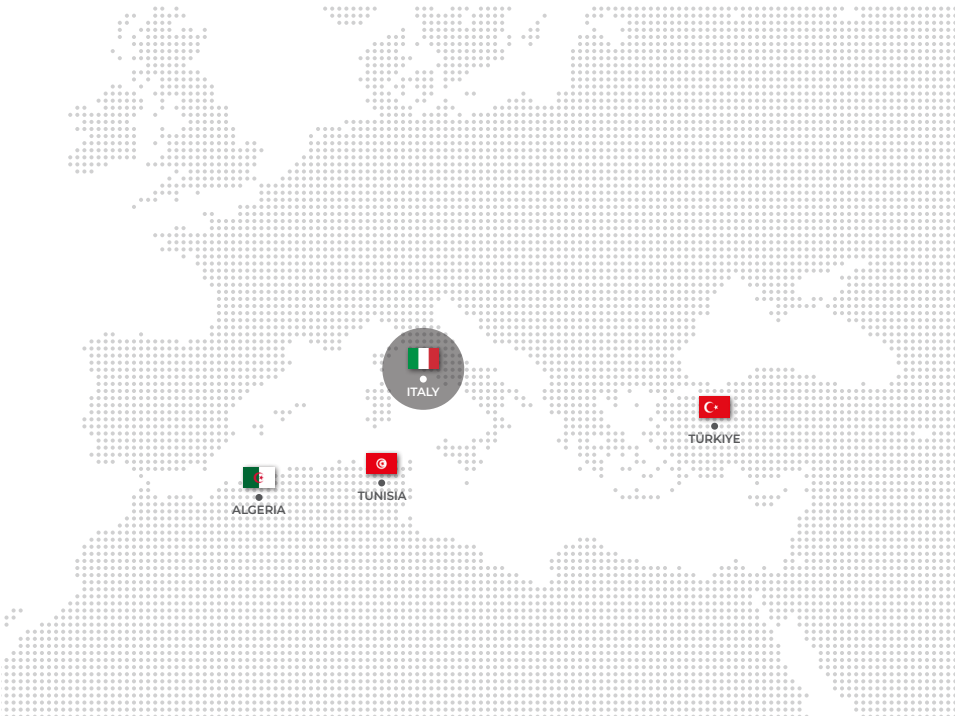
Research Units 5

Context

Urban agriculture and food production using waste that is converted in agronomic tools. Green pruning and/or other urban organic waste will be collected and processed into hydrochar through hydrothermal carbonization (HTC) or in compost by co-composting biowaste with microbial consortia (rot-fungi and/or bacteria), obtaining tailored products with different total organic matter, carbon-to-nitrogen ratio, and pH. The validation of the innovative solution will be assessed in case studies, encompassing the implementation of these waste-derived bioproducts in urban farming (hydroponics or soilless systems) in greenhouses, private gardens or community gardens.

Objective and contents

The NUSYC project aims to create new food solutions that combine human urine diversion and reuse of agricultural residues and/or food waste to urban plant cultivation through the integration of sustainability goals and circular economy principles. This project proposal addresses key challenges such as resource scarcity, waste management and land use efficiency in urban environments.
The proposed cultivation system employs innovative technologies to maximize resource efficiency. Human urine, rich in nitrogen, phosphorus and potassium, and residues from urban greenery maintenance or food waste are collected and transformed into nutrient-rich fertilizers (through dilution and/or nitrifying bacteria



treatments) and hydrochar or compost to support urban farming, thus reducing dependence on synthetic inputs and growing supports while minimizing nutrients retention and increasing agricultural yields. By using urine, green pruning and management residues or food waste as a sustainable nutrient source, the system closes the nutrient cycle, promoting circularity in urban agriculture. The validation of the innovative solution will be assessed in case studies, encompassing different urine or urban agricultural residue collection and transportation systems, transformation of urine or green waste in fertilizers and hydrochar or compost, and their implementation in urban farming (hydroponics or soilless systems, in greenhouses private gardens or community gardens). To address the challenges specified in the call, NUSYC aims to create a new environmentally friendly innovative cultivation system able to minimize the land impact and maximize productivity while reducing carbon and water footprint. Additionally, by exploiting local resources and implementing innovative cultivation methods, this system contributes to a green economy by reducing greenhouse gas emissions, reducing water consumption, and minimizing waste production.

Expected impacts and results

NUSYC results will support the valorization of urban waste through innovative fertilizers. Development of sustainable urban farming using innovative production methods such as soilless and vertical farming. Results will improve the resource efficiency in urban agriculture. In collaboration with stakeholders, food policies in urban contexts will be develop ed implemented.

Other in Consortium 5

Università degli Studi della Campania (UNICAMP) – IT

MEG srl – IT

Université 8 Mai 1945 Guelma – DZ

Ecole Nationale d'Ingénieurs de Sfax (ENIS) – TN

Dokuz Eylul University – TR

Keywords

#Circular economy

#Compost

#Vegetables

#Vertical farming

#Urban farming

Demo sites/Case studies

2

Platform/hub

4

New products and solutions

4

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