



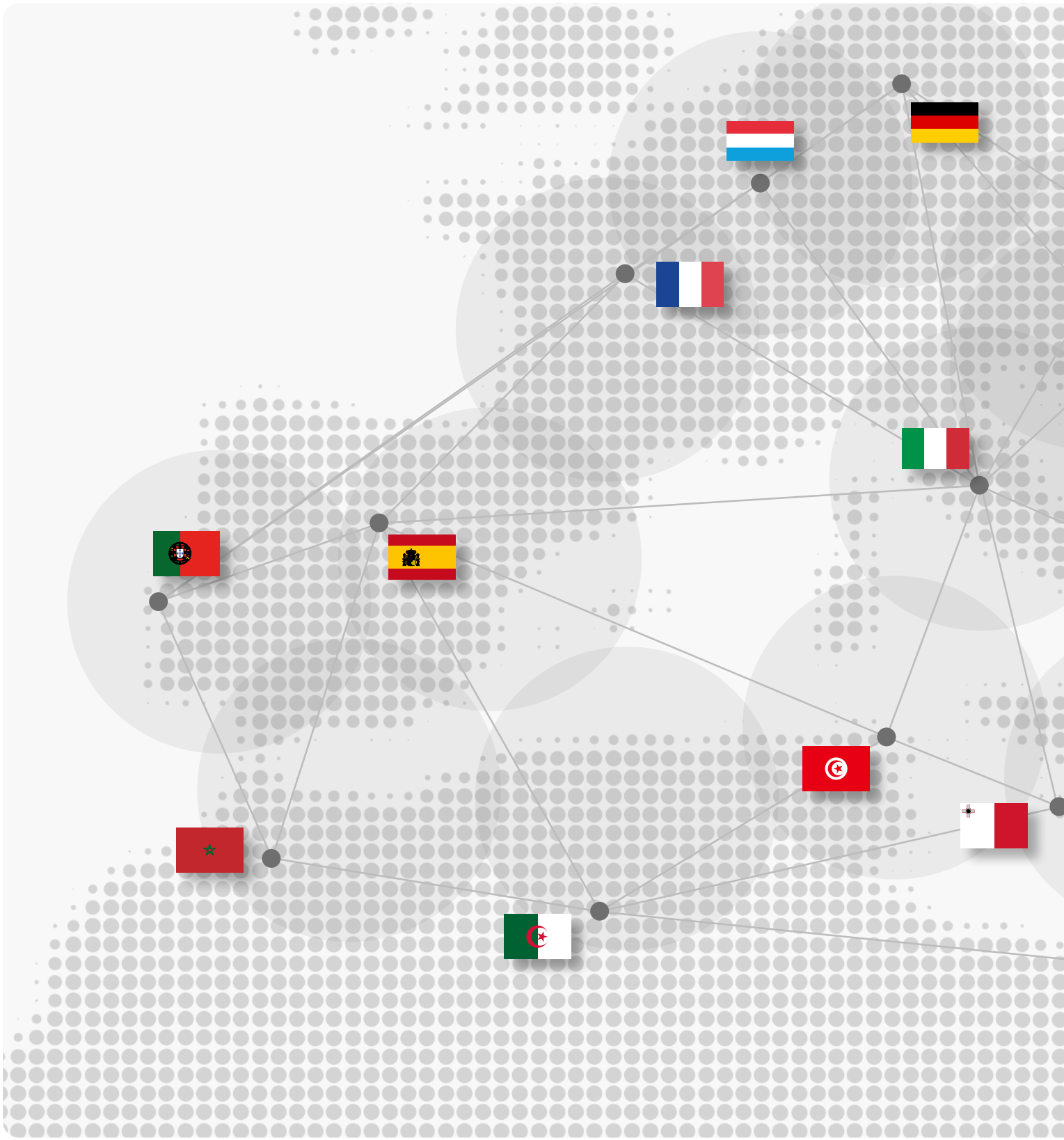
PRIMA

PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA

Funded Projects 2022



Funded Projects 2022



PORTUGAL /PT



SPAIN /ES



FRANCE /FR



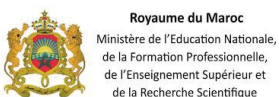
LUSSEMBURGO /LU



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



GENERAL SECRETARIAT FOR
RESEARCH AND TECHNOLOGY

TURKEY /TR



TÜBİTAK

LEBANON /LB



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
أكاديمية البحث العلمي والتكنولوجيا



STDF
صندوق العلوم والتنمية التكنولوجية
Science and Technology Development Fund

ISRAEL /IL

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



רשות החדשנות
Israel Innovation
Authority



ISERD
המחלקה הישראלית לסייעות למחקר
Israel Europe R&D Directorate

JORDAN /JO



صندوق دعم البحث العلمي
Scientific Research Support Fund

المملكة الأردنية الهاشمية
وزارة التعليم العالي والبحث العلمي
صندوق دعم البحث العلمي والابتكار
100
مئوية

المعهد الوطني للعلوم والتكنولوجيا



The current document has been prepared by the PRIMA Foundation, which is the ad-hoc legal entity responsible for the implementation of the PRIMA Program.



The PRIMA programme is an Art. 185 initiative supported and funded under Horizon 2020, the Framework European Union's Programme for Research and Innovation.

PRIMA, Funded Projects 2022 - June 2023

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Foreword

We are glad to open the current Booklet commenting some key messages that have been highlighted in the recently published Interim Evaluation report of the European Commission regarding the PRIMA Program.

Based on the principle of equal footing among States, **PRIMA is recognized as playing a unique role** in the Mediterranean research and innovation ecosystem, serving objectives not covered by other initiatives and not achievable in its absence. Unlike other Article 185 initiatives under Horizon 2020, PRIMA did not have a legal predecessor and this confirms the relevance of what has been built so far.

The evaluation concludes that PRIMA has successfully addressed environmental, socio-economic, and policy challenges crucial to the circular and sustainable development of the Mediterranean region, thus contributing to scientific progress and technical solutions for water and agro-food areas and their interconnected nexus.

Aligned with key EU political priorities and initiatives (e.g. the European Green Deal, Farm to Fork and Biodiversity strategies, Bioeconomy Strategy, Climate Adaptation Strategy, Circular Economy Action Plan) PRIMA has also strengthened collaboration between the EU and its Southern neighbours and favoured cooperation among the latter, while at the same time contributing to the advancement of the Sustainable Development Goals (SDGs) in the region.

The challenges that PRIMA are addressing remain vital for the Mediterranean and its socio-economic development, especially in the terms of **food security, water scarcity, adaptation to climate change**. The evaluation confirms the intention of the Commission to remain committed to foster collaboration in the Mediterranean to make the region a leader in terms of solutions toward climate change.

Unfortunately, the global and regional challenges are persistently affecting the progress of Agenda 2030, limiting the full implementation of prosperous and just society. As it has been pointed out at the UN Food Systems Summit + 2, the food systems are fragile and fragmented and a renovated effort for addressing food insecurity, favoring at the same time a sustainable use of natural resources, the reduction of CO2 emissions and the profitability of all the actors involved in the agri-food value chains, is urgently needed.

While important and ambitious objectives have been achieved, the next years will see PRIMA, on top of addressing the recommendations put forward by the Commission, continuing its activities for implementing strategies to translate the results of research and innovation into tangible solutions to the benefit of business, societies and communities.

As the current Booklet is going to be published, the European Institutions have initiated the discussion for the renewal of the Initiative for the timeframe 2025-2027. Participating States have expressed their full support to the continuation and they will be called to confirm it formally in the months to come. **We are confident that the inter-institutional process will lead to the positive amendment of the current Basic Act, allowing PRIMA to publish calls also in 2025 and the following years.**

Since the multiple crises affecting the Mediterranean and the globe are the reasons, needs and scope for PRIMA to continue remain unchanged. In cooperation with all the relevant national regional and global actors, both public and private, including European Partnerships and Initiatives, PRIMA stays committed to promote a sustainable prosperous and equitable Mediterranean region. The **34 projects** funded in 2022 for a total funding of more than **60 million**, totalling **202 projects** with approximately 2000 research units involved and **290 million** euro disbursed, confirms the opportunities that the Program can open.



Angelo Riccaboni
Chair PRIMA Foundation

“The Mediterranean, in its diversity and richness, can be an example of the post-pandemic recovery, through innovation and social inclusion. PRIMA is willing to contribute to it, aligning national efforts and promoting sustainable development for all in a crucial area such as agrifood systems”.



Mohamed El-Shinawi
Co-Chair PRIMA Foundation

“Partnership is a hallmark of science and research. We simply can't progress without it – across disciplines, institutions and borders. Scientific research and innovation has experienced dramatic changes in recent years. There is no doubt that it should be viewed in the global context and not solely from a domestic point of view. That is why PRIMA as the most ambitious joint programme is crucial for shaping the future of the Euro-Mediterranean region”.

The background features a large, light green circular arc on the left side. In the center-right, there is a stylized plant with a vertical stem and several leaves. Below the plant, there are three thick, wavy horizontal lines representing soil or ground. The text 'Calls Report PRIMA 2022' is centered over the plant and arc.

Calls Report PRIMA 2022

Section 1 /S1 at a glance

9



176

Proposals submitted

Funded Projects

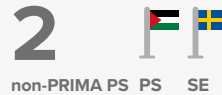
of which

Projects per nationality of coordinating RU



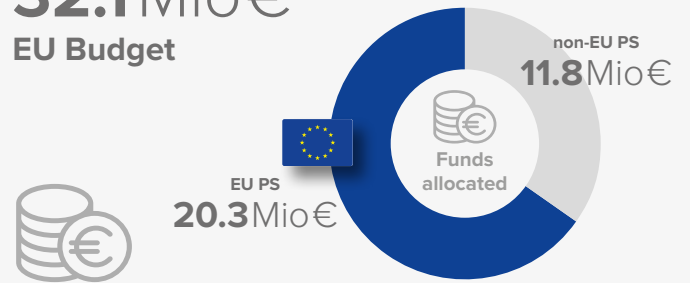
18 + 2 non-PRIMA PS

Participating States /PS
of which



32.1 Mio€

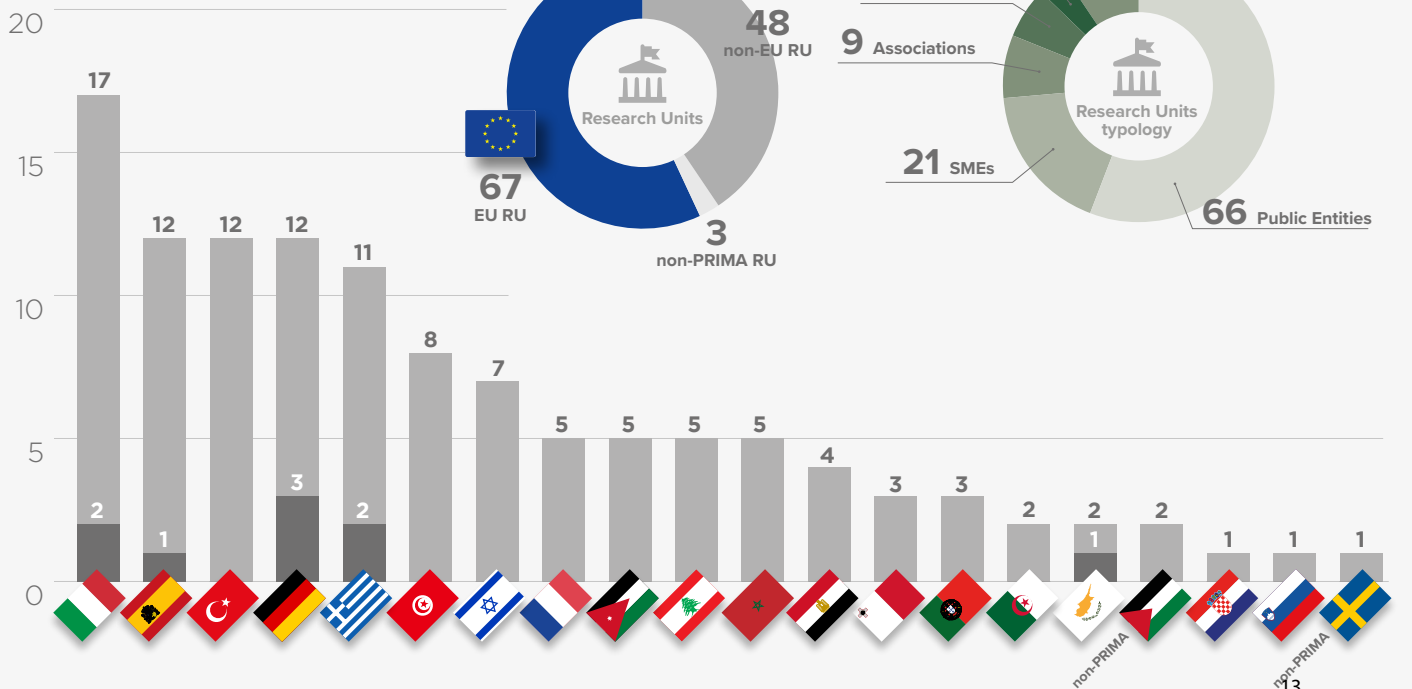
EU Budget



Projects per thematic area

Actions per thematic area

118 of which 3 non-PRIMA RU
Research Units/ RU



Calls Report PRIMA 2022

Section1 /S1

Projects per thematic area



Water Management



Farming Systems


































































































































































































Agro-food Value Chain



Nexus

Section 1 includes calls for proposals centrally organised by the PRIMA Foundation. The projects are evaluated, selected and funded according to the Rules for Participation of Horizon 2020 and are centrally managed by the PRIMA Foundation. Grant agreements are to be signed with the Foundation on the basis of the H2020 Model Grant Agreement.

Funded Projects		Participating States	Research Units	Budget	
1  NATMed Nature-based Solutions on existing infrastructures for resilient Water Management in the Mediterranean Project factsheet on page 56	 IA	Spain	   	4.089.297,50 €          	
		Turkey	   		         
		Greece	 		         
		Algeria			         
		Italy			         
		5	12		         
		2			
 OurMED Sustainable water storage and distribution in the Mediterranean Project factsheet on page 58	 IA	Germany	 	         	
		Italy	  		         
		France	 		         
		Spain	 		         
		Jordan			         
		Greece			         
		Morocco			         
		Portugal			         
		Tunisia			         
		Turkey			         
10	15				

3

**SHARInG-MeD**

Soil Health and Agriculture Resilience through an Integrated Geographical information systems of Mediterranean Drylands

Project factsheet on page 60

**RIA**

Italy		
France		4.099.366,95 €
Algeria		
Croatia		
Greece		
Morocco		
Spain		
Tunisia		
Turkey		

9**11**

4

**SOILS4MED**

SOIL health monitoring and information systems FOR sustainable soil management in the MEDiterranean region

Project factsheet on page 62

**RIA**

Italy		
Lebanon		4.100.000,00 €
Egypt		
France		
Jordan		
Greece		
Morocco		
Spain		
Tunisia		
Turkey		

10**16**

5

**CIPROMED**

Circular and Inclusive utilisation of alternative PROteins in the MEDiterranean value chains

Project factsheet on page 64

**IA**

Greece		
Germany		
Italy		
Israel		4.054.641,69 €
Cyprus		
Malta		
Morocco		
Portugal		
Spain		
Tunisia		

10**17**

6

**ProxiMed**

Exploration and Implementation of Products with Alternative Proteins in the Mediterranean Region

Project factsheet on page 66



IA

Germany



Turkey



Spain



Tunisia



Egypt



Greece



Italy



Lebanon



Malta

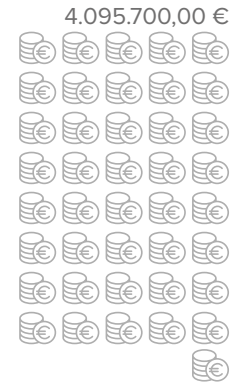


Portugal



10

17



7

**EcoFuture**

A socio-ecological approach to combat desertification for a sustainable future

Project factsheet on page 70



IA

Greece



Israel



Jordan

Palestine
(non-PRIMA PS)

4

9



8

**FrontAgNexus**

Impact of Climate- Smart & Water-Saving Frontier Agriculture on WEFE Nexus in Arid Mediterranean Regions

Project factsheet on page 68



IA

Germany



Turkey



Greece



Jordan



Israel



Italy



Morocco



Tunisia



8

10



9

**WEFE4MED**

Title Towards a Mediterranean WEFE Nexus Community of Practice

Project factsheet on page 72



CSA

Cyprus



Egypt



Lebanon



Greece



Malta



Slovenia



Spain

Sweden
(non-PRIMA PS)

Tunisia



9

11



Section 2 /S2 at a glance

25



96
Proposals submitted

Funded Projects

of which

Projects per nationality of coordinating RU



16

+ 1 non-PRIMA PS

Participating States /PS

of which

9

EU PS



7

non-EU PS



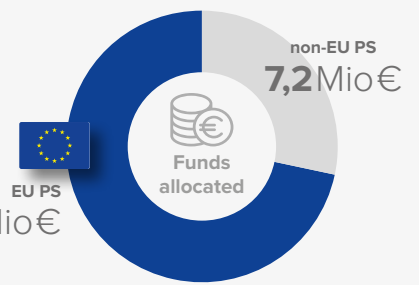
1

non-PRIMA PS US



28 Mio€

Budget Participating States



10



3



12

Projects per thematic area

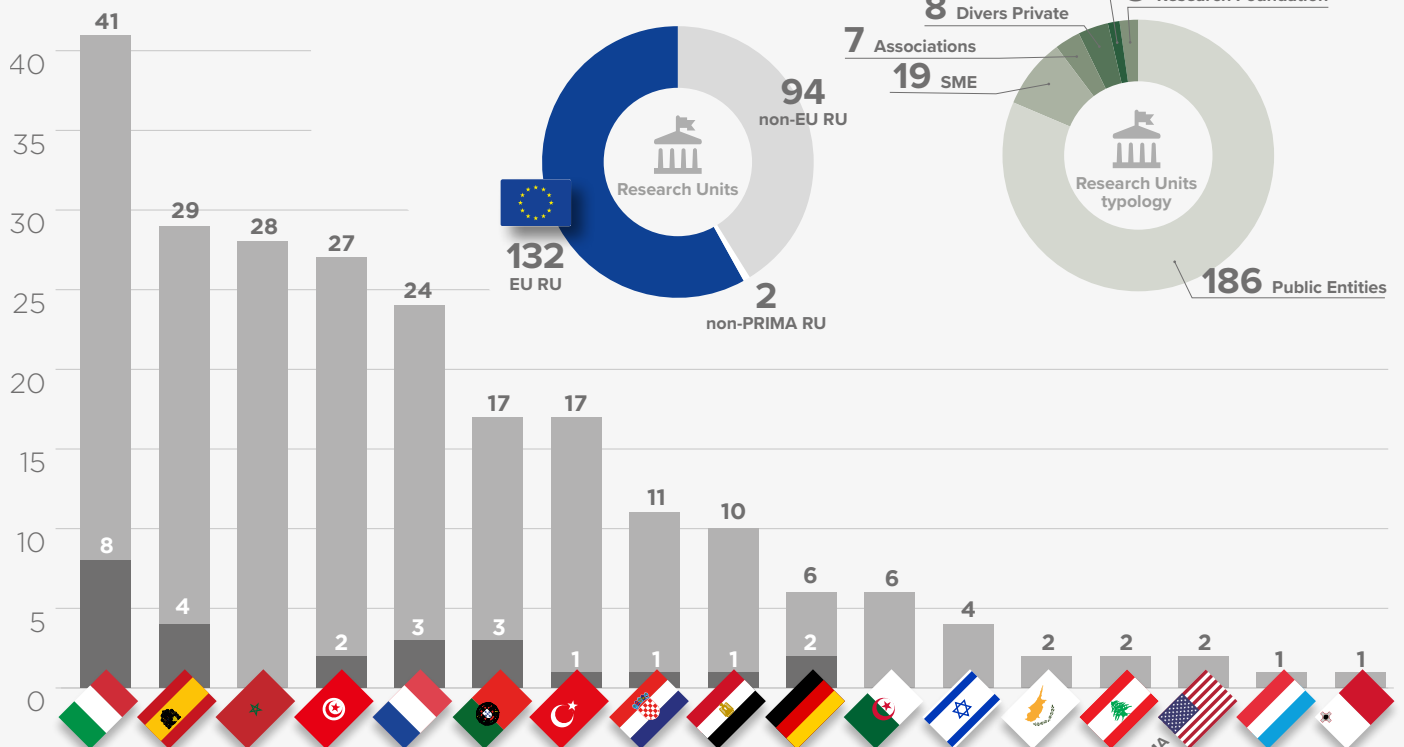
25 RIA's Actions



228

of which 2 non-PRIMA RU

Research Units/ RU





Section2 /S2

Projects per thematic area



Section 2 includes calls for proposals centrally organised by the PRIMA Foundation. Projects are evaluated and selected based on rules which are analogous to the Rules for Participation of Horizon 2020. Such activities are funded by the national funding bodies of Participating States. Grant agreements will be signed between participants and by relevant national funding bodies in accordance with national rules.

Funded Projects		Participating States	Research Units	Budget
<p>1</p> <p>FUNZYbio Fungal and enzymatic degradation of antibiotics: safe reuse of livestock residues for agriculture Project factsheet on page 76</p>	<p>RIA</p>	France		<p>1,110,829 €</p>
		Morocco		
		Italy		
		Spain		
		Tunisia		
		5	9	
<p>2</p> <p>MAEWA Mitigation of Agricultural effects in Mediterranean soils and wetlands: bioremediation technologies, environmental and economic benefits Project factsheet on page 78</p>	<p>RIA</p>	France		<p>1,465,000 €</p>
		Morocco		
		Tunisia		
		USA (non-PRIMA PS)		
		Algeria		
		Croatia		
		Egypt		
		Portugal		
Spain				
		9	12	
<p>3</p> <p>MedInCircle Future-proofing the Mediterranean agri-food chain through integrated and circular management of contaminant-safe water, nutrients and bioresources Project factsheet on page 80</p>	<p>RIA</p>	Italy		<p>980,613 €</p>
		France		
		Turkey		
		Egypt		
		4	6	

SECTION 2

4

**NPP-SOL**

Modelling and technological tools to prevent surface and ground-water bodies from agricultural non-point source pollution under mediterranean conditions

Project factsheet on page 82



RIA

Italy



Morocco



Israel



France



Spain



2.873.500 €



5

8

5

**PROMEDRICE**

Effective farming practices to protect water resources in Mediterranean rice-based agroecosystems

Project factsheet on page 84



RIA

Spain



Morocco



Egypt



Italy



Portugal



Turkey



2.399.963 €



6

11

6

**PureCircles**

Maximising resource use efficiency within the energy, water and nutrient nexus for sustainable agriculture in Mediterranean marginal environments

Project factsheet on page 86



RIA

Germany



France



Italy



Morocco



Tunisia



Egypt



Portugal



Spain



1.874.242 €



8

12

7

**Safe-H2O-Farm**

Innovative farm strategies that integrate sustainable N fertilization, water management and pest control to reduce water and soil pollution and salinization in the Mediterranean

Project factsheet on page 88



RIA

Italy



Cyprus



Croatia



Germany



Israel



Spain



Turkey



1.400.950 €



7

7

8

**SAFWA**

Alternative biopesticides for safe integrated pest and water management around mediterranean

Project factsheet on page 90



RIA

Tunisia



Spain



France



Germany



Italy



Lebanon



Turkey



1.357.183 €



7

10

9

**SWRIPS**

Sustainable Wastewater Re-use with Innovative Purification and Sensing system for the agrifood supply chain

Project factsheet on page 92

**RIA**

Italy



Tunisia



Algeria



France



Egypt



Spain

**6****16**

1.131.730 €



10

**TeleNitro**

New low cost strategies of crop based on biodiversity and remote sensing to reduce the application of nitrogen fertilizers in the Mediterranean area

Project factsheet on page 94

**RIA**

Spain



Italy



Morocco



Tunisia

**4****5**

1.520.000 €



11

**MEDGOAT**

Goat farming systems characterization and novel strategies to sustain production in the changing climate scenario in the Mediterranean regions

Project factsheet on page 96

**RIA**

France



Tunisia



Morocco



Italy



Portugal



Spain

**6****13**

1.286.883 €



12

**PAS-AGRO-PAS**

The Making of Fragile Agro-ecosystems Productive, Adaptive and Sustainable: Multifunctional Agro-pastoralism

Project factsheet on page 98

**RIA**

Portugal



France



Morocco



Spain



Cyprus



Egypt



Italy



Tunisia

**8****11**

1.682.185 €



13

**SUREPASTOR**

Management Strategies to Enable Sustainable REsilient AgroPASTORalism

Project factsheet on page 100

**RIA**

Italy



Morocco



Egypt



Tunisia

**4****7**

939.999 €



14 **B4HT**

Box for Health by Tradition & Innovation:
promoting sustainable mediterranean diet by
Healthy Foods

Project factsheet on page 102



RIA

Italy Lebanon Portugal Tunisia **4****5**487.430 €
    

15


**FEED**

From edible sprouts to healthy food

Project factsheet on page 104



RIA

Italy Croatia Spain Germany Israel Turkey **6****10**1.399.495 €
    
    
    

16




**Im-Pack**

Technological and economic potential of the
active packaging obtained by supercritical
techniques for the preservation of
Mediterranean fresh food

Project factsheet on page 106



RIA

Spain France Algeria Italy Morocco Portugal Tunisia **7****9**1.132.695,75 €
    
    
   

17


**InnoSol4Med**

Innovative sustainable solutions for ready-to-eat
traditional Mediterranean products and non-
conventional healthy foods

Project factsheet on page 108



RIA

Croatia Italy Morocco Spain Turkey **5****11**1.601.412,42 €
    
    
   

18

**MEDACORNET**

Rescuing acorns as a Mediterranean traditional
superfood

Project factsheet on page 110



RIA

Portugal Algeria Croatia Italy Morocco Spain Tunisia Turkey **8****11**812.643 €
    
  

19

**MEDIET4ALL**

A Transnational movement to support the sustainable transition towards a healthy and Eco-friendly Agri-Food System through the promotion of MEDIET and its lifestyle in modern society

Project factsheet on page 114

**RIA**

Germany



France



Morocco



Algeria



Luxembourg



Italy



Spain



Tunisia

**8****10**

2.369.357 €



20

**MedDietMenus4Campus**

Promoting stakeholder adherence to Mediterranean Diet on Campus through menu interventions and social marketing strategies

Project factsheet on page 112

**RIA**

Portugal



Croatia



Turkey

**3****7**

432.000 €



21

**MoreMedDiet**

More on the adoption of a healthy Mediterranean diet

Project factsheet on page 116

**RIA**

Spain



France



Italy



Egypt



Portugal



Tunisia



Turkey

**7****12**

1.422.307 €



22

**Mush-Med**

Transition to Healthy Mediterranean Functional Food via Integrating Mushroom Beta-glucans and Proteins: Promoting Body Homeostasis After Stress-Related Health Problems

Project factsheet on page 118

**RIA**

Egypt



Italy



Turkey

**3****3**

550.500 €



23

**Oli4food**

Microbial resources for a sustainable olive oil system and a healthier Mediterranean food: from by-products to functional food

Project factsheet on page 120

**IA**

Turkey



Italy



Egypt



Germany



Morocco



Spain

**6****9**

1.263.586 €



24

**Tool4MEDLife**

From Tradition to Innovation: New Foods and Educational Toolkits for a Healthy and Sustainable Mediterranean Lifestyle

Project factsheet on page 122



RIA

Italy



Turkey



Croatia



Portugal



Spain



5

7

813.351,71 €

25

**VALOstones**

Valorization of olive stone by-product as a green source of innovative and healthy value-added products in the context of the circular bioeconomy and sustainability

Project factsheet on page 124



RIA

Tunisia



France



Italy



Malta



Morocco



Turkey



6

7

753.545,33 €

Calls Report PRIMA 2022

Sections S1+S2 overall data



of which

Projects per nationality of coordinating PS



Projects per thematic area

Research and Innovation Actions



Innovation Actions

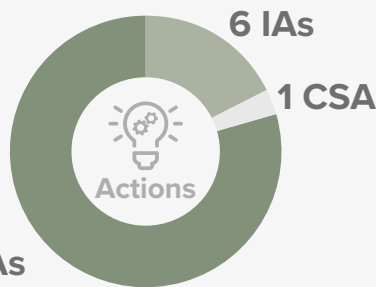


Coordination and Support Actions



27 RIAs

Actions per thematic area



19 + 3 non-PRIMA PS
Participating States / PS
of which

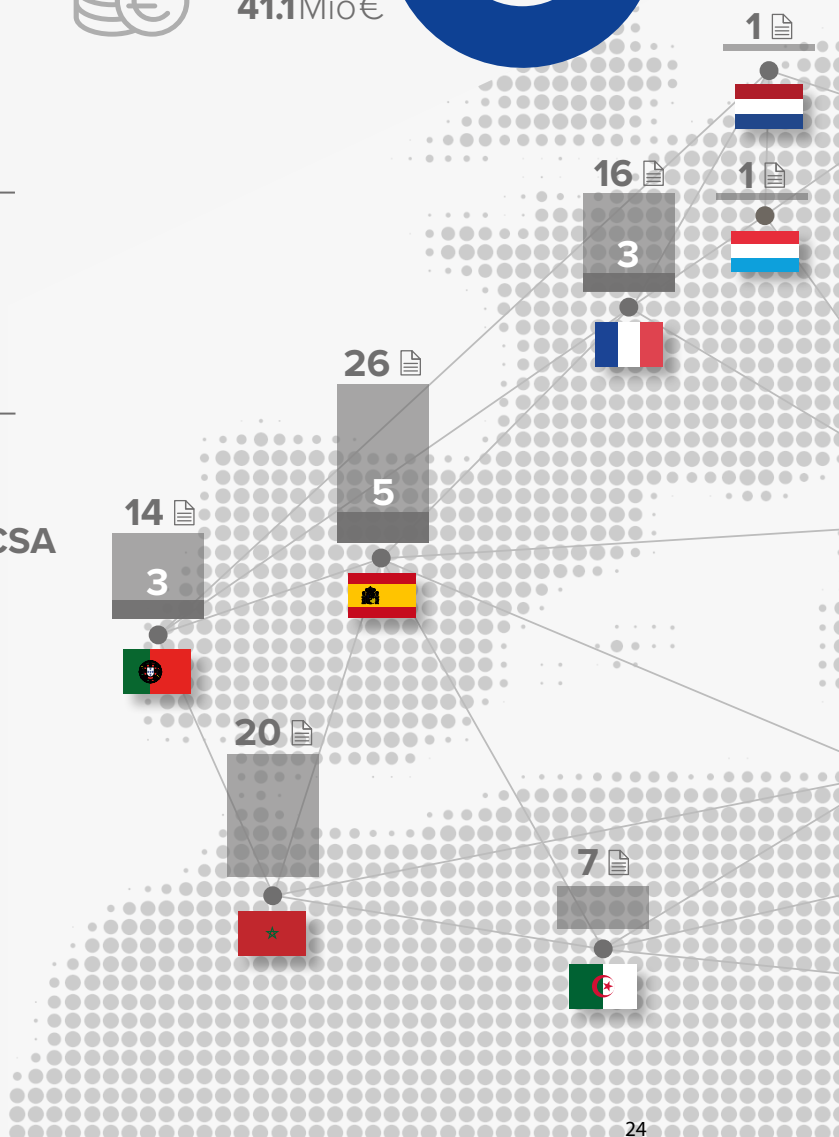
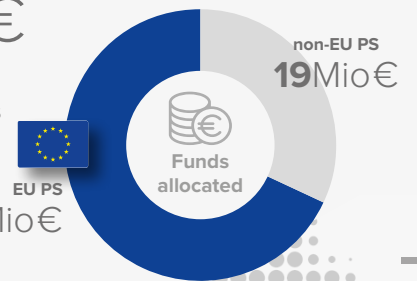


60.1 Mio€

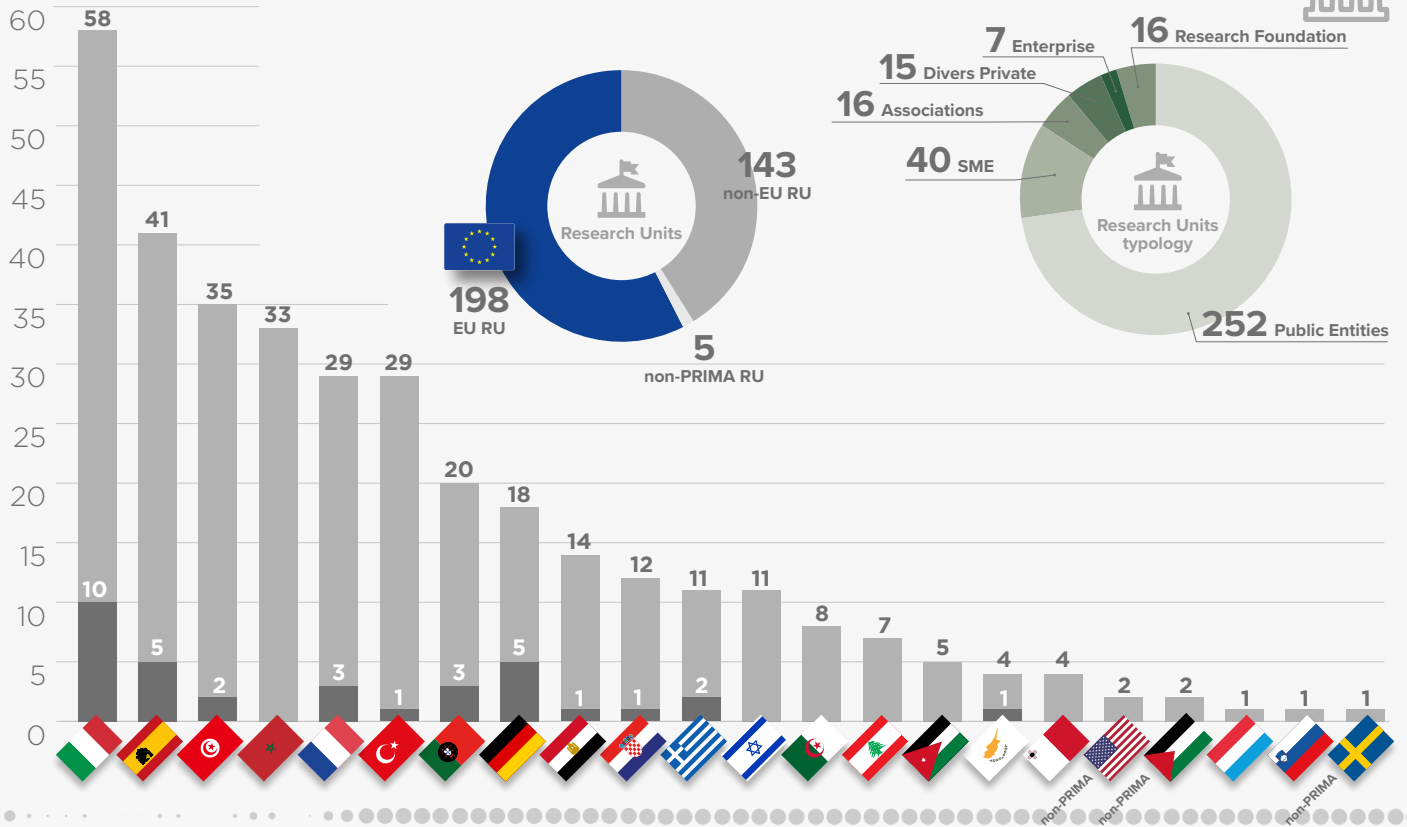
Budget
EU+Participating States



41.1 Mio€



346 Research Units of which 5 non-PRIMA





Data per Participating States and Research Units



ALGERIA /DZ



Budget
1.4 Mio €



8 Research Units



7 Projects

involve one or more
algerian Research Units

Projects per thematic area



3

NATMed /S1
MAEWA /S2
SWRIPS /S2



1

SHARInG-MeD /S1



3

Im-Pack /S2
MEDACORNET /S2
MEDIET4ALL /S2

Typology



Research Units



Projects

underline indicates coordinated
project

8 Public Entities

Centre de Recherche Scientifique et Techniques des Régions Arides (CRSTRA)

NATMed /S1

Université Badji Mokhtar-Annaba (UBMA)

MAEWA /S2

Université Akli Mohand Oulhadj de Bouira

SWRIPS /S2

École Nationale Supérieure Agronomique d'Alger (ENSA)

SWRIPS /S2

École Nationale Supérieure des Forêts de Khenchela (ENSF)

SHARInG-MeD /S1

University Constantine 3 (UC3SB)

Im-Pack /S2

University of Tlemcen, Computational Mechanics Laboratory

MEDACORNET /S2

Université de M'hamed Bougara Boumerdes

MEDIET4ALL /S2



CROATIA /HR



Budget

1 Mio €



12 Research Units

of which **2 SMEs**



8 Projects

involve one or more
croatian Research Units

of which



1 Project

is coordinated by
a croatian Research Unit

Projects per thematic area



2

MAEWA /S2
Safe-H2O-Farm /S2



1

SHARInG-MeD /S1



5

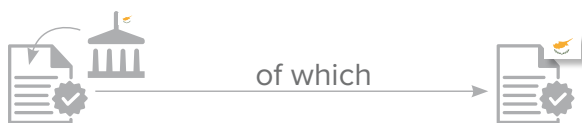
FEED /S2
InnoSol4Med /S2
MEDACORNET /S2
MedDietMenus4Campus /S2
Tool4MEDLife /S2

Typology	Research Units	Project (il nome sottolineato indica Project coordinato)	
9 Public Entities	Ruđer Bošković Institute, Laboratory for aquaculture biotechnology (IBR)	MAEWA /S2	
	Institute for Adriatic Crops and Karst Reclamation (KRS)	Safe-H2O-Farm /S2 Tool4MEDLife /S2	
	University of Zagreb (UNIZG)	Faculty of Agriculture (AGR)	SHARInG-MeD /S1 MedDietMenus4Campus /S2
		Faculty of Food Technology and Biotechnology (PBF)	FEED /S2 MedDietMenus4Campus /S2
	University of Split, Department of Marine Studies (UNITS- PFST)	InnoSol4Med /S2	
	Josip Juraj Strossmayer University of Osijek (UNIOS)	MEDACORNET /S2	
	1 Association	ARGONAUTA Association for Nature and Environment Conservation and Sustainable Development of Murter	FEED /S2
	2 SMEs	Centaurus Ltd	InnoSol4Med /S2
		GREENER Green Environmental Research Ltd	InnoSol4Med /S2



Budget
1 Mio €

4 Research Units
of which **1 SME**



4 Projects
involve one or more
cypriot Research Units

1 Project
is coordinated by
a cypriot Research Unit

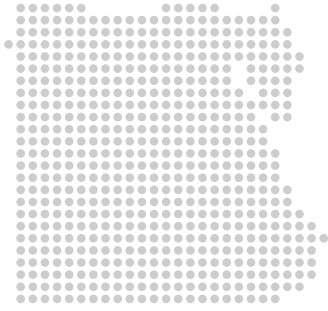
Projects per thematic area

1 **Safe-H2O-Farm /S2**
1 **PAS-AGRO-PAS /S2**
1 **CIPROMED /S1**
1 **WEFE4MED /S1**

Typology	Research Units	Projects <small>underline indicates coordinated project</small>
3 Research Foundations	The Cyprus Institute (CYI)	Safe-H2O-Farm /S2
	Energy Environment and Water Research Center EEWRC	<u>WEFE4MED</u> /S1
1 SME	Cyprus University of Technology ERATOSTHENES Centre of Excellence	PAS-AGRO-PAS /S2
	RTD Talos Ltd	CIPROMED /S1



EGYPT /EG



Budget
2.2 Mio €



14 Research Units
of which **1 SME**



of which



13 Projects

involve one or more
egyptian Research Units

1 Project

is coordinated by
a egyptian Research Unit

Projects per thematic area



5

MAEWA /S2
MedInCircle /S2
PROMEDRICE /S2
PureCircles /S2
SWRIPS /S2



3

SOILS4MED /S1
PAS-AGRO-PAS /S2
SUREPASTOR /S2



4

ProxIMed /S1
MoreMedDiet /S2
Mush-Med /S2
Oli4food /S2



1

WEFE4MED /S1

Typology	Research Units	Projects <small>underline indicates coordinated project</small>
10 Public Entities	Ain Shams University (ASU)	MAEWA /S2
	Animal Production Research Institute (APRI)	PAS-AGRO-PAS /S2
	Assiut University, Faculty of Agriculture (AUN)	ProxIMed /S1
	Cairo University (CU)	Oli4food /S2
	Genetic Engineering and Biotechnology Research Institute (SRTACITY-GEBRI)	SWRIPS /S2 Mush-Med /S2
	Damanhour University (DU)	MoreMedDiet /S2 PROMEDRICE /S2
	Desert Research Center (DRC)	SUREPASTOR /S2
	Zagazig University (ZU)	SOILS4MED /S1
1 Association	National Research Centre (NRC)	MedInCircle /S2
1 Diverse Private	British University in Egypt (BUE)	PureCircles /S2
1 Research Foundation	Arab Water Council (AWC)	WEFE4MED /S1
1 SME	Egyptian Center for Innovation and Technology Development (ECITD)	WEFE4MED /S1



FRANCE /FR



Budget
5.5 Mio €



29 Research Units
of which **4 SMEs**



of which



16 Projects

involve one or more
french Research Units

3 Projects

are coordinated by
a french Research Unit

Projects per thematic area



8

FUNZYbio /S2
MAEWA /S2
MedInCircle /S2
NPP-SOL /S2
OurMED /S1
PureCircles /S2
SAFWA /S2
SWRIPS /S2



4

MEDGOAT /S2
PAS-AGRO-PAS /S2
SHARInG-MeD /S1
SOILS4MED /S1



4

Im-Pack /S2
MEDIET4ALL /S2
MoreMedDiet /S2
VALOstones /S2



	École Nationale Supérieure de Chimie de Rennes (ENSCR)	SWRIPS /S2
	Institut européen des membranes del Montpellier (IEM-UM)	SWRIPS /S2
	Euro-Mediterranean Water Information System (SEMIDE/EMWIS)	OurMED /S1
	La Tour du Valat, Research institute for the conservation of Mediterranean wetlands (TdV)	OurMED /S1
	French National Research Institute for Sustainable Development (IRD)	SHARInG-MeD /S1
	Laboratoire de Géologie de l'École Normale Supérieure de Paris (LG-ENS)	SHARInG-MeD /S1
	Institut de Physique du Globe de Paris (IPGP-UMR)	MedInCircle /S2
	Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP-UMR)	MedInCircle /S2
	Institut des Sciences Analytiques et de Physico-Chimie pour l'Environnement et les Matériaux (IPREM - UMR 5254 CNRS/UPPA)	MAEWA /S2
	INRAE - Institut National pour la Recherche en Agriculture, Alimentation et Environnement	MEDGOAT /S2
	UMR Herbivores Theix	PureCircles /S2
	Sophia Agrobiotech Institute	MEDGOAT /S2
	Institut National de la Santé et de la Recherche Médicale (INSERM)	MEDGOAT /S2
	Fungal Biodiversity and Biotechnology Lab (BBF-UMR 1163)	FUNZYbio /S2
	Laboratoire de Mécanique, Modélisation et Procédés Propres (M2P2 - UMR 7340)	FUNZYbio /S2
	CIHEAM Montpellier - Mediterranean Agronomic Institute (CIHEAM-IAMM)	NPP-SOL /S2
	Modélisation systémique appliquée aux ruminants (MoSARUMR 791 AgroParisTech, INRAE, Université Paris-Saclay)	PAS-AGRO-PAS /S2
	Systèmes d'élevage méditerranéens et tropicaux (SELMET UMR CIRADINRAE InstitutAgro Montpellier)	PAS-AGRO-PAS /S2
	Procédés Alimentaires et Microbiologiques (UMR PM - Institut Agro DIJON, Université de Bourgogne)	MEDIET4ALL /S2
	Télécom Sud Paris, École de Institut Mines-Télécom	MoreMedDiet /S2
	Toulouse Biotechnology Institute (TBI)	SAFWA /S2
	University of Aix-Marseilles (AMU)	Im-Pack /S2
	Université de Poitiers (UP)	SOILS4MED /S1
	European Institute of Membranes, UMR CNRS 5635, University of Montpellier - FR	VALOstones /S2
2 Associations	Institut de l'Élevage, Département Qualité des produits, bien-être et santé (IDELE-QAPS)	MEDGOAT /S2
	Vitagora	MEDIET4ALL /S2
	Centre de Recherche Institut Paul Bocuse	MoreMedDiet /S2
4 SMEs	JASSP SAS	MoreMedDiet /S2
	Key Aerogel SAS	Im-Pack /S2
	Solar Cloth System	PureCircles /S2



GERMANY /DE



Budget
6.2 Mio €



18 Research Units
of which **5 SMEs**



of which



10 Projects

involve one or more
german Research Units

5 Projects

are coordinated by
a german Research Unit

Projects per thematic area



4

OurMED /S1
PureCircles /S2
Safe-H2O-Farm /S2
SAFWA /S2



5

CIPROMED /S1
FEED /S2
MEDIET4ALL /S2
Oli4food /S2
ProxiMed /S1



1

FrontAg Nexus /S1

Typology	Research Units	Projects underline indicates coordinated project
9 Public Entities	Hochschule Weihenstephan Triesdorf University of Applied Science (HSWT)	<u>ProxiMed</u> /S1
	Chair of Brewing and Beverage Technology, School of Life Sciences, Technical University of Munich (LSE-LS-TUM)	<u>FEED</u> /S2
	Leibniz Universität Hannover	<u>Oli4food</u> /S2
	Johannes Gutenberg, Universität Mainz (UNI-MAINZ)	<u>MEDIET4ALL</u> /S2
	Julius Kühn-Institut (JKI)	<u>SAFWA</u> /S2
	Leibniz Centre for Agricultural Landscape Research (ZALF)	<u>Safe-H2O-Farm</u> /S2
	Universität der Bundeswehr München, Institute for Sociology and Economics (UNIBW)	<u>FrontAg Nexus</u> /S1
	University of Hohenheim, Department of Plant Production and Agroecology in the Tropics and Subtropics	<u>PureCircles</u> /S2
	University of Göttingen (UGOE)	<u>CIPROMED</u> /S1
5 SMEs	Aquaponik Manufaktur GmbH	<u>FrontAg Nexus</u> /S1
	Bäckerei Reiner Stolzenberger	<u>CIPROMED</u> /S1
	Focus Foodlabs GmbH	<u>ProxiMed</u> /S1
	GreenSurvey GmbH	<u>ProxiMed</u> /S1
3 Research Foundations	Remote Sensing Solutions GmbH (RSS)	<u>OurMED</u> /S1
	German Institute of Food Technologies (DIL)	Department Food Data Group <u>CIPROMED</u> /S1 <u>ProxiMed</u> /S1
	Institute for Food and Environmental Research (ILU)	<u>CIPROMED</u> /S1
1 Diverse Private	Helmholtz Centre for Environmental Research (UFZ)	<u>OurMED</u> /S1



GREECE /GR



Budget
3.7 Mio €



11 Research Units
of which **1 SME**



of which



9 Projects

involve one or more
greek Research Units

2 Projects

are coordinated by
a greek Research Unit

Projects per thematic area



2

OurMED /S1
NATMed /S1



2

SHARInG-MeD /S1
SOILS4MED /S1



2

CIPROMED /S1
ProxIMed /S1



3

EcoFuture /S1
FrontAg Nexus /S1
WEFE4MED /S1

Typology	Research Units	Projects <small>underline indicates coordinated project</small>
6 Public Entities	Agricultural University of Athens (AUA)	SHARInG-MeD /S1
	Aristotle University of Thessaloniki (AUTH)	ProxIMed /S1
	Environmental Centre of Western Macedonia	NATMed /S1
	Technical University of Crete (TUC)	EcoFuture /S1
	School of Chemical and Environmental Engineering (TUC-CHENVENG)	OurMED /S1
	University of Thessaly (UTH) Department of Agriculture Crop Production and Rural Environment	CIPROMED /S1
1 Association	Foodscale Hub	FrontAg Nexus /S1
1 Diverse Private	Mediterranean Information Office for Environment, Culture & Sustainable Development (MIO-ECSDE)	WEFE4MED /S1
1 Enterprise	ELVIZ Hellenic Feedstuff Industries SA	CIPROMED /S1
1 Research Foundations	Hellenic Agricultural Organisation (ELGO DIMITRA)	SOILS4MED /S1
1 SME	Tero PC	NATMed /S1



ISRAEL /IL



Budget
2.6 Mio €



11 Research Units
of which **2 SMEs**



6 Projects

involve one or more
israeli Research Units

Projects per thematic area



2

NPP-SOL /S2
Safe-H2O-Farm /S2



2

CIPROMED /S1
FEED /S2



2

EcoFuture /S1
FrontAg Nexus /S1

Typology	Research Units	Projects <small>underline indicates coordinated project</small>
9 Public Entities	Agricultural Research Organization - Volcani Center (ARO)	NPP-SOL /S2 Safe-H2O-Farm /S2 FEED /S2
	Arava Institute for Environmental Studies (AIES)	EcoFuture /S1
	Ben-Gurion University of the Negev (BGU)	FrontAg Nexus /S1
	Hebrew University of Jerusalem, The Robert H. Smith Faculty of Agriculture, Food and Environment (HUJI)	EcoFuture /S1
	Reichman University (RUNI)	EcoFuture /S1
	Ministry of Agriculture and Rural Development (MOAG)	NPP-SOL /S2
	Technion, Israel Institute of Technology	CIPROMED /S1
2 SMEs	Flying Spark	CIPROMED /S1
	TAW Wald Industries Ltd	EcoFuture /S1



ITALY /IT



Budget
13.1 Mio €



58 Research Units
of which **2 SMEs**



of which



30 Projects

involve one or more
italian Research Units

10 Projects

are coordinated by
a italian Research Unit

Projects per thematic area



11

[FUNZYbio](#) /S2
[MedInCircle](#) /S2
[NATMed](#) /S1
[NPP-SOL](#) /S2
[OurMED](#) /S1
[PROMEDRICE](#) /S2
[PureCircles](#) /S2
[Safe-H2O-Farm](#) /S2
[SAFWA](#) /S2
[SWRIPS](#) /S2
[TeleNitro](#) /S2



5

[MEDGOAT](#) /S2
[PAS-AGRO-PAS](#) /S2
[SHARInG-MeD](#) /S1
[SOILS4MED](#) /S1
[SUREPASTOR](#) /S2



13

[B4HT](#) /S2
[CIPROMED](#) /S1
[FEED](#) /S2
[Im-Pack](#) /S2
[InnoSol4Med](#) /S2
[MEDACORNET](#) /S2
[MEDIET4ALL](#) /S2
[MoreMedDiet](#) /S2
[Mush-Med](#) /S2
[Oli4food](#) /S2
[ProxiMed](#) /S1
[Tool4MEDLife](#) /S2
[VALOstones](#) /S2



1

[FrontAg Nexus](#) /S1

Typology



Research Units



Projects

underline indicates coordinated
project

11 Public Entities

	Istituto di Scienze delle Produzioni Alimentari (ISPA)	CIPROMED /S1
	Istituto di Biologia e Patologia Molecolari (IBPM)	FUNZYbio /S2
	Istituto di Studi sui Sistemi Intelligenti per l'Automazione (ISSIA)	PureCircles /S2
Consiglio Nazionale delle Ricerche (CNR)	Istituto per la Microelettronica e Microsistemi (IMM)	SWRIPS /S2
	Istituto di Bioscienze E Biorisorse (IBBR)	TeleNitro /S2
	Istituto di Biometereologia (IBIMET)	SUREPASTOR /S2
	Istituto di Biologia e Biotecnologia Agraria (IBBA)	FEED /S2
	Istituto per la Bioeconomia (IBE)	MoreMedDiet /S2
Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria (CREA)	Centro di Ingegneria e Trasformazioni Agroalimentari	FEED /S2
Università degli Studi di Bari Aldo Moro (UNIBA)	Dipartimento di Scienze biomediche e oncologia umana	B4HT /S2
	Dipartimento di Scienze del Suolo, della Pianta e degli Alimenti (DiSSPA)	MEDACORNET /S2

35 Public Entities

Università degli Studi della Basilicata (UNIBAS)	Scuola di Scienze Agrarie, Forestali, Alimentari e Ambientali (SAFE)	NPP-SOL /S2 Tool4MEDLife /S2
Università di Bologna (UNIBO) Alma Mater Studiorum	Dipartimento di Scienze Biologiche, Geologiche e Ambientali	CIPROMED /S1
	Dipartimento di Scienze e Tecnologie Agro-Alimentari	FrontAg Nexus /S1 InnoSol4Med /S2
Università di Camerino (UNICAM)	Scuola di Bioscienze e Medicina Veterinaria	Tool4MEDLife /S2
Università degli Studi di Cagliari (UNICA)	Dipartimento di Scienze Chimiche e Geologiche	NPP-SOL /S2
Università di Catania (UNICT)	Dipartimento di Fisica e Astronomia "Ettore Majorana"	SWRIPS /S2
	Dipartimento di Agricoltura, Alimentazione e Ambiente (Di3A)	Oli4food /S2
Università Cattolica del Sacro Cuore (UNICATT)	Dipartimento di Scienze e Tecnologie Alimentari per una filiera agro-alimentare Sostenibile (DiSTAS)	InnoSol4Med /S2
Università degli Studi di Firenze (UNIFI)	Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali (DAGR)	SUREPASTOR /S2 MoreMedDiet /S2
Università di Genova (UNIGE)	Dipartimento di scienze della terra, dell'ambiente e della vita (DISTAV)	B4HT /S2
Università degli Studi di Sassari (UNISS)	Dipartimento di Agraria	NATMed /S1 OurMED /S1 PAS-AGRO-PAS /S2
	Nucleo di Ricerca sulla Desertificazione	SOILS4MED /S1
Università degli Studi di Salerno (UNISA)	Dipartimento di Chimica e Biologia "Adolfo Zambelli" (DCB)	PureCircles /S2
Università Politecnica delle Marche (UNIVPM)	Dipartimento di Scienze Cliniche Specialistiche ed Odontostomatologiche	Oli4food /S2
Università degli Studi di Messina (UNIME)	Dipartimento di Scienze Veterinarie	Mush-Med /S2
Università degli Studi di Milano (UNIMI)	Dipartimento di Scienze Agrarie e Ambientali - Produzione, Territorio, Agroenergia	SOILS4MED /S1 FUNZYbio /S2 PROMEDRICE /S2
	Dipartimento di Medicina Veterinaria e Scienze Animali	MEDGOAT /S2
Università Federico II di Napoli (UNINA)	Dipartimento di Ingegneria civile, edile e ambientale	OurMED /S1
	Dipartimento di Agraria	SOILS4MED /S1
	Dipartimento di Scienze biomediche avanzate	MedInCircle /S2
Università degli Studi di Palermo (UNIPA)	Dipartimento di Scienze Agrarie, Alimentari e Forestali	SOILS4MED /S1 MEDIET4ALL /S2
	Dipartimento di Ingegneria Idraulica ed Applicazioni Ambientali	SWRIPS /S2
Università di Parma (UNIPR)	Dipartimento di Ingegneria e Architettura	OurMED /S1
	Dipartimento di Scienze degli Alimenti e del Farmaco	ProxiMed /S1 MoreMedDiet /S2
Università degli Studi di Perugia (UNIPG)	Dipartimento di Scienze Agrarie, Alimentari ed Ambientali	Safe-H2O-Farm /S2
Università di Pisa (UNIP)	Dipartimento di Scienze Veterinarie	SHARInG-MeD /S1

4	Public Entities	Università degli Studi di Scienze Gastronomiche di Pollenzo (UNISG)	FRANCESCO, Michele Filippo	SAFWA /S2
		Università di Torino (UNITO)	Dipartimento di Scienze Agrarie, Forestali e Alimentari	CIPROMED /S1
		Università degli Studi di Udine (UNIUD)	Dipartimento di Scienze agroalimentari, ambientali e animali (DI4A)	VALOstones /S2 Im-Pack /S2
2	Research Foundations	Centro Siciliano di Fisica Nucleare e di Struttura della Materia		SWRIPS /S2
		CIHEAM Bari	Mediterranean Agronomic Institute of Bari (IAM-B)	SOILS4MED /S1
2	SMEs	Agrumaria Corleone		SWRIPS /S2
		Kontor 46 sas		SUREPASTOR /S2
1	Enterprise	Martino Rossi spa		InnoSol4Med /S2
3	Diverse Private	Agrin scarl		SHARInG-MeD /S1
		Centro Ricerca Sviluppo e Studi Superiori in Sardegna (CRS4)		SOILS4MED /S1
		Consorzio Italbiotec		FEED /S2



JORDAN /JO



Budget
1.3 Mio €



5 Research Units
of which **1 SME**



4 Projects

involve one or more
jordan Research Units

Projects per thematic area



1

OurMED /S1



1

SOILS4MED /S1



2

EcoFuture /S1
FrontAg Nexus /S1

Typology	Research Units	Project (il nome sottolineato indica Project coordinato)
2 Public Entities	Royal Society for the Conservation of Nature (RSCN)	OurMED /S1
	University of Jordan (UOJ)	SOILS4MED /S1
2 Research Foundations	National Agricultural Research Center (NARC)	EcoFuture /S1 FrontAg Nexus /S1
1 SME	i.GREENs Integrated GREEN Solution	EcoFuture /S1



LEBANON /LB



Budget
1.3 Mio €



7 Research Units



5 Projects

involve one or more
lebanese Research Units



Projects per thematic area

 **1**
SAFWA /S2

 **1**
SOILS4MED /S1

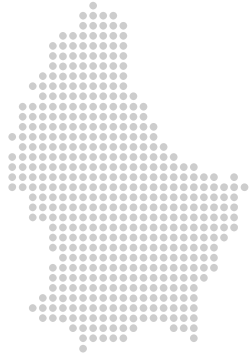
 **2**
B4HT /S2
ProxiMed /S1

 **1**
WEFE4MED /S1

Typology	 Research Units	 Project (il nome sottolineato indica Project coordinato)
5 Public Entities	International Center for Agricultural Research in the Dry Areas (ICARDA)	SOILS4MED /S1 WEFE4MED /S1
	Lebanese Agricultural Research Institute (LARI)	SOILS4MED /S1
	Lebanese University (UL) B4HT /S	B4HT /S2
	Université Saint-Joseph de Beyrouth, Faculté des sciences (USJ)	SAFWA /S2
	American University of Beirut (AUB)	ProxiMed /S1
2 Diverse Private	Berytech	WEFE4MED /S1



LUXEMBOURG /LU

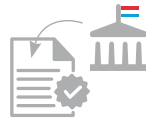


Budget

0 €



1 Research Unit



1 Project

involve one
luxembourg Research Unit

Projects per thematic area



1

MEDIET4ALL/S2

Typology



Research Units



Project

(il nome sottolineato indica
Project coordinato)

1 Enterprise

MICROTARIANS SarlS

MEDIET4ALL/S2



MALTA /MT



Budget
488.4 K €



4 Research Units
of which **1 SME**



4 Projects

involve one
maltese Research Unit

Projects per thematic area



3

CIPROMED /S1
ProxiMed /S1
VALOstones /S2



1

WEFE4MED /S1

Typology	Research Units	Project (il nome sottolineato indica Project coordinato)
2 Public Entities	Malta College of Arts, Science & Technology (MCAST)	ProxiMed /S1
	Energy and Water Agency (EWA)	WEFE4MED /S1
1 Diverse Private	BioPowder, Schilling Ltd	VALOstones /S2
1 SME	AquaBioTech Group	CIPROMED /S1



MOROCCO /MA



Budget
3.5 Mio €



33 Research Units



20 Projects

involve one or more moroccan Research Units

Projects per thematic area



7
FUNZYbio /S2
MAEWA /S2
NPP-SOL /S2
OurMED /S1
PROMEDRICE /S2
PureCircles /S2
TeleNitro /S2



5
MEDGOAT /S2
PAS-AGRO-PAS /S2
SHARInG-MeD /S1
SOILS4MED /S1
SUREPASTOR /S2



7
CIPROMED /S1
Im-Pack /S2
InnoSol4Med /S2
MEDACORNET /S2
MEDIET4ALL /S2
Oli4food /S2
VALOstones /S2



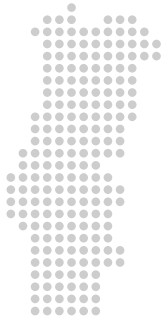
1
FrontAg Nexus /S1

Typology	Research Units	Project (il nome sottolineato indica Project coordinato)
	École Nationale d'Agriculture de Meknès (ENA)	MAEWA /S2
	Institut National de la Recherche Agronomique (INRA)	NPP-SOL /S2 PROMEDRICE /S2 SOILS4MED /S1
	Institute of Agronomy and Veterinary Medicine Hassan II (IAV)	MEDGOAT /S2 PAS-AGRO-PAS /S2 SUREPASTOR /S2 PureCircles /S2
	Laboratoire de Biotechnologies et Valorisation des Ressources Naturelles, Université Ibn Zohr - Agadir (UIZ-LBVRN)	SHARInG-MeD /S1
	Living Planet Morocco (LPM)	OurMED /S1
	National School of Agriculture of Meknes (ENA)	MEDIET4ALL /S2
20 Public Entities	Université Abdelmalek Essaâdi (UAE)	Im-Pack /S2 MEDACORNET /S2
	Université Cadi Ayyad, Laboratoire de Biotechnologies Microbiennes, Agrosiences et Environnement (BioMAGe)	FUNZYbio /S2
	Université Chouaib Doukkali (UCD)	InnoSol4Med /S2
	Université Hassan I (UH1)	SUREPASTOR /S2 PureCircles /S2
	Faculté des Sciences, Biologie Department	MEDGOAT /S2
	Université Ibn Tofail - Kénitra (UIT)	PROMEDRICE /S2
	Faculté des Sciences, Laboratoire des Matériaux Avancés et de Génie-des Procédés	FUNZYbio /S2

	Université Ibn Zohr d'Agadir (UIZ)	PAS-AGRO-PAS /S2
	Université Mohammed Premier Oujda (UMP)	Oli4food /S2
8 Public Entities	Université Mohammed V de Rabat (UM5)	MEDIET4ALL /S2 VALOstones /S2 NPP-SOL /S2 TeleNitro /S2
	Université Sidi Mohamed Ben Abdellah de Fès (USMBA)	InnoSol4Med /S2 MAEWA /S2
2 Association	Association Nationale Ovine et Caprine (ANOC)	MEDGOAT /S2
	Green Development and Innovation Association	CIPROMED /S1
		PROMEDRICE /S2
3 Diverse Private	Mohammed VI Polytechnic University (UM6P)	AgroBioSciences Department FrontAg Nexus /S1
		Laboratory of Biotechnology and Bioprocesses FUNZYbio /S2



PORTUGAL /PT



 **Budget**
1.9 Mio €


 **20 Research Units**
of which **3 SMEs**




14 Projects
involve one or more
portuguese Research Units

3 Projects
are coordinated by
a portuguese Research Unit

Projects per thematic area

 **4**
MAEWA /S2
OurMED /S1
PROMEDRICE /S2
PureCircles /S2

 **2**
MEDGOAT /S2
PAS-AGRO-PAS /S2

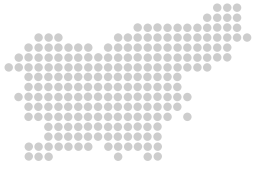
 **8**
B4HT /S2
CIPROMED /S1
Im-Pack /S2
MEDACORNET /S2
MedDietMenus4Campus /S2
MoreMedDiet /S2
ProxIMed /S1
Tool4MEDLife /S1

Typology	 Research Units	 Project (il nome sottolineato indica Project coordinato)
	INEGI - Institute of Science and Innovation in Mechanical and Industrial Engineering	PureCircles /S2
	Instituto Politécnico de Bragança (IBP)	MEDACORNET /S2
	Centro de Investigação de Montanha (CIMO)	PAS-AGRO-PAS /S2
	Instituto Politécnico De Coimbra	PROMEDRICE /S2
	Instituto Politécnico de Leiria (ipleiria)	MEDACORNET /S2
	Marine and Environmental Sciences Centre (ipleiria-MARE)	MoreMedDiet /S2
	Instituto Politécnico de Lisboa, Escola Superior de Tecnologia da Saúde (IPL-ESTeSL)	MedDietMenus4Campus /S2 Tool4MEDLife /S2
15 Public Entities	Instituto Português de Administração de Marketing (IPAM)	MedDietMenus4Campus /S2
	Instituto Universitário de Lisboa, Centro de Investigação e Intervenção Social (IULCIS-Iste)	MedDietMenus4Campus /S2
	Universidade Católica Portuguesa (UPC)	ProxIMed /S1
	Universidade de Aveiro (UA) - PT	Im-Pack /S2
	Universidade do Algarve, Centre for Marine and Environmental Research (UALG-CIMA)	MAEWA /S2
	Faculdade de Ciências da Nutrição e Alimentação (FCNA)	MedDietMenus4Campus /S2
	Universidade do Porto (UP)	MEDGOAT /S2
	Faculdade de Farmácia	MEDGOAT /S2

2 Association	Associação Protectora dos Diabéticos de Portugal (APDP)	B4HT /S2
	Colab, Laboratório Colaborativo Montanhas de Investigação	MEDACORNET /S2
3 SMEs	AgroInsider	OurMED /S1
	LandraTech LDA	MEDACORNET /S2
	SPAROS Lda	CIPROMED /S1



SLOVENIA /SI



Budget
134.9 K €



1 Research Unit



1 Project

involve one
slovene Research Unit

Projects per thematic area



1

WEFE4MED /S1

Typology



Research Units



Project

(il nome sottolineato indica
Project coordinato)

1 Public Entity

Institut Jožef Stefan (IJS)

WEFE4MED /S1



SPAIN /ES



Budget
8.1 Mio €



41 Research Units
of which **10 SMEs**



of which



26 Projects

involve one or more
spanish Research Units

5 Projects

are coordinated by
a spanish Research Unit

Projects per thematic area



11

FUNZYbio /S2
MAEWA /S2
NATMed /S1
NPP-SOL /S2
OurMED /S1
PROMEDRICE /S2
PureCircles /S2
Safe-H2O-Farm /S2
SAFWA /S2
SWRIPS /S2
TeleNitro /S2



4

MEDGOAT /S2
PAS-AGRO-PAS /S2
SHARInG-MeD /S1
SOILS4MED /S1



10

CIPROMED /S1
FEED /S2
Im-Pack /S2
InnoSol4Med /S2
MEDACORNET /S2
MEDIET4ALL /S2
MoreMedDiet /S2
Oli4food /S2
ProxIMed /S1
Tool4MEDLife /S2



1

WEFE4MED /S1

Typology	 Research Units	 Project (il nome sottolineato indica Project coordinato)
14 Public Entities	Centro Tecnológico da Carne (CETECA)	PAS-AGRO-PAS /S2 Oli4food /S2
	CICYTEX Centro de Investigaciones Científicas y Tecnológicas de Extremadura	MoreMedDiet /S2
	Consejo Superior de Investigaciones Científicas (CSIC)	FEED /S2 MAEWA /S2 PROMEDRICE /S2 InnoSol4Med /S2
		Centre of Edafology and Applied Biology of Segura (CSIC-CEBAS)
	Fundación Pública Andaluza Centro de las Nuevas Tecnologías del Agua (CENTA)	NATMed /S1
	Instituto de Ganadería de Montaña (IGM - CSIC ULE)	MEDGOAT /S2
	Instituto Tecnológico Agrario de Castilla y León (ITACyL)	PAS-AGRO-PAS /S2
	IRTA - Institute of Agrifood Research and Technology (IRTA Amposta)	SAFWA /S2
	Universidad de Almería (UAL)	Safe-H2O-Farm /S2
	Universidad de Cádiz, Instituto de Investigación Vitivinícola y Agroalimentaria (UCA-IVAGRO)	Im-Pack /S2

10 Public Entities	Universidad de Extremadura, Departamento de Producción Animal y Ciencia de los Alimentos (UEX)	MoreMedDiet /S2
	Universidad de Granada (UGR)	SHARInG-MeD /S1
	Universidad de Sevilla (US)	SOILS4MED /S1
	Universidad Miguel Hernández de Elche (UMH)	TeleNitro /S2
	Universitat de Barcelona (UB)	NPP-SOL /S2
	Universitat de Girona, Departament Enginyeria Química, Agrària i Tecnologia Agroalimentària (UDG)	PROMEDRICE /S2
	Universitat de València (UV)	SWRIPS /S2 MEDIET4ALL /S2
	Institute of Biotechnology and Biomedicine (UV-BIOTECMED)	SAFWA /S2
Universitat Politècnica de València (UPV)	OurMED /S1	
2 Associations	AINIA Centro Tecnológico	ProxiMed /S1
	MedCities, Mediterranean Cities Network (Medcités)	WEFE4MED /S1
2 Diverse Privates	Instituto Tecnológico de Productos Infantiles y Ocio (AIJU)	FEED /S2
	Fundació Blanquerna, Universidad Ramon Llull (URL)	Tool4MEDLife /S2
1 Enterprise	Idrica (Global Omnium Idrica)	OurMED /S1
2 Research Foundations	Centro Tecnológico de Investigación Multisectorial (CETIM)	FUNZYbio /S2
	Fundación CARTIF	NATMed /S1
10 SMEs	AlgaEnergy SA	CIPROMED /S1
	Algodonera del Sur SA (ALGOSUR)	PureCircles /S2
	Domca SA	InnoSol4Med /S2
	EVERSIA SA	Im-Pack /S2
	Gabinete de Iniciativas Europeas SL (GIESA)	PROMEDRICE /S2
	GeoAI Analytics SL	MEDACORNET /S2
	Proteinsecta SL	ProxiMed /S1
	Social Climate s.coop.and	NATMed /S1
	SBNCLIMA SL	NATMed /S1
	TEPRO Consultores Agrícolas SL	PROMEDRICE /S2



TUNISIA /TN



Budget
3 Mio €

35 Research Units
of which **5 SMEs**



of which



22 Projects

involve one or more tunisian Research Units

2 Projects

are coordinated by a tunisian Research Unit

Projects per thematic area



7

FUNZYbio /S2
MAEWA /S2
OurMED /S1
PureCircles /S2
SAFWA /S2
SWRIPS /S2
TeleNitro /S2



5

MEDGOAT /S2
PAS-AGRO-PAS /S2
SHARInG-MeD /S1
SOILS4MED /S1
SUREPASTOR /S2



8

B4HT /S2
CIPROMED /S1
Im-Pack /S1
MEDACORNET /S2
MEDIET4ALL /S2
MoreMedDiet /S2
ProxIMed /S1
VALOstones /S2



2

FrontAg Nexus /S1
WEFE4MED /S1

Typology



Research Units



Project
(il nome sottolineato indica Project coordinato)

Centre Biotechnologie de Sfax (CBS)

SAFWA /S2

Centre de Biotechnologie de Borj Cédria (CBBC)

PureCircles /S2

Laboratoires des Plantes Aromatiques et Médicinales (CBBC-LPAM)

MEDGOAT /S2

Centre de Recherches et des Technologies de l'Energie (CRTEen)

MAEWA /S2

Centre des Recherches et des Technologies des Eaux (CERTE)

SWRIPS /S2

Centre Technique des Agrumes (CTA)

SAFWA /S2

École Nationale d'Ingénieurs de Sfax, Département Génie Biologique (ENIS)

FUNZYbio /S2

Groupement des Industries de Conserves Alimentaires (GICA)

SWRIPS /S2

INRAT - Institut National de la Recherche Agronomique de Tunisie

MEDGOAT /S2

ProxIMed /S1

Institut des Régions Arides (IRA)

Laboratoire d'Elevage et Faune Sauvage

PAS-AGRO-PAS /S2

Institut National de la Recherche en Génie Rural, Eaux et Forêts (INRGREF)

SWRIPS /S2

Institut Supérieur des Beaux-Arts de Tunis (ISBAT)

PureCircles /S2

Higher institute of the Sciences and Techniques of Waters of Gabès (ISSTEG)

TeleNitro /S2

Ministère de l'Agriculture, Direction Générale de l'Aménagement et de la Conservations des Terres Agricoles (DGACTA)

SOILS4MED /S1

Office de l'Elevage et des Pâturages (OEP)

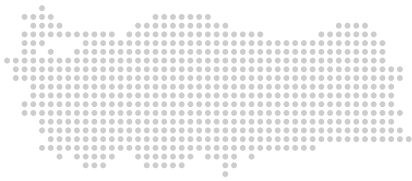
MEDGOAT /S2

16 Public Entities

		Im-Pack /S2
	Université de Carthage (UCAR) Faculté des Sciences de Bizerte (UCAR-FSB)	MAEWA /S2
	Université de Gabès, Faculté des Sciences (UNIVGB)	VALOstones /S2
10 Public Entities	Université de Monastir (UM)	B4HT /S2
	Université de Sfax	MEDIET4ALL /S2 ProxIMed /S1
	Université de Tunis El Manar (UTM)	SWRIPS /S2 SHARInG-MeD /S1 MEDACORNET /S2 MoreMedDiet /S2
1 Association	Center of Arab Women for Training and Research (CAWTAR)	WEFE4MED /S1
1 Enterprise	Huilerie Boukhris	VALOstones /S2
2 Research Foundations	École Supérieure d'Agriculture de Mograne (ESAMograne)	SUREPASTOR /S2
	Ecole Supérieure des Ingénieurs de Medjez El Bab (ESIM)	OurMED /S1
	Boudjebel SA VACPA (VALorisation et Conditionnement du Produit Agricole)	MEDGOAT /S2
5 SMEs	Elbostenphytagri	FrontAg Nexus /S1
	LaboratoireMédiS	SAFWA /S2
	nextProtein	CIPROMED /S1
	Société des conserves modernes du Cap Bon (COMOCAP)	SWRIPS /S2



TURKEY /TR



Budget
3.7 Mio €



29 Research Units
of which **2 SMEs**



of which



19 Projects

involve one or more
turkish Research Units

1 Project

is coordinated by
a turkish Research Unit

Projects per thematic area



6

MedInCircle /S2
NATMed /S1
OurMED /S1
PROMEDRICE /S2
Safe-H2O-Farm /S2
SAFWA /S2



2

SHARInG-MeD /S1
SOILS4MED /S1



10

FEED /S2
InnoSol4Med /S2
MEDACORNET /S2
MedDietMenus4Campus /S2
MoreMedDiet /S2
Mush-Med /S2
Oli4food /S2
ProxiMed /S1
Tool4MEDLife /S2
VALOstones /S2



1

FrontAg Nexus /S1

Typology



Research Units



Project

(il nome sottolineato indica
Project coordinato)

Adana Alparslan Türkes Sciences and Technology University
(ATÜ)

FEED /S2
Tool4MEDLife /S2

Akdeniz Üniversitesi

Safe-H2O-Farm /S2

Aydın Adnan Menderes Üniversitesi

MoreMedDiet /S2

Beykent University

MEDACORNET /S2

Black Sea Agricultural Research Institute

PROMEDRICE /S2

Bursa Teknik Üniversitesi (BTU)

Mush-Med /S2

Çukurova Üniversitesi (CUNI)

SHARInG-MeD /S1
SOILS4MED /S1

18 Public Entities

Department of Seafood
Processing and Technology

InnoSol4Med /S2

Ege Üniversitesi

NATMed /S1

International Agricultural Research and Training Center (UTAEM)

OurMED /S1

Istanbul Medeniyet Üniversitesi (IMU)

MedInCircle /S2

Istanbul Teknik Üniversitesi (ITU)

Oli4food /S2

İzmir Institute of Technology (IYTE)

MedInCircle /S2
NATMed /S1

Konya Food and Agriculture University (KFAU)

Tool4MEDLife /S2

Marmara Üniversitesi, Department of Bioengineering

VALOstones /S2

6 Public Entities	Middle East Technical University (METU)	ProxiMed /S1
	Municipality of Bodrum	FrontAg Nexus /S1
	Municipality of Bozcaada (Bozcaada Belediyesi)	NATMed /S1
	Olive Research Institute, Bornova İzmir	Oli4food /S2
	Üniversitem Hacettepe, Faculty of Health Sciences	MedDietMenus4Campus /S2
	University of Health Sciences (UHS)	Oli4food /S2
1 Association	Association for Renewable Energy	FrontAg Nexus /S1
2 Enterprises	TAT Konserve Sanayii AŞ	ProxiMed /S1
	Uluova Milk Trading Co	ProxiMed /S1
2 SMEs	Biyans Biological Products R&D	SAFWA /S2
	DemirEnerji	NATMed /S1



PALESTINA /PS
non-PRIMA PS



Budget
0 €



2 Research Units



1 Project

involve two
palestinian Research Units

Project per thematic area



EcoFuture /S1

Typology	 Research Units	 Project (il nome sottolineato indica Project coordinato)
2 Association/NGO	House of Water and the Environment (HWE)	EcoFuture /S1
	Damour for Community Development (DCD)	EcoFuture /S1



STATI UNITI /US

non-PRIMA PS

 **Budget**
0 €

 **2 Research Units**





1 Project

involve two
americans Research Units

Project per thematic area



MAEWA /S2

Typology	 Research Units	 Project (il nome sottolineato indica Project coordinato)
1 Diverse Private	Washington and Lee University (WLU)	MAEWA /S2
1 Public Entity	Kansas State University (KSU)	MAEWA /S2



SVEZIA /SE
non-PRIMA PS



Budget
0 €



1 Research Unit



1 Project

involve one
swedish Research Unit

Project per thematic area



1

WEFE4MED /S1

Typology	 Research Units	 Project <small>(il nome sottolineato indica Project coordinato)</small>
1 Association	Global Water Partnership (GWPO)	WEFE4MED /S1

A large, light green graphic in the background. It features a thick circular arc at the top, and below it, a stylized plant with a central stem and several leaves. The plant is positioned on a wavy, horizontal base that resembles soil or a ground surface.

Funded Project 2022



Project factsheets

Section 1 /S1

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



NATMed /S1
OurMED /S1



SHARInG-MeD /S1
SOILS4MED /S1



CIPROMED /S1
ProxiMed /S1



EcoFuture /S1
FrontAg Nexus /S1
WEFE4MED /S1

Thematic Area

Water Management



Action and Topic

IA - Sustainable and integrated management of natural and artificial water storages and distribution infrastructures



Budget

4.089.297,50 €



Duration

36 months



State and Coordinator Entity

SPAIN

Fundación CARTIF

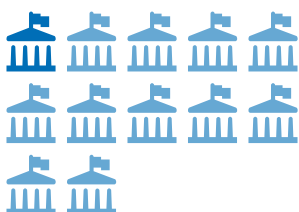


Scientific Coordinator:
MARIJUAN, Raquel

Participating States/ 5



Research Units/ 12



Section 1

NATMed

Nature-based Solutions on existing infrastructures for resilient Water Management in the Mediterranean

Objective and contents

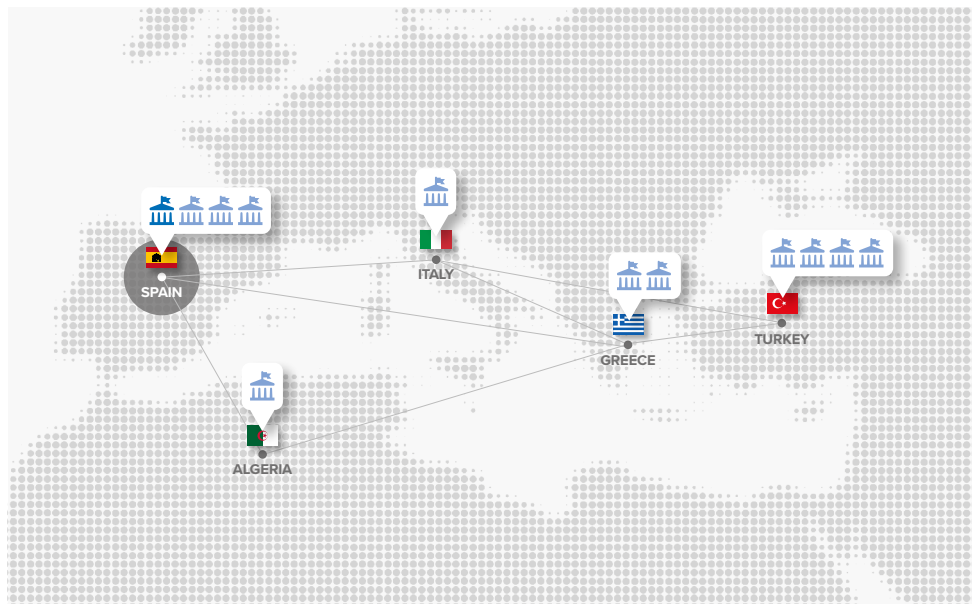
The overall objective of NATMed is to develop, apply and validate a set of NbS integrated into existing grey and natural water infrastructures and based on specific phases of the water cycle, in order to optimize the water-related ecosystems services (quality and quantity) and the water-dependent ecosystem services (social, economic and environmental aspects).

These Full Water-cycle – NbS (FWC-NbS) will be demonstrated on five implementation Cases Studies (Spain, Greece, Italy, Turkey and Algeria) to involve different climatic regions, water infrastructures and stage of the water cycle. Each of the FWC-NbS will be co-design and co-created with local stakeholders involved in the water management (from process developers, solution providers –SMEs-, regulator entities, National and Regional regulations and frameworks, policy makers, governance promoters, Mediterranean Community to end-users).

All the stakeholders from the five case studies will form the NATMed Mediterranean Community of Practice (MedCoP) which aims to empower the stakeholders and local communities at the Mediterranean Sea Basin level.

The combination of the knowledge from the Case Studies, the Assessment Framework and the MedCoP will develop different materials (such as training programmes, development of business models...), FWC-NbS Catalogue & Implementation Guidelines and a Decision-making tool in order to replicate the solutions validated in the Case Studies by the IUCN Global Standard. Besides, a comprehensive decision-making tool will be developed to support authorities and policy makers in the process of FWC-NbS implementation and approaching ecological, economic, cultural and social perspectives.

The project will be developed through 7 Work Packages: FWC-NbS framework; Case Studies implementation; Monitoring and evaluation; FWC-NbS validation and NATMed assets for decision-making; Replicability and Clustering; Communication, Dissemination and Exploitation and Project Coordination.



Other in Consortium/ 11

Fundación Pública Andaluza
Centro de las Nuevas Tecnologías
del Agua (CENTA) - ES

Social Climate s.coop.and - ES
SBNCLIMA SL - ES

Centre de Recherche Scientifique
et Techniques des Régions Arides
(CRSTRA) - DZ

Environmental Centre of Western
Macedonia - GR

Tero PC - GR

Università degli Studi di Sassari,
Dipartimento di Agraria (UNISS) -
IT

Demir Enerji - TR

İzmir Institute of Technology (IYTE)
- TR

Municipality of Bozcaada
(Bozcaada Belediyesi) - TR

Ege Üniversitesi - TR

Expected impacts and results

Improvement of the availability of water resources through the optimisation of the management, operation and conservation of natural and artificial water storage systems and water distribution infrastructure.

Reduction of sedimentation in water storage facilities adopting soil and water conservation practices.

New ecological methods for the design of nature-based solutions based on the seasonal water balance

Improvement of the management of natural wetlands for ecological water conservation, water treatment and reuse and water storage.

Better designed NbS to include the whole summer/winter water cycle.

FWC-NbS training and environmental education to tackle the climate change challenges in the Mediterranean Region.

Relevance of NbS as water resources management contributing to economic growth and stability.

Inclusive, healthy and prosperous Mediterranean society.

Keywords

#community_of_practice

#Ecosystem_Services

#green_jobs

#existing_infrastructures

#NbS

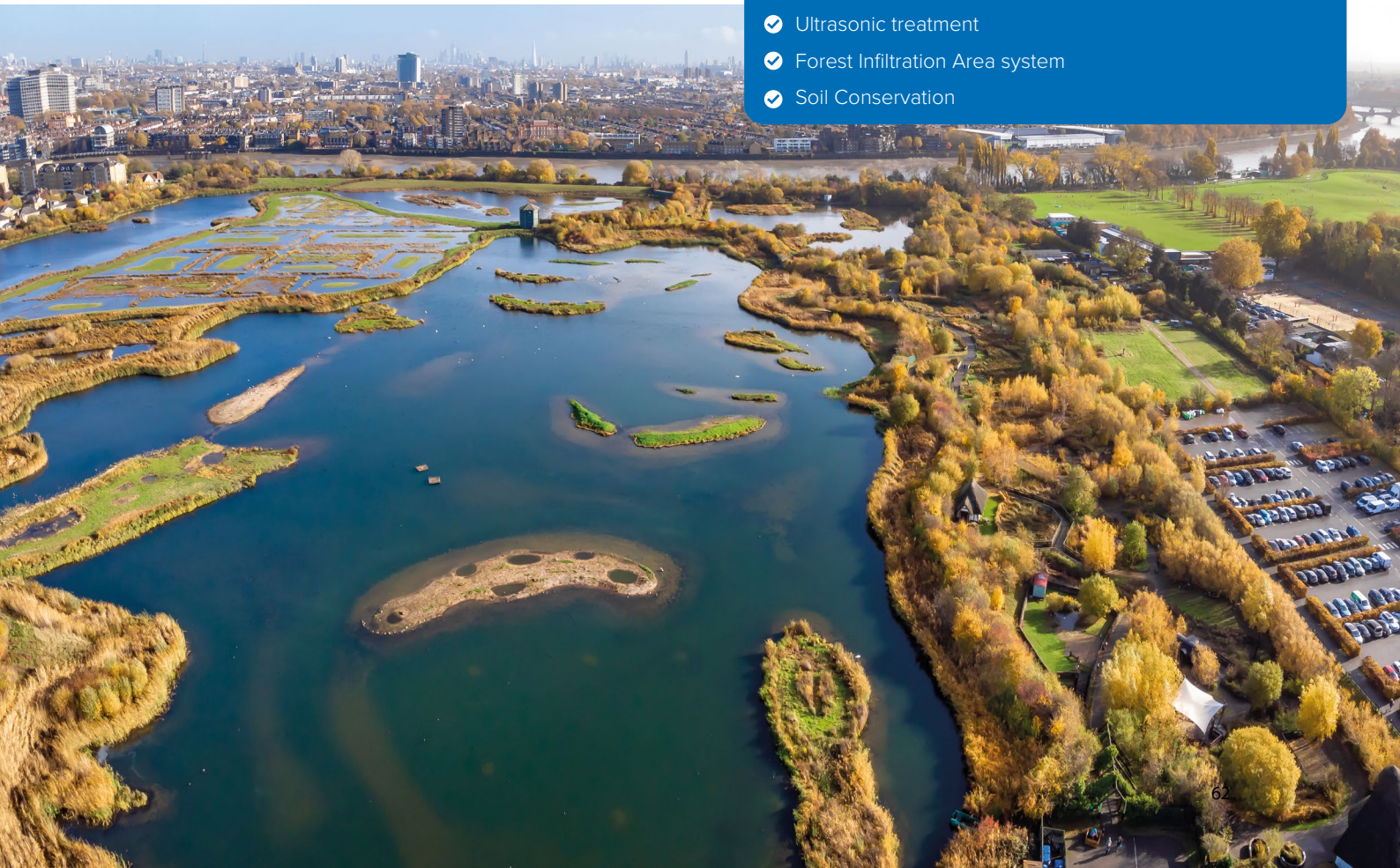
#Water_cycle

#Water_management



The Novelty of NATMed is to combine different Nature Based Solutions to work together in infrastructures (Natural water bodies, grey infrastructures)

- ✓ Management Aquifer Recharge
- ✓ Riparian buffers
- ✓ Constructed Wetlands
- ✓ Floating gardens
- ✓ Ultrasonic treatment
- ✓ Forest Infiltration Area system
- ✓ Soil Conservation



Thematic Area

Water Management



Action and Topic

IA Sustainable and integrated management of natural and artificial water storages and distribution infrastructures



Budget

4.092.637,00 €



Duration

36 months



State and Coordinator Entity

GERMANY

Helmholtz Centre for Environmental Research (UFZ)

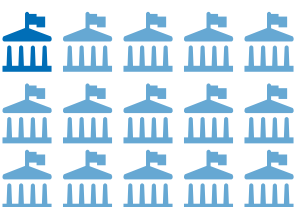


Scientific Coordinator:
JOMAA, Seifeddine

Participating States/ 10



Research Units/ 15



Section 1

OurMED

Sustainable water storage and distribution in the Mediterranean

Context

The Mediterranean Region is unique in its human society, natural environment and biodiversity, and climate variability. However, it is experiencing rapid population growth, increasing anthropogenic pressures, and rapid climate change. This is resulting in intensified water demand through increased irrigation and water consumption, severely threatening socio-economic stability and ecosystems integrity.

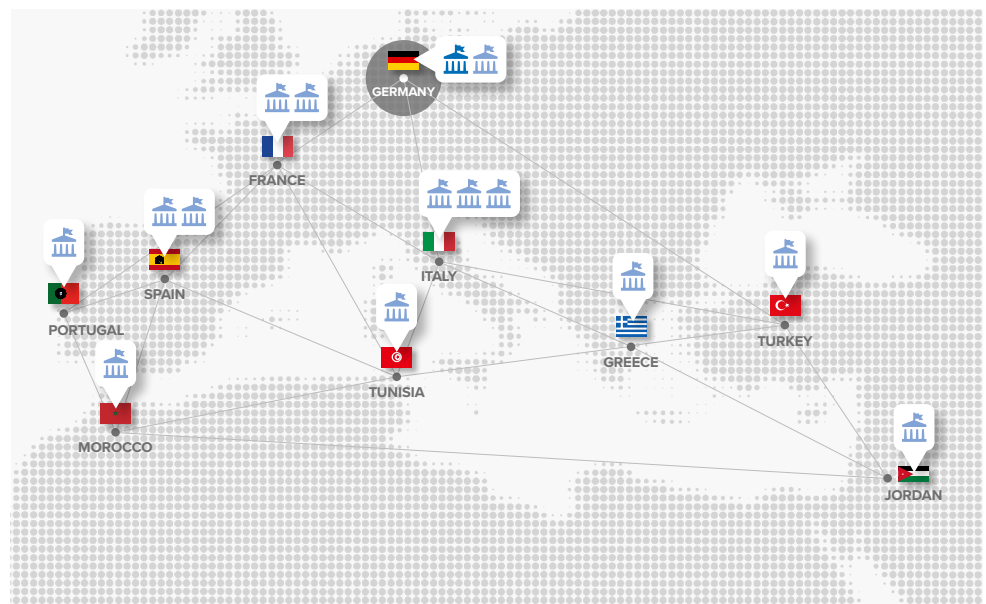
Objective and contents

The overall objective of OurMED is to design and explore innovative and sustainable storage and distribution systems tightly integrated into ecosystem management at the river basin scale.

The specific objectives of OurMED are:

- improvement of water storage and distribution, including artificial water systems and natural wetlands;
- development of tailored and innovative Nature-based Solutions (NbS);
- reinforcement of short-term (seasonal) and long-term (decadal) management and decision making;
- strengthening stakeholder engagement, water-ecosystem governance and knowledge transfer across scales.

The long-term objective of OurMED project is to establish guidelines and develop demonstrable test cases towards optimum and equitable water management in the Mediterranean region. The demonstration sites were carefully selected, representing different climate conditions (arid to temperate climate), water and ecological challenges (soil erosion and sedimentation, water quality deterioration, and groundwater depletion), and different natural and artificial water bodies (lake, reservoirs, rivers, groundwater, and wetlands).



Other in Consortium/ 14

Remote Sensing Solutions GmbH (RSS) - DE

Euro-Mediterranean Water Information System (SEMIDE/EMWIS) - FR

La Tour du Valat, Research institute for the conservation of Mediterranean wetlands (TdV) - FR
Technical University of Crete (TUC) - GR

Università Federico II di Napoli, Dipartimento di Ingegneria civile, edile e ambientale (UNINA) - IT

Università di Parma, Dipartimento di Ingegneria e Architettura (UNIPR) - IT

Università degli Studi di Sassari, Nucleo di Ricerca sulla Desertificazione (NRD-UNISS) - IT

Royal Society for the Conservation of Nature (RSCN) - JO

Living Planet Morocco (LPM) - MA
AgrolInsider - PT

Idrica (Global Omnium Idrica) - ES
Universitat Politècnica de València (UPV) - ES

Ecole Supérieure des Ingénieurs de Medjez El Bab (ESIM) - TN
Bogaziçi Üniversitesi (BU) - TR

Expected impacts and results

OurMED aims to reinforce short-term (winter/summer) water storage and distribution forecasting and long-term water management. To this end, a group of water experts with multidisciplinary but complementary skills intend to develop and implement tailored and sustainable nature-based water storage and distribution solutions in eight demonstration sites, representative of typical water mismatch problems on both shores of the Mediterranean region.

OurMED aims to co-design and demonstrate water management pathways and solutions for each demonstration site by creating new long-lasting spaces for social learning among multi-sectoral and interdependent stakeholders, societal actors and scientific researchers. The efficiency and sustainability of stakeholders-suggested mitigation options under different future socio-economic and climate projections will be assessed using environmental and socio-economical indicators.

OurMED aims to reinforce scientific-based equitable water management in the Mediterranean region, especially under increasingly pressing future anthropogenic and climate conditions, learning from the impacts of historical extreme events experienced already by the demonstration sites during the last decades.

OurMED envisages moving from traditional one sectorial water management relying on a general threshold value and fixed-time horizon to more scientifically-based, multisectoral and case-specific management “Precise Management”, recognizing the specificity of each demo site. To ensure upscaling and replicability of tailored solutions to other countries, the entire Mediterranean basin is considered as a separate demonstration site in OurMED, with particular focus and investigation on essential water-ecosystem variables, systematic monitoring and data sharing, as well as policy examination towards inclusive and sustainable water management and efficient governance at the regional scale.

Keywords

[#Water_storage_and_distribution](#)

[#demonstration_site](#)

[#innovation](#)

[#holistic_management](#)

[#system_optimization](#)

[#wetlands](#)

[#ecosystem](#)

[#food_security](#)

[#climate_change](#)

[#stakeholder_engagement,](#)

[#remote_sensing](#)

[#water_infrastructure](#)



Thematic Area

Farming Systems



Action and Topic

(RIA) Developing integrated soil data for the Mediterranean Region: a gateway for sustainable soil management



Budget

4.099.366,95 €



Duration

36 months



State and Coordinator Entity

ITALY

Università di Pisa, Dipartimento di Scienze Veterinarie (UNIPi)



UNIVERSITÀ DI PISA

Scientific Coordinator:
SAIA, Sergio

Participating States/ 9



Research Units/ 11



Section 1

SHARInG-MeD



Soil Health and Agriculture Resilience through an Integrated Geographical information systems of Mediterranean Drylands

Context

Soil is an essential resource and a vital part of the natural environment from which most of the global food is produced. Although it is essential to have as much information as possible about soils to understand Earth system processes to enable the management of major natural resource problems, it is equally necessary to underline that information about soils must first be collected in a harmonized way; otherwise, experiences cannot be shared and combined.

This is of utmost importance, for example, to utilize soil information for policy development and the building of observation systems. Harmonization and establishing guidelines and standards should not be a goal per se of the GSP. Standardization always implies a cost for the various stakeholders and therefore a clear cost/benefit analysis needs to be provided to justify any standardization activity. Results obtained from different analytical pipeline are often non comparable.

Objective and contents

The general objective of SHARInG-MeD is building an open and concerted soil monitoring scheme to integrate physico-chemical, biological (microbes, nematodes, invertebrates, plants), agronomic, economic and environmental indicators of the Mediterranean croplands; build models of the soil properties at the wide scale; changes of soil properties at the fine scale; relationship between land or crop (especially soil) management practices with environmental and economic performances of the agricultural systems or crops; models of harmonization of soil data among various public databases; and foster the diffusion of the soil improving practices (conservation agriculture, application of organic materials, use of beneficial microbes) in the Mediterranean drylands, with special emphasis to the West Asia and Nord Africa (WANA). These data and models will increase the agriculture sustainability by informing stakeholders on the use of and relationships among these indicators for Mediterranean landscape and crop sustainable managements and will provide a tool to modulate the contribution of agriculture on the mitigation of the climate change. To achieve SHARInG-MeD aim, the soil sampling campaigns from two wide land collection strategies in Europe (LUCAS soil module) and Africa (H2020 Soil4Africa)



Other in Consortium/ 10

Agrin scarl - IT

École Nationale Supérieure des
Forêts de Khenchela (ENSF) - DZ

University of Zagreb (UNIZG) - HR

French National Research Institute
for Sustainable Development (IRD)
- FR

Laboratoire de Géologie de l'École
Normale Supérieure de Paris (LG-
ENS) - FR

Agricultural University of Athens
(AUA) - GR

Laboratoire de Biotechnologies
et Valorisation des Ressources
Naturelles, Université Ibn Zohr -
Agadir (UIZ-LBVRN) - MA

Universidad de Granada (UGR) - ES

Université de Tunis El Manar
(UTM) - TN

Çukurova Üniversitesi (CUNI) - TR

and the Soil Atlas of the Mediterranean Region will be derived, along with data from the literature on the methodologies of soil and crop analyses. The sampling scheme of SHARInG-MeD will include both new sites and resampling of known sites in LUCAS soil module, Soil4Africa, and Soil Atlas and covering their lack of sampling. Sampling will be conducted in paired land uses (including a cropland, and considering areas affected by salinity and/or overgrazing) or field experiments dealing with soil improving management practices. The above-mentioned soil properties (including soil life indicators) and potential GHG emissions will be measured. In the field experiments, economic fluxes and Life Cycle Assessment will be measured. Models will be built to harmonize these sampling schemes. The models produced in SHARInG-MeD will undergo both an internal and an external validation against published data in national, EU, and non-EU research repositories, infrastructures, and living labs.

Expected impacts and results

These aims and expected results cover all requirements of the specific topic by providing a tool for the measurement of the soil degradation process, and crop profitability and environmental impact, thus enabling an environment for the protection, restoration and improvement of soil health in the Mediterranean drylands; providing harmonization models and indicators of agricultural health from both environmental and human needs; by validating these models in actual conditions; by performing an evidence synthesis of the state of monitoring and existing soil data in the Mediterranean area and providing models for the existing physico-chemical, biological, agronomic, economic and other environmental indicators for region-wide assessment of soil ecosystem health; by identifying and establishing synergies with other H2020, PRIMA, national projects and initiatives, research infrastructures and living labs; by providing a tool for the harmonization of the National Soil Surveys in the Soil Atlas; by engaging general public and stakeholders in fruitful dissemination and communication activities.



SHARInG-MeD launches a sampling campaign of soils of the Mediterranean area which will favor interoperability, extensibility and scalability of data and analytical flow, harmonizing the LUCAS methods of the JRC ESDAC and the Soils4Africa H2020.

Thematic Area

Farming Systems



Action and Topic

(RIA) Developing integrated soil data for the Mediterranean Region: a gateway for sustainable soil management



Budget

4.100.000,00 €



Duration

42 months



State and Coordinator Entity

ITALY

Università degli Studi di Sassari, Nucleo di Ricerca sulla Desertificazione (UNISS)



uniss
UNIVERSITÀ DEGLI STUDI DI SASSARI

Scientific Coordinator:
ZUCCA, Claudio

Participating States/ 10



Research Units/ 16



Section 1

SOILS4MED

SOIL health monitoring and information systems FOR sustainable soil management in the MEDiterranean region

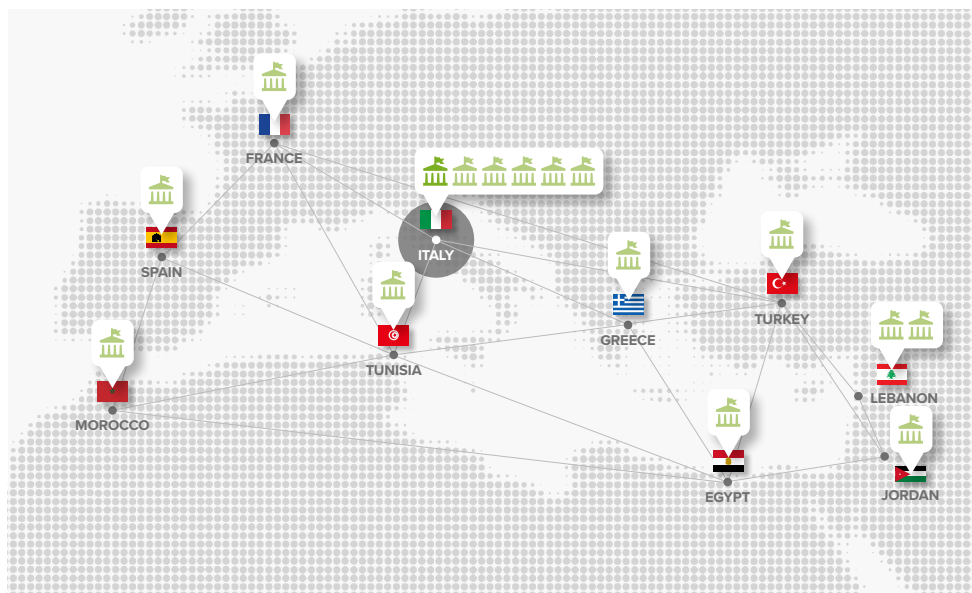
Context

The level of health of the soil and land resources in the Mediterranean Region is low and already in-adequate to support economic development and food security targets, particularly in Near East and North Africa (NENA) countries. The limited availability and quality of soil data and information and the low use made of them in the region are major barriers to the sustainable management of the land, to the design and implementation of policies aimed at protecting, restoring, and improving soil health, and to the achievement of the Sustainable Development Goals targets for 2030 (land degradation neutrality, food security, climate change, biodiversity loss, and economic development).

To date, many efforts are made by international initiatives such as FAO-GSP and by the EC through the Land Use and Coverage Area frame Survey (LUCAS) to develop methodologies, tools and indicators to collect soil information over Europe and the Mediterranean Region. There is an urgent need to develop harmonized methodologies and indicators, adapted to the specificities of the soils and of the environments of the region, to develop an easily accessible and standardized database of soil information enabling the assessment of the soil ecosystems in the region.

Objective and contents

SOILS4MED has the following objectives: 1) engage with stakeholders in line with the Living Lab approach and raise awareness on the benefits deriving from increased investment in soil data and information (SDI); 2) develop policy relevant integrated indicator sets and monitoring protocols adapted to the environmental specificities and stakeholder needs of the Mediterranean Region; 3) validate the protocols in study areas representing major agro-ecological regions and soil types, generating the first region-wide harmonized soil health dataset for the Mediterranean Region; 4) demonstrate the capacity of the SDI produced by the protocols, integrated by legacy soil data, to feed state-of-the-art tools to support sustainable soil and water management, land degradation neutrality, and to enhance regional soil condition mapping including carbon stock mapping; and 5) design and implement standardized country-based soil information systems (SIS) for the effective management and use of SDI.



Other in Consortium/ 15

Centro Ricerca Sviluppo e Studi Superiori in Sardegna (CRS4) - IT

Mediterranean Agronomic Institute of Bari (CIHEAM Bari) - IT

Università di Milano, Dipartimento di Scienze Agrarie e Ambientali - Produzione, Territorio, Agroenergia (UNIMI) - IT

Università degli Studi di Palermo, Dipartimento di Scienze Agrarie, Alimentari e Forestali (UNIPA) - IT

Università Federico II di Napoli, Dipartimento di Agraria (UNINA) - IT

Zagazig University (ZU) - EG

Université de Poitiers (UP) - FR

Hellenic Agricultural Organisation (ELGO DIMITRA) - GR

University of Jordan (UOJ) - JO

International Center for Agricultural Research in the Dry Areas (ICARDA) - LB

Lebanese Agricultural Research Institute (LARI) - LB

Institut National de la Recherche Agronomique (INRA) - MA

Universidad de Sevilla (US) - ES

Ministère de l'Agriculture, Direction Générale de l'Aménagement et de la Conservations des Terres Agricoles (DGACTA) - TN

Çukurova Üniversitesi (CUNI) - TR

Expected impacts and results

These project objectives will be achieved by developing and adapting innovative methods and also by investing in SH engagement and scientific integration, capacity development, and dissemination and awareness raising. Collaborations and synergies with relevant international projects and initiatives are major enablers. SOILS4MED works in synergy with international initiatives on SDI availability and use in the MR, particularly supporting SDI harmonization efforts conducted by FAO's Global Soil Partnership and ongoing international soil health mapping initiatives by JRC, FAO, and ISRIC.

Major project outputs can be summarized as follows: 1) Stakeholder awareness, science-policy integration, and long-term sustainability of soil information and monitoring systems enhanced through the establishment of Living Labs in study areas. 2) Legacy soil data inventoried, digitized and harmonized across the region (legacy soil map legends converted to WRB 2022). 3) Methods to design optimized grids of soil health monitoring sites across the region developed. 4) Integrated harmonized soil health indicators and monitoring protocols designed and validated in the field. 5) Harmonized open access soil health dataset published. 6) Harmonized soil information system (SIS) software tool deployed and used by stakeholders. 7) Laboratory methods, pedo-transfer functions, normative values and land evaluation schemes reviewed and harmonized. 8) capacity of harmonized SDI to feed major decision support platforms and generate enhanced soil condition maps including C-Stock maps demonstrated.

SOILS4MED aims to improve the availability and accessibility of SDI's (soil data and information) and to harmonize the methodology to provide standard pedologic information systems, including:

- ✓ Living Lab approach of EU Soil Mission;
- ✓ harmonization with the Global Soil Partnership (GSP) and JRC-ESDAC LUCAS-like soil monitoring protocol;
- design and implement of an information system
- ✓ Soil Analysis (SIS) that is tailor-made, easily accessible and standardized.



Thematic Area

Agri-food Value Chain



Action and Topic

IA - Alternative protein sources for the Mediterranean food value chain. From production, extraction, processing and marketing, to societal acceptance



Budget

4.054.641,69 €



Duration

36 months



State and Coordinator Entity

GREECE

**University of Thessaly,
Department of Agriculture Crop
Production and Rural
Environment (UTH)**



UNIVERSITY OF THESSALY

Scientific Coordinator:
ATHANASSIOU, Christos

Participating States/ 10



Research Units/ 17



Section 1

CIPROMED

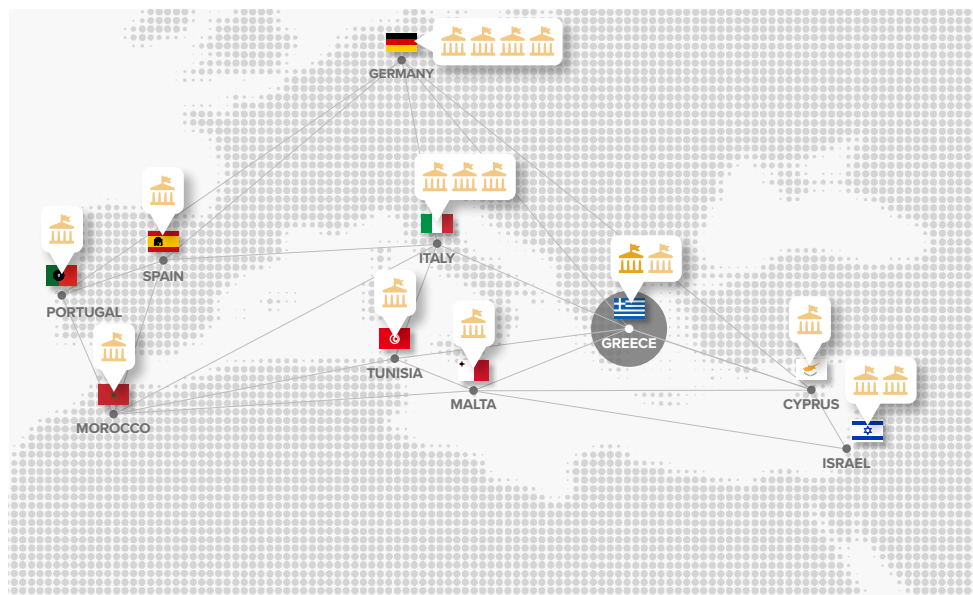
Circular and Inclusive utilisation of alternative PROteins in the MEDiterranean value chains

Context

Current European agricultural production systems are heavily dependent on protein imports to cover the nutritional needs of aquaculture and livestock production, but also for human consumption. Therefore, there is an urgent need for the EU for efficient, viable and locally produced alternative protein sources.

Objective and contents

In this context, the objective of the CIPROMED project is to increase the stability and resilience of Mediterranean agri-food production systems through direct exploitation of locally produced traditional crops, as well as by valorising the proteins from locally generated agri-industrial side-streams (e.g., brewer's spent grain, oilseed press-cakes), and the upcycling and bioconversion of their extraction residues to protein produced by insects, legumes, microalgae and fermentation products to be further utilized in the agri-food and feed sectors. Using a multi-actor approach, CIPROMED activities will be unfolded through 7 Work Packages, in which insects and microalgae will be produced exploiting agri-industrial residues and extraction side-streams as substrates and applying innovative rearing and cultivation techniques to attain higher protein yields. To close the loop, insect frass will be used as soil fertiliser for legume (lupins and faba beans) production. High quality protein ingredients from agri-industrial residues, insects, legumes and microalgae will be extracted for food and feed applications via economically and environmentally sustainable extraction processes. To achieve circularity, the residues generated by the extraction processes will be integrated in diets formulated for insect rearing and heterotrophic microalgae cultivation, minimizing the residual amounts. Microbial fermentation will be used to enhance the range, stability and health promoting functionality of the new proteins. All protein ingredients will be fully characterized, in terms of nutritional value, functional and biological properties, as well as safety.



Other in Consortium/ 16

ELVIZ Hellenic Feedstuff Industries
SA - GR

RTD Talos Ltd - CY

German Institute of Food
Technologies, Department Food
Data Group (DIL) - DE

Institute for Food and
Environmental Research (ILU) - DE
Bäckerei Reiner Stolzenberger - DE
University of Göttingen (UGOE) -
DE

Flying Spark - IL

Technion, Israel Institute of
Technology - IL

Università di Bologna,
Dipartimento di Scienze
Biologiche, Geologiche e
Ambientali (UNIBO) - IT

Università di Torino, Dipartimento
di Scienze Agrarie, Forestali e
Alimentari (UNITO) - IT

Consiglio Nazionale delle Ricerche,
Istituto di Scienze delle Produzioni
Alimentari (CNR-ISPA) - IT

AquaBioTech Group - MT

Green Development and
Innovation Association - MA

SPAROS Lda - PT

AlgaEnergy SA - ES

nextProtein - TN

Expected impacts and results

Based on the generated results, new prototypes of food and feed products containing the new protein ingredients will be formulated and validated using advanced and optimised processing technologies. Sensory and consumer tests will be performed for the evaluation of all products based on the enhanced food formulations and the estimation of the market expectations. Feeding trials with livestock animals (poultry) and fish will be conducted to map the effect of the new protein ingredients on growth performance, nutrient digestibility, and animal health. Human clinical trials will allow to assess impact of foods containing novel proteins on satiety, fecal microbiota, metabolic profile, as well as their safety. The safety and regulatory compliance of the generated processes and products, as well as their environmental and economic sustainability will be demonstrated through environmental analyses, such as LCA, SLCA and E-LCC. The improved socio-economic attributes of the new Mediterranean agri-food production systems will be facilitated, by integrating all sustainability data in an eco-design platform. At the same time, consumer attitudes and willingness-to-try, -buy, -pay and taste expectations for the developed new food products will be assessed via both qualitative and in-depth quantitative consumer surveys, and sensory tastings with the newly developed products will be carried out.

Psychological, cognitive and emotional attitude and responses towards new food will be investigated using a combination of explicit and implicit psychometric assessments. Finally, complete business models and extensive exploitation plans will be developed for the generated products to effectively boost the position of the new products in the market, co-created with and for stakeholders and consumers. The final outcome of CIPROMED will be the production of considerably sustainable, healthier, more environmental-friendly and not only affordable, but competitive food and feed product formulations available for all.

Keywords

#agri-industrial_side-streams

#alternative_proteins

aquafeeds

#circular_economy

#consumer's_acceptance

#decision_support_system (DSS)

#eco-design_platform

#faba_beans

#insect_protein

#legumes

#Life_Cycle_Assessment

#Life_Cycle_Cost_analysis

#lupins

#microalgae_cultivation

#poultry_feeds



High quality protein ingredients from agroindustrial residues, insects, legumes and microalgae for human nutrition and economically and environmentally sustainable feed.



Thematic Area

Agri-food Value Chain



Action and Topic

IA - Alternative protein sources for the Mediterranean food value chain. From production, extraction, processing and marketing, to societal acceptance



Budget

4.095.700,00 €



Duration

48 months



State and Coordinator Entity

GERMANY

**Hochschule Weihenstephan
Triesdorf University of Applied
Science (HSWT)**



Scientific Coordinator:
OEZMUTLU, Oezlem

Participating States/ 10



Research Units/ 17



Section 1

ProxiMed

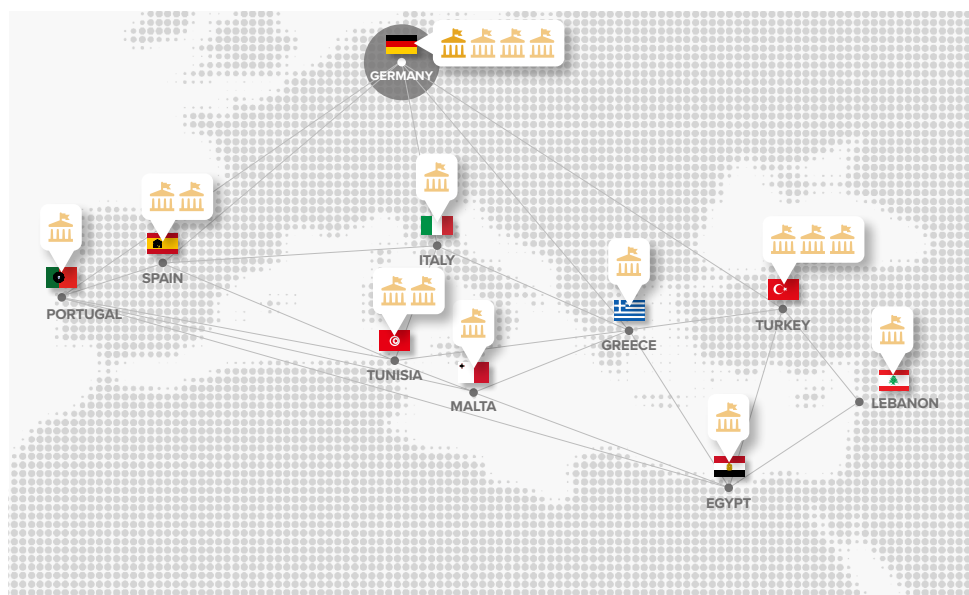
Exploration and Implementation of Products with Alternative Proteins in the Mediterranean Region

Objective and contents

The objective of ProxiMed is to introduce proteins from sustainable sources into the Mediterranean food and feed systems to promote and establish the use of alternative proteins. Traditional alt-protein sources of plant origin (lentil, faba bean and chia seeds; “Novel food” protein sources (micro-algae, insects, mycoprotein, tomato and mallow leaves, duckweed) and agro- industrial by-products (tomato pomace, sesame cake, date cake) are selected for this purpose. Innovative and green processing technologies aiming minimal impact on nutrients will be used to produce the selected proteins. The alternative proteins will then be implemented into more than 20 final products (protein powder concentrates as ingredients, capsules to be used as supplements and several protein-enriched food and feed products) and introduced to the Mediterranean consumers in different regions (Middle East, Northern Africa and Europe). Novel processes and the protein value chain will be assessed for environmental, economic and social impacts. ProxiMed will evaluate all proteins for their techno-functional properties and will select sustainable, innovative production technologies for the development and production of different products. The selection of these products and processes will be based on LCA where sustainability approaches will be implemented in line with the SDGs. Consumer, sensory and market analysis will be the axis of ProxiMed project and will be conducted for representative countries. ProxiMed’s effective cooperation between industry partners, local producers and SMEs over Med and EU will enable and extend the impactful exchange between stakeholders including country policy makers. Health, safety and nutritional aspects of all products will be assessed by measuring bio-accessibility and bioavailability of nutrients and by estimating the presence of antinutritional factors and allergenicity, for all food and feed products.

Expected impacts and results

ProxiMed is a high impact project for the development of alternative protein products based on consumers’ choices and environmental assessment of innovative and green technologies with the direct involvement of industry partners. In fact, effective social media management tools, workshops, training and public engagement activi-



Other in Consortium/ 16

German Institute of Food Technologies (DIL) - DE

Focus Foodlabs GmbH - DE

GreenSurvey GmbH - DE

Assiut University, Faculty of Agriculture (AUN) - EG

Aristotle University of Thessaloniki (AUTH) - GR

Università di Parma, Dipartimento di Scienze degli Alimenti e del Farmaco (UNIPR) - IT

American University of Beirut (AUB) - LB

Malta College of Arts, Science & Technology (MCAST) - MT

Universidade Católica Portuguesa (UPC) - PT

AINIA Centro Tecnológico - ES

Proteinsecta SL - ES

Institut des Régions Arides (IRA) - TN

Université de Sfax - TN

Middle East Technical University (METU) - TR

TAT Konserve Sanayii AŞ - TR

Uluova Milk Trading Co - TR

ties will be developed from the beginning of the project for optimal information flow to all relevant stakeholders including policymakers. Outcomes of dissemination activities will be used to elaborate exploitation plans for the project, to be complemented with business models for each exploitable product and partner, ensuring a proper mobilization of the consortium resources.

ProxiMed will gain solid knowledge about consumer's acceptance and choices towards to alt-protein products that will directly be implemented into the product development with ensured acceptability and market uptake

ProxiMed will help:

- reducing greenhouse gas emissions and other negative environmental impacts;
- improve human health;
- easier access to cheaper and healthier protein sources as an alternative to animal sources toward healthier and sustainable diets;
- optimized environmentally friendly techniques to produce novel protein enriched foods;
- development of sustainable exploitation plans for the large-scale uptake outputs beyond projects lifetimeof.



Thematic Area

Nexus



Action and Topic

1.4.1-2022 (IA) Predicting and testing options of socio-economic adaptation to declining Water-Energy-Food-Ecosystem (WEFE) resources in the Mediterranean Region



Budget

3.036.403,87 €



Duration

36 months



State and Coordinator Entity

GREECE

Technical University of Crete, School of Chemical and Environmental Engineering (TUC-CHENVENG)



ΠΟΛΥΤΕΧΝΕΙΟ ΚΡΗΤΗΣ
TECHNICAL UNIVERSITY OF CRETE

Scientific Coordinator:
NIKOLAIDIS, Nikolaos

Participating States/ 4



Research Units/ 9



Section 1

EcoFuture

A socio-ecological approach to combat desertification for a sustainable future

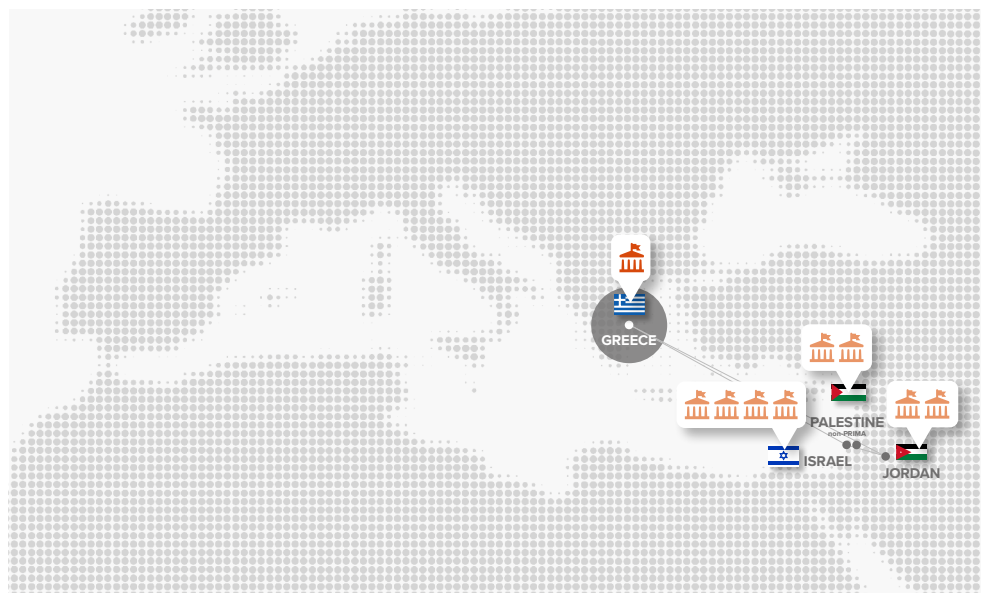
Context

The Mediterranean region is considered a “Hot Spot” susceptible to the threat of climate change. Many regions are prone to desertification, reduced amount of water, loss of fertile soil and degradation of the ecological services provided. On top of those, many countries are engaged in political conflicts. Jordan, the Palestinian Authority and Israel are in the focal point of such a conflict. The Jordan Valley (JV) exhibits all those threats. It is the only region shared by the three countries and the unique combination of climate-change and political threats led us to choose it as a test case.

Objective and contents

The overall project objective is to develop a climate-change adaptation program oriented towards maximum socio-economic inputs for people in the Mediterranean region. Using WEFE nexus methodology, the project will build the research and innovation capacities of partners and stakeholders in order to:

1. Propose a climate change adaptation plan for the region, based on existing technologies, taking into account the social and economic priorities of the three involved countries;
2. use techno-economic models to optimize the sustainable efficiency performance of the Plan;
3. use socio-economic models to assess and recommend policies in the WEFE context to improve the welfare of people in the region;
4. perform tests in three demonstration sites in the Jordan Valley, one in each country, in order to validate the inputs to the various models;
5. propose methodologies to extend the applicability of the results of the Jordan Valley to other regions and to other Mediterranean countries;
6. build synergies across sectors to investigate interlinkages across the nexus;
7. implement capacity building and training programs in response to project findings.



Other in Consortium/ 6

Arava Institute for Environmental Studies (AIES) - IL

Hebrew University of Jerusalem, The Robert H. Smith Faculty of Agriculture, Food and Environment (HUJI) - IL

Reichman University (RUNI) - IL

TAW Wald Industries Ltd - IL

i.GREENs Integrated GREEN Solutions - JO

National Agricultural Research Center (NARC) - JO

non-PRIMA PS/ 2

House of Water and the Environment (HWE) - PS

Damour for Community Development (DCD) - PS

Expected impacts and results

Our nexus approach will give greater emphasis to decentralized but coordinated decision making as the source of solutions, as well as the source of understanding the challenges faced. Our approach will also stress the business imperative and the need to prepare for investment scenarios in the future. We will partner with manufacturers and producers of wastewater treatment plants, water pumping stations and technology to introduce energy efficiency programs at all viable facilities. Public institutions will create incentives for efficient agricultural water use to support food security policy objectives, develop incentive mechanisms for the use of renewable energy and energy efficiency in the water and food sectors, conduct proper assessment of and utilization of the potential for generating hydropower at locations where water drops in elevation, and use wastewater biosolids from treatment plants to produce renewable energy and improve the environmental conditions. The project will develop WEFE Nexus best-practice recommendations for resource management in the Jordan valley. It will seek to identify and quantify the adaptation challenges to water, food and energy security and to the environment, and will propose an adaptation plan, based on existing technologies and adaptation solutions including centralised and decentralized wastewater treatment, smart agriculture in acclimatized greenhouses, agri-PV and precise irrigation - solar desalination - renewable energy. The project will account the social priorities of the three involved countries, and use techno-economic models to optimize the techno-economic performance of the proposed adaptation plan. It will use innovative socio-economic models in to verify maximum impact on the lives of the people in the region, and will perform tests at existing WEFE demonstration sites in order to validate the inputs to the various models, and thus propose best-availability methodologies to extent the applicability of the results of the Jordan Valley to other regions and to other Mediterranean countries through the development of versatile key performance indicators for WEFE via extensive dissemination through a broader community of practice.

Keywords

#desertification

#economic_valuation

#ecosystem_modeling

#nature_based_solutions

#Socioeconomic_approaches

#stakeholder_involvement

#WEFE_optimization



Thematic Area

Nexus



Action and Topic

1.4.1-2022 (IA) Predicting and testing options of socio-economic adaptation to declining Water-Energy-Food-Ecosystem (WEFE) resources in the Mediterranean Region



Budget

3.012.345,00 €



Duration

36 months



State and Coordinator Entity

GERMANY

**Universität der Bundeswehr München,
Institute for Sociology and Economics (UNIBW)**



Scientific Coordinator:
BUCHENRIEDER, Gertrud

Participating States/ 8



Research Units/ 10



Section 1

FrontAgNexus

Impact of Climate- Smart & Water-Saving Frontier Agriculture on WEFE Nexus in Arid Mediterranean Regions

Context

The Mediterranean Region is one of the climate change hotspots in the world due to water scarcity and reliance on climate-sensitive agriculture. Thus, boosting climate change adaptation and mitigation through actions and innovations that reduce pressure on the water, energy, food, and ecosystems (WEFE) Nexus, including biodiversity is paramount. .

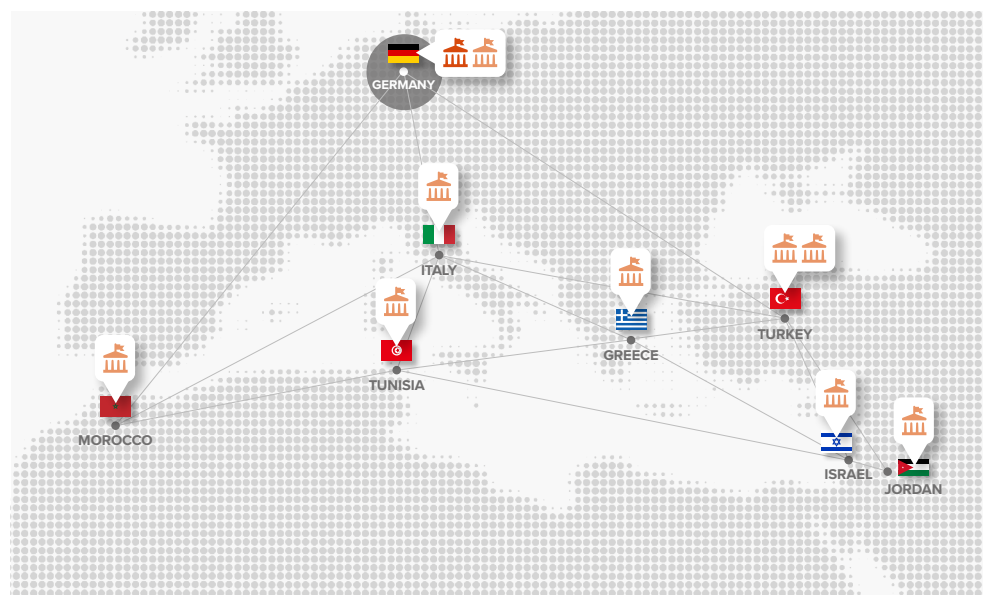
Objective and contents

FrontAg Nexus responds to this challenge by identifying sustainable frontier agriculture production systems that increase regional food and nutrition security and conserve the environment. Furthermore, factors that foster the adoption of an integrated resource-management approach, considering the interconnections of the WEFE Nexus and the growing population in the Region will be analysed.

FrontAg Nexus follows a WEFE Nexus thinking and a multi-actor approach, involving 6 Mediterranean countries (Greece, Italy, Israel Morocco, Tunisia, Turkey) as well as one of the world's driest countries, Jordan. FrontAg Nexus contributes to the community of practice by identifying, incorporating and sharing frontier agricultural solutions. Frontier agriculture comprises climate-smart and water-saving technologies such as hydroponics, aquaponics, and insect farming (BSF: Black Soldier Fly larvae breeding), whose energy efficiency can be increased through agrophotovoltaic. These frontier agricultural solutions are the basis for socio-innovative adaptation experiments (i.e., demonstration cases) because they require limited arable land, water, energy, or wealth and reduce organic waste.

Expected impacts and results

FrontAg Nexus will show that frontier agriculture improves livelihood security by delivering safe and nutritious food and reducing rural-urban migration linked to local resource scarcity. Frontier agriculture is also suitable for urban, refugee, and Bedouin communities. Capacity-development activities will take place at the producer and policy level. At the producer level, this will be done by showcasing positive experiences



Other in Consortium/ 9

Aquaponik Manufaktur GmbH - DE

Foodscale Hub - GR

Ben-Gurion University of the Negev (BGU) - IL

Università di Bologna, Dipartimento di Scienze e Tecnologie Agro-Alimentari (UNIBO) - IT

National Agricultural Research Center (NARC) - JO

Mohammed VI Polytechnic University, AgroBioSciences Department (UM6P) - MA

Elbostenphytagri - TN

EUROSOLAR European Association for Renewable Energy - TR

Municipality of Bodrum - TR

and establishing a communities-supporting-communities collaboration. At the policy level, FrontAg Nexus will demonstrate how integrating frontier agriculture into the Nexus approach improves not only the environmental but also the socio-economic situation of all stakeholders. FrontAg Nexus guides production and policy transformation in the Mediterranean Region by adhering to the EU Taxonomy Regulation.



Photo Credit: UNIBO, Prof. Francesco Orsin (FoodLAND Project)

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Thematic Area

Nexus



Action and Topic

1.4.2-2022 (CSA) Development of a Mediterranean Water-Energy-Food-Ecosystem Community of Practice



Budget

1.999.635,00 €



Duration

48 months



State and Coordinator Entity

CYPRUS

The Cyprus Institute (CYI)
Energy Environment and Water
Research Center EEWRC



THE CYPRUS
INSTITUTE

Scientific Coordinator:
COMAIR, Fadi

Participating States/ 9



Research Units/ 11



Section 1

WEFE4MED

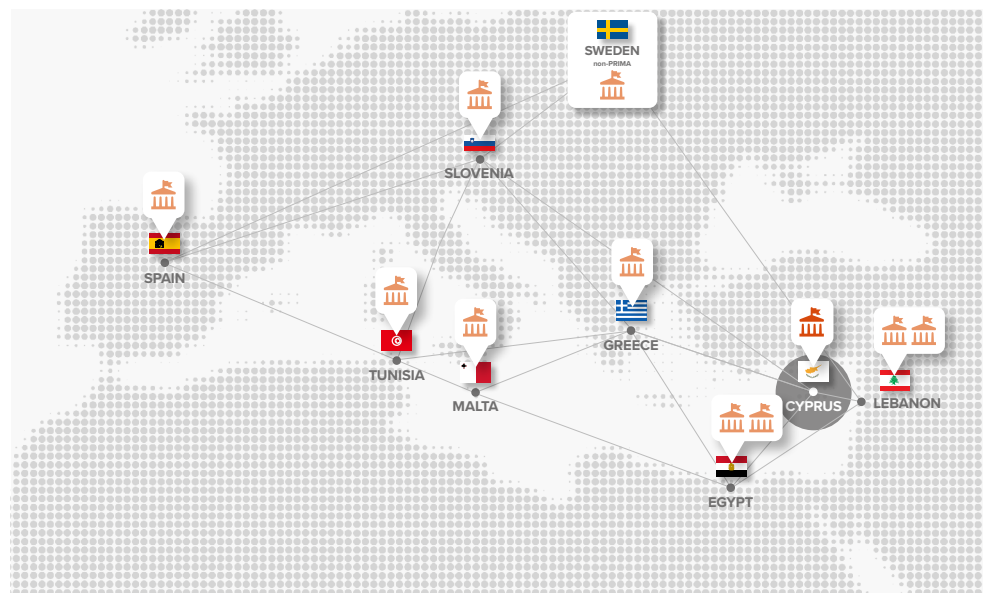
Title Towards a Mediterranean WEFE Nexus Community of Practice

Context

Climate change and growing populations are placing additional pressure on the availability of food, energy and water in the Mediterranean, accompanied by an increased environmental footprint. The Water, Energy, Food, Ecosystems Nexus (Nexus) approach is key to ensuring resilient, circular and green economies and to achieve the Sustainable Development Goals, and Nexus demonstrators are already showing its transformative potential for the Region. However, there is a long way ahead before the Nexus approach is mainstreamed and applied at large in policies and practices. To ramp up uptake, a robust mechanism is needed to support mobilization of a range of stakeholders across countries, sharing their expectations, experiences and knowledge, and providing evidence of benefits to policy makers, investors, businesses, practitioners and society at large.

Objective and contents

Heeding the call for action at the WEFE Nexus Science Advances Conference, WEFE4MED will gather scientists, practitioners, policymakers, investors, local authorities, the media and other stakeholders in a Mediterranean WEFE Nexus Community of Practice (NCoP) to provide convincing practical and scientific evidence of the Nexus benefits as a basis for decision-making in integrated natural resources management. WEFE4MED will achieve this by identifying, federating and promoting examples of best practice around the Mediterranean, including demonstrator projects, having Nexus at their core. It will foster long-lasting cooperation between actors as well as demonstrator projects to replicate and upscale them in other countries, and to disseminate their achievements, including as part of a science-based advocacy effort aimed at policy-makers and investors.



Other in Consortium/ 9

Arab Water Council (AWC) - EG

**Egyptian Center for Innovation and
Technology Development (ECITD)
- EG**

**Mediterranean Information
Office for Environment, Culture &
Sustainable Development
(MIO-ECSDE) - GR**

Berytech - LB

**International Center for
Agricultural Research in the Dry
Areas (ICARDA) - LB**

**Energy and Water Agency (EWA)
- MT**

Institut Jožef Stefan (IJS) - SI

**MedCities, Mediterranean Cities
Network (Medcités) - ES**

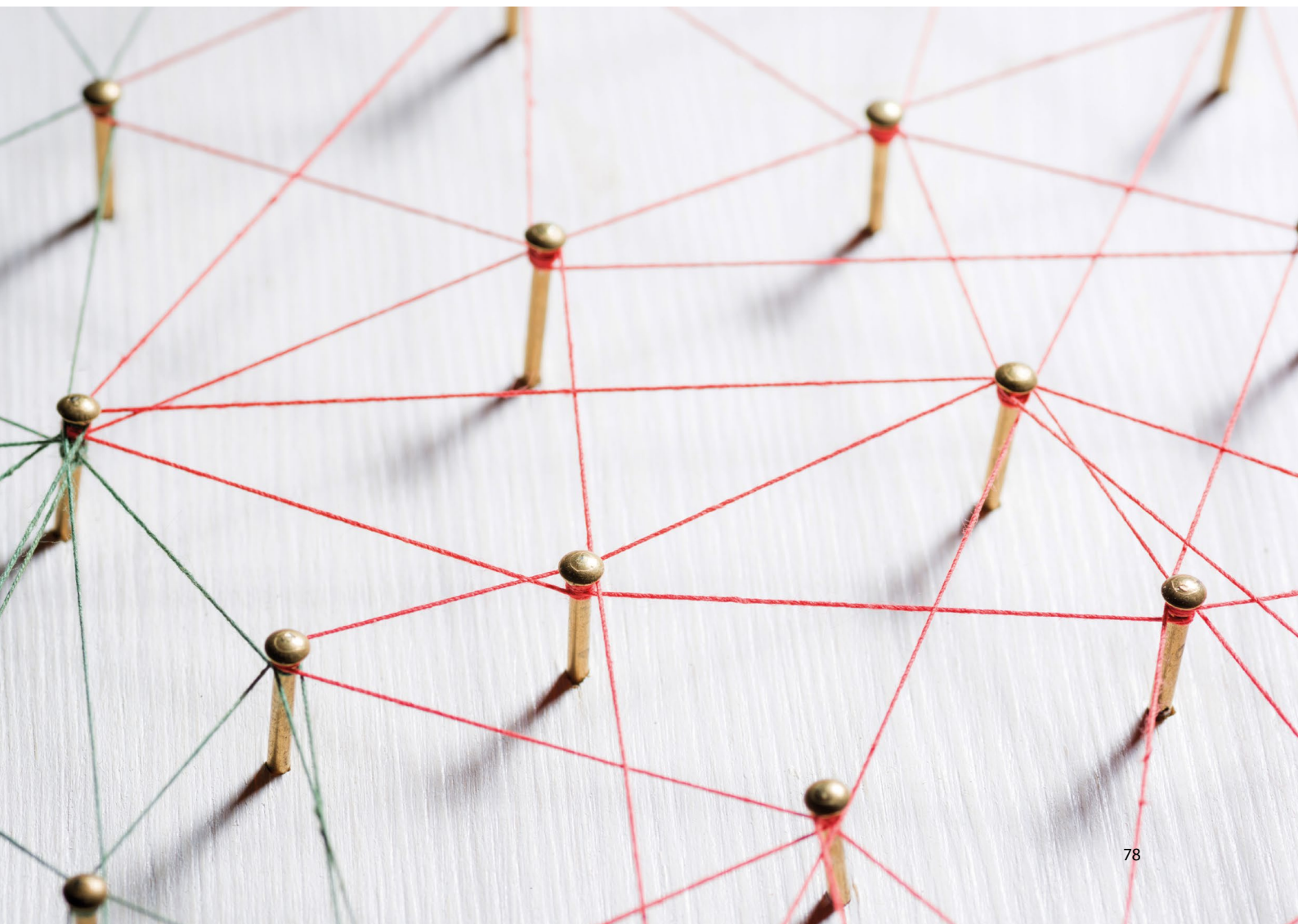
**Center of Arab Women for Training
and Research (CAWTAR) - TN**

non-PRIMA PS/ 1

**Global Water Partnership (GWPO)
- SE**

Expected impacts and results

In doing so, WEFE4MED will establish an open digital Nexus Knowledge Hub, will twin flagship demos and promote mutual learning among knowledge holders while promoting external funding opportunities. Through a structured participatory process, WEFE4MED will design, establish and operate a functional dialogue and cooperation platform that will persist well beyond the project lifespan, due to the commitment to Nexus objectives of the project partners and NCoP members.





Project factsheets

Section 2 /S2

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



FUNZYbio /S2
MAEWA /S2
MedInCircle /S2
NPP-SOL /S2
PROMEDRICE /S2
PureCircles /S2
Safe-H2O-Farm /S2
SAFWA /S2
SWRIPS /S2
TeleNitro /S2



MEDGOAT /S2
PAS-AGRO-PAS /S2
SUREPASTOR /S2



B4HT /S2
FEED /S2
Im-Pack /S2
InnoSol4Med /S2
MEDACORNET /S2
MEDIET4ALL /S2
MoreMedDiet /S2
MedDietMenus4Campus /S2
Mush-Med /S2
Oli4food /S2
Tool4MEDLife /S2
VALOstones /S2

Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1.110.829 €



Duration

36 months



State and Coordinator Entity

FRANCE

Fungal Biodiversity and Biotechnology Lab (BBF-UMR 1163)



Biodiversité & Biotechnologie Fongiques
Marseille

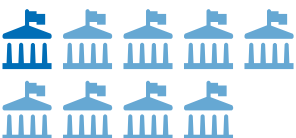
UMR 1163

Scientific Coordinator:
RECORD, Eric

Participating States/ 5



Research Units/ 9



Section 2

FUNZYbio

Fungal and enzymatic degradation of antibiotics: safe reuse of livestock residues for agriculture

Objective and contents

The main goal of the FUNZYbio project is to provide the proof-of-concept for novel biotechnologies for the treatment of livestock residues: manure and anaerobic digestates of livestock slurries, for (i) allowing safe reuse of water and organic matter for agriculture, (ii) exploiting this potential for soil health and durability and (iii) limiting their adverse environmental effect as potential sources of salinization and pollution, such as from antibiotics (ABs). Addressing these three issues at the same time, the FUNZYbio consortium has the potential of proposing technical solutions of extremely high impact towards both Operational Objectives of Topic 2.1.1: “land and water sustainability” and “smart and sustainable farming”. Because AB pollution determines the rising of AB resistant bacteria and AB resistance genes, the outcomes of FUNZYbio also significantly contribute to prevent and limit one of the major threats to human and animal health worldwide: the rise of AB resistance.

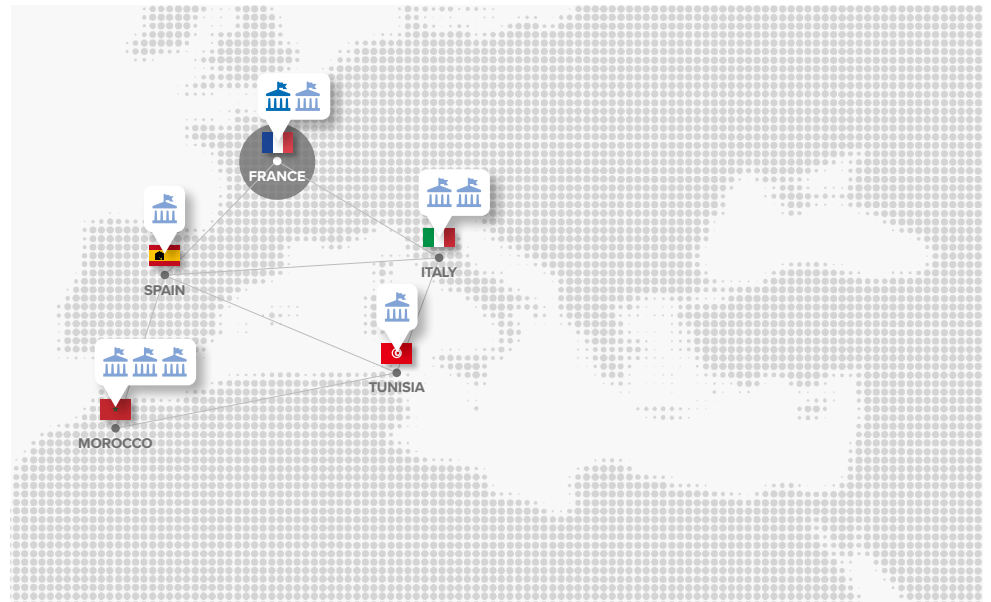
The technological solutions developed in FUNZYbio will rely on the discovery of fungal and enzymatic biocatalysts than can degrade ABs. These solutions will integrate existing value chains for the valorization of manure and anaerobic digestates, improving existing processes for the obtention of safe organic fertilizers. To achieve this goal, the scientific and technical objectives of FUNZYbio can be aligned along two main axes:

- nature-inspired AB-degrading processes, relying on the discovery of AB-degrading biocatalysts;
- improved pilot treatments of livestock residues, based on the aforementioned processes.

Expected impacts and results

Overall, FUNZYbio will provide the proof-of-concept for obtaining safe (AB-free) water, liquid or solid fertilizers, and compost for safe use in the agri-food sector, contributing as such to:

- direct reduction in the contamination from reclaimed effluents;



Other in Consortium/ 8

Laboratoire de Mécanique,
Modélisation et Procédés Propres
(M2P2 - UMR 7340) - FR

Università degli Studi di Milano,
Dipartimento di Scienze Agrarie e
Ambientali - Produzione, Territorio,
Agroenergia (UNIMI) - IT

Consiglio Nazionale delle Ricerche,
Istituto di Biologia e Patologia
Molecolari (CNR-IBPM) - IT

Université Ibn Tofail, Faculté
des Sciences, Laboratoire des
Matériaux Avancés et de Génie
des Procédés - Kénitra (UIT) - MA

Mohammed VI Polytechnic
University, Laboratory of
Biotechnology and Bioprocesses
(UM6P) - MA

Université Cadi Ayyad, Laboratoire
de Biotechnologies Microbiennes,
Agrosciences et Environnement
(BioMAgE) - MA

Centro Tecnológico de
Investigación Multisectorial
(CETIM) - ES

École Nationale d'Ingénieurs
de Sfax, Département Génie
Biologique (ENIS) - TN

- development of possible approaches for improving site-specific solutions to reduce nitrate leaching;

- evaluation of the risks linked to organic and chemical pollutants.

FUNZYbio will bring on the development of innovative and environmental-friendly technical solutions for livestock effluent decontamination.



SPECIFIC OBJECTIVES

- ✓ Allowing safe reuse of water and organic livestock residue for agriculture
- ✓ Exploiting this potential for soil health and durability
- ✓ Limiting their adverse environmental effect as potential sources of salinization and pollution, such as from antibiotics

**FUNZYbio adopts
technological solutions based
on fungal and enzymatic
biocatalysts capable of
degrading antibiotics**



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1.465.000 €



Duration

36 months



State and Coordinator Entity

FRANCE

Institut des Sciences Analytiques et de Physico-Chimie pour l'Environnement et les Matériaux (IPREM - UMR 5254 CNRS/UPPA)



IPREM

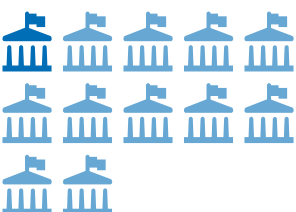
Institut des sciences analytiques et de physico-chimie pour l'environnement et les matériaux

Scientific Coordinator:
DURAN, Robert

Participating States/ 9



Research Units/ 12



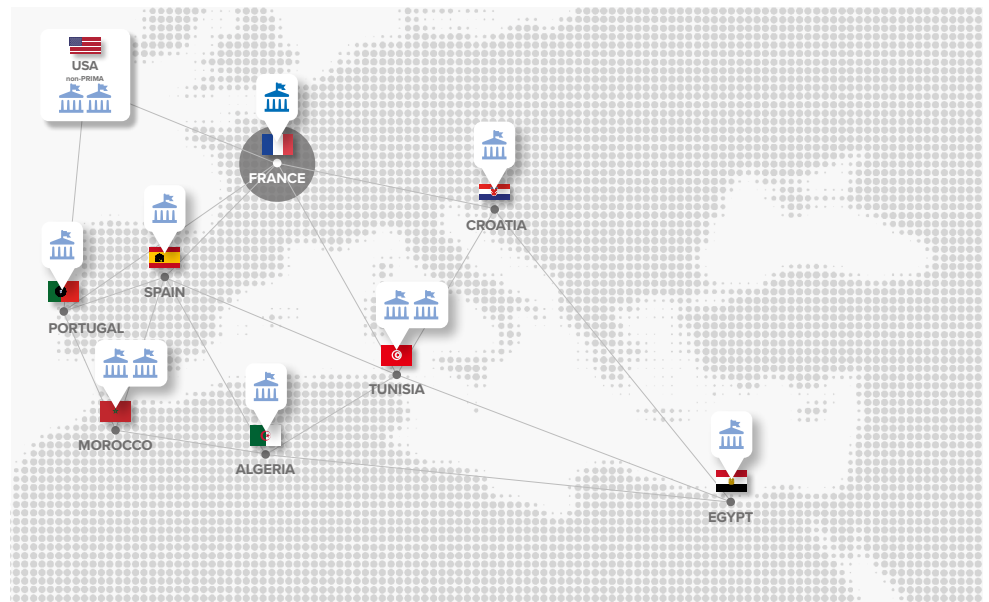
Section 2

MAEWA

Mitigation of Agricultural effects in Mediterranean soils and wetlands: bioremediation technologies, environmental and economic benefits

Objective and contents

MAEWA aims to provide innovative remediation solutions for the treatment of agricultural complex contamination mixtures, containing inorganic (metals and fertilizers) and organic compounds (pesticides), in soil and wetlands in Mediterranean areas. The project ambitions to deliver a set of toolboxes to conduct efficient bioremediation processes in order to mitigate the effect of agricultural practices in soil and wetlands. MAEWA objectives are to characterize RAMSAR sites in Mediterranean countries threatened by human activities, particularly agriculture and industry. The characterization of the soil usage and the hydrological context of the sites will be consolidated by collecting land management practices information from local sources. Physical-chemical and biological methods will be adapted and standardized in order to provide relevant analytical tools validated for a comprehensive characterization of agro-chemical contamination and monitor the bioremediation progress. These analytical tools will determine the contaminant content and toxicology/ecotoxicology levels, and the microbial potential of the studied sites. The project will operate exploration tools, combining culture based and meta-omics approaches, to explore microbial metabolic capacities for producing microbial strains and consortia with high remediation capabilities. The project will utilise engineering tools to develop remediation strategies that include the implementation of green filters involving adapted plants to Mediterranean climate and salinity, use of biochar, natural attenuation and microbe additions, and combinations of these. MAEWA will develop optimized technologies by evaluating the influence of physical-chemical parameters on the treatment efficiency, proposing the most effective integrated strategy for the management of microbial activities, including inoculation systems to obtain optimal microbial activities and their maintenance during bioremediation progress. As well, biochar and functionalized derivatives will be examined for their sorption and retention capacities, together with their ability to enhance the degradation and transformation capacities of microbial communities. The most promising technologies will be scale-up in field demonstration trials sites, bringing the development of the technologies to TRL5/6, evaluating their performance by determining the environmental benefit and risks, including economic feasibility.



Other in Consortium/ 9

Université Badji Mokhtar-Annaba (UBMA) - DZ

Ruđer Bošković Institute, Laboratory for aquaculture biotechnology (IBR) - HR

Ain Shams University (ASU) - EG

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

Université Sidi Mohamed Ben Abdellah de Fès (USMBA) - MA

Universidade do Algarve, Centre for Marine and Environmental Research (UALG-CIMA) - PT

Consejo Superior de Investigaciones Científicas (CSIC) - ES

Centre de Recherches et des Technologies de l'Energie (CRTE) - TN

Université de Carthage, Faculté des Sciences de Bizerte (UCAR-FSB) - TN

non-PRIMA PS/ 2

Washington and Lee University (WLU) - US

Kansas State University (KSU) - US

Expected impacts and results

MAEWA will contribute to the implementation of EU directive for the management of water quality and agricultural activities by providing low-cost, sustainable and effective bioremediation techniques for the treatment of agrochemicals contaminated soil and wetlands to limit the accumulation of agrochemicals and metals in soil, wetland and groundwater, which is in line with the specific challenges of the PRIMA call for water management, namely Water scarcity and poor water quality, Pollution by agricultural activities, and Salinization of aquifers, and eutrophication of wetlands and coastal waters. MAEWA knowledge, technologies and guidelines will be largely disseminated to stakeholders and End users.



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

980.613 €



Duration

36 months



State and Coordinator Entity

ITALY

Università Federico II di Napoli,
Dipartimento di Ingegneria
Civile, Edile e Ambientale
(UNINA-DICEA)



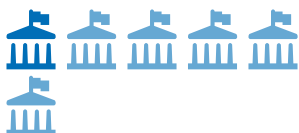
UNIVERSITÀ DEGLI STUDI DI NAPOLI
FEDERICO II

Scientific Coordinator:
ESPOSITO, Giovanni

Participating States/ 4



Research Units/ 6



Section 2

MedInCircle

Future-proofing the Mediterranean agri-food chain through integrated and circular management of contaminant-safe water, nutrients and bioresources

Context

In the Mediterranean region, the nexus between global dynamics such as climate change, water scarcity and food insecurity, has the potential to lead to highly severe consequences. The agri-food compartment is particularly exposed to such consequences, and urgently calls for the implementation of innovative and eco-efficient solutions. In view of this, the MedInCircle project aims at advancing the state of the art of the circular management of water, nutrients and bioresources, fostering the transition towards a more sustainable and resilient agri-food chain. More specifically, MedInCircle will pursue the development of a modular technological platform targeting the on-site treatment, recovery and valorization of water, wastewater and solid waste arising from typical Mediterranean agri-food activities.

Objective and contents

The goal of MedInCircle is to engineer, test and validate innovative nutrient recycling and sustainable ferti-irrigation practices.

The specific objectives of the project involve i) the development of new biological treatments to enable a safe and effective domestic wastewater ferti-irrigation as well as the direct reuse of the collected agricultural drainage water, ii) the recovery and the valorisation of the nutrient content of domestic wastewater and agri-food waste, iii) the upcycling of carbon and nutrients from industrial wastewater under the form of slow-release microbial fertilizers and biostimulants, iv) the evaluation of the fertilizing and the growth-promoting properties on typical Mediterranean crops, as well as the impact on the soil microbiome, of the recovered water and nutrient streams and biological agronomic additives, v) the assessment of the cost-benefit balance of the developed innovation to promote the acceptance and the integration of the proposed technical solutions among the stakeholders of the Mediterranean agri-food chain.

To achieve its objectives, the MedInCircle project will implement a research and development trajectory based on the integration of innovative waste and wastewater treatments and agronomic practices, enabling nutrient recycling and sustainable ferti-irrigation in a Mediterranean rural context. The specific solutions will involve the



Other in Consortium/ 5

National Research Centre (NRC) - EG

Institut de Physique du Globe de Paris (IPGP-UMR) - FR

Institut de Chimie des Milieux et Matériaux de Poitiers (IC2MP-UMR) - FR

Istanbul Medeniyet Üniversitesi (IMU) - TR

İzmir Institute of Technology (IYTE) - TR

development and validation up to TRL 4-5 of moving bed membrane bioreactors to biologically treat and decontaminate domestic and agricultural drainage water, high solid anaerobic digestion to recover the nutrient content of agri-food waste and to synthesize plant growth promoting rhizobacteria through the recovered biogas, heterotrophic aerobic assimilation for the synthesis of slow-release nitrogen fertilizers and biostimulants. MedInCircle will pursue its objectives by integrating cutting-edge, multidisciplinary scientific knowledge and innovation potential across the fundamental and applied research.

Expected impacts and results

The successful completion of the project will thus enable i) the circular valorisation of waste flows from sewage and agri-food processing to generate liquid and solid fertilizers with specific features that can be effectively and safely applied on agricultural fields, ii) promoting the growth of autochthonous crops by shielding the effects of excess salinity in the Mediterranean soil through the application of halo-protective bioinoculants, iii) capturing the agricultural drainage water, thereby circumventing the contamination of surface water bodies and underground aquifers, and iv) replenishing the nitrate content and abate contaminants in agricultural drainage water through an innovative aerobic biological process integrating the membrane bioreactor and the moving bed biological reactor technologies.

Keywords

#nutrient_recovery_and_recycling

#sustainable_ferti-irrigation

#plant_growth_promoting

#rhizobacteria

#emerging_contaminants



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

2.873.500 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi della Basilicata, Scuola di Scienze Agrarie, Forestali, Alimentari e Ambientali (UNIBAS-SAFE)



UNIVERSITA' DEGLI STUDI DELLA BASILICATA

Scientific Coordinator:
COPPOLA, Antonio

Participating States/ 5



Research Units/ 8



Section 2

NPP-SOL

Modelling And Technological Tools To Prevent Surface And Ground-Water Bodies From Agricultural Non-Point Source Pollution Under Mediterranean Conditions

Context

Several countries in the Mediterranean are affected by agricultural Non-Point Source (NPS) nitrate and phosphorus pollution of aquifers and surface waters (estuaries, lakes, wetlands, etc.), widespread in areas of intensive agriculture and livestock activity. The complexity of NPS pollution requires adopting specialized, interdisciplinary and multi actors approaches and different solutions from farmers and Water Resources Managers, Water Users Associations and regional and national Environmental Agencies. Therefore, there is a need for a paradigm change, looking for more site-specific approaches that support farmers rather than sanctioning and limiting their entrepreneurship. It might be the way for maintaining the trade-off between the needs of sustaining farmers' income and detrimental environmental impacts of NPS pollutants, which is a cornerstone of sustainable agriculture.

Objective and contents

NPP-SOL overall objective is to prevent diffuse pollution of water resources due to NPS agricultural pollutants under the Mediterranean soil and environmental conditions, according to the goals of the new Green Deal and Farm-to-Fork strategies. NPP-SOL will integrate site-specific best management practices to improve soil, water, fertilizers, and crop management with site-tailored and affordable-cost technologies to prevent natural bodies pollution. Common to all the adopted methodologies-technologies will be their sustainability, economic efficiency, and adherence to circular economy approach.

NPP-SOL co-designs and tests Site-Specific Best Management Practices and Pollution-Preventing Technologies enhancing a multi-stakeholder participatory approach considering context-related needs and challenges, whether the proposed innovations are appropriate or not, and whether they can sustainably adopt the knowledge generated by NPP-SOL. The aim is to intercept and remove NPS pollutants before reaching the groundwater and surface water bodies. Technologies such as Bioreactors and Constructed Wetlands will be set up to remove nutrients and pesticides from surface runoff and/or drainage water coming from agricultural fields. Anaerobic



Other in Consortium/ 7

Università degli Studi di Cagliari,
Dipartimento di Scienze Chimiche
e Geologiche (UNICA) - IT

CIHEAM Montpellier -
Mediterranean Agronomic Institute
(CIHEAM-IAMM) - FR

Agricultural Research Organization
- Volcani Center (ARO) - IL

Ministry of Agriculture and Rural
Development (MOAG) - IL

Institut National de la Recherche
Agronomique (INRA) - MA

Université Mohammed V de Rabat
(UM5) - MA

Universitat de Barcelona (UB) - ES

Nuovi prodotti e soluzioni

2 strumenti di modellizzazione



Digestors will treat livestock slurries before spreading them to the soil.

Modelling Tools such as the agro-hydrological model FLOWS-HAGES (FLOws of Water and Solute Transport in Heterogeneous Agricultural and Environmental Systems) and the bio-economic model DAHBSIM (Dynamic Agricultural Household Bio-economic Simulation Model) are provided. FLOWS-HAGES produces information on the time evolution of water and solutes balance and all the functional processes involved (evapotranspiration, root uptake of water and solutes, irrigation volumes, groundwater recharge, drainage, runoff, nutrient transport). As for solute transport, the model allows for salts, pesticides, phosphorus and nitrogen transport simulations. DAHBSIM maximizes household objectives subject to constraints and resources allocation patterns by linking several sub-modules related to economic, production (including livestock), and consumption decisions.

Expected impacts and results

Technical Capacity Building assets of technicians from key stakeholders guarantee the application and spreading of the NPP-SOL outputs, the monitoring of the effectiveness of applied technologies, the maintenance and fine-tuning over time. Farmer Awareness is monitored and strengthened throughout the project. NPP-SOL is implemented in four Case Studies (Israel, Italy, Morocco and Spain). The multi-disciplinary consortium provides expertise in surface and subsurface hydrology, soil science, agronomy, chemistry, microbiology, economics, and social sciences. NPP-SOL aims to overturn the traditional top-down approach, seeking more site-specific models and techniques focused on supporting farmers. It privileges small-to-medium scale actions spread throughout the agricultural basin and avoids large-scale interventions, thus making farmers involved and directly responsible for the management practices applied on their farms.



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

2.399.963 €



Duration

36 months



State and Coordinator Entity

SPAIN

Universitat de Girona,
Departament Enginyeria
Química, Agrària i Tecnologia
Agroalimentària (UDG)

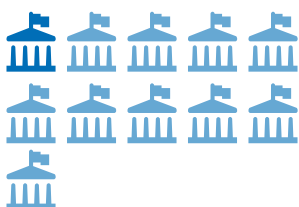


Scientific Coordinator:
GERARD, Arbat

Participating States/ 6



Research Units/ 11



Section 2

PROMEDRICE

Effective farming practices to protect water resources in Mediterranean rice-based agroecosystems

Context

Rice is the staple food for more than half of the world's population. It is the crop to which the largest volume of water is allocated worldwide, accounting for 24 to 30% of the total freshwater withdrawals.

In the Mediterranean region, over 1,300,000 ha of rice paddies occupy river deltas, estuaries, marshes, plains and coastal wetlands. Its cultivation requires a great amount of agrochemicals to ensure productivity, and the difficulty to control the fate of nutrients, pesticides and salts under traditional flood irrigation are cause of water pollution and soil degradation in rice agroecosystems and their adjacent natural ecosystems.

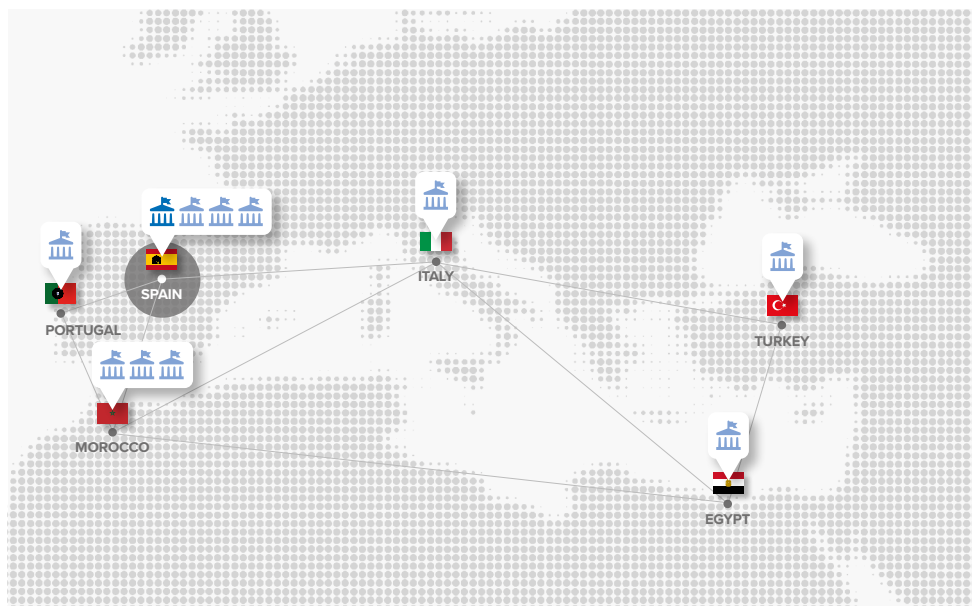
Objective and contents

PROMEDRICE aims to develop and foster the adoption of site-specific agricultural practices that reduce the contamination and salinization of soil and water bodies while maintaining or improving productivity and water use efficiency in Mediterranean rice-based ecosystems.

Sustainable farming practices will be developed in 7 Case Studies (CSs) distributed throughout the whole Mediterranean basin, covering the vast majority (over 75%) of rice production areas. A Participatory Action Research approach during all stages of the project through the establishment of Stake-Holder Panels (SHPs) in each one of the CSs ensures the integration of local knowledge to develop solutions tailored to local conditions and to facilitate their adoption.

PROMEDRICE objectives are relevant to Topic 2.1.1: Prevent and reduce land and water salinization and pollution due to agri-food activities, since it develops sustainable farming practices not only from the environmental perspective, but also from the economic and social ones.

The proposal follows-up and levers methodology, knowledge, results, and even partners and stakeholders from a project granted under PRIMA2018 S2 (namely MEDWATERICE), in which several alternative rice irrigation methods were successfully



Other in Consortium/ 10

Consejo Superior de Investigaciones Científicas (CSIC) - ES

Gabinete de Iniciativas Europeas SL (GIESA) - ES

TEPRO Consultores Agrícolas SL - ES

Damanhour University (DU) - EG

Università degli Studi di Milano, Dipartimento di Scienze Agrarie e Ambientali - Produzione, Territorio, Agroenergia (UNIMI) - IT

Université Ibn Tofail, Faculté des Sciences, Laboratoire Géosciences - Kénitra (UIT) - MA

Institut National de la Recherche Agronomique (INRA) - MA

Mohammed VI Polytechnic University (UM6P) - MA

Instituto Politécnico De Coimbra - PT

Black Sea Agricultural Research Institute - TR

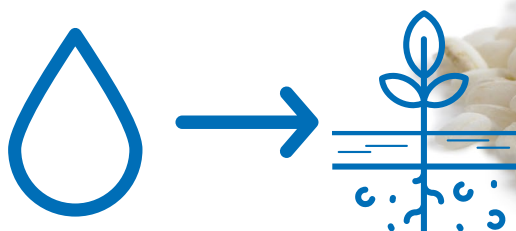
developed to reduce water consumption with no significant yield impact in 6 out of the 7 CSs included in PROMEDRICE.

To start with, major pollution and salinization issues in all 7 rice areas affecting both water and soil will be identified and quantified. Since salinity and pollution of soil and water strongly depend on water fluxes, problems of both water quantity and quality will be considered together when designing improved farming practices to solve the previously identified issues in each area. Proposed solutions will consider a broad variety of practices and technologies such as water-saving irrigation methods, improved fertilization and pesticide application regimes, application of alternative agrochemicals, blending of irrigation water with drainage recirculation, electromagnetic and chemical treatment of irrigation water and soil preservation and reclamation methods.

Expected impacts and results

The most promising practices and technologies in each CS will be implemented and assessed at farm level. Results will be then up-scaled to district or watershed scales by appropriate modelling approaches in order to support integrated water resources management and policy-making decisions.

PROMEDRICE outputs are aimed to develop both sustainable and productive rice-based agroecosystems. Therefore, economic sustainability and social acceptability of the proposed on-farm Best Management Practices (BMPs) will be assessed and up-scaled in each CS.



15-20.000 m³/ha

water volume (per season)
conventional submersion cultivation



SPECIFIC OBJECTIVES

- ✓ Collect and harmonize data related to soil, water pollution and salinization in the main rice areas in the Mediterranean basin
- ✓ Identify major pollution and salinization issues and related farming practices in each area
- ✓ Co-design, with stakeholders, effective farming practices and technical solutions tailored to local conditions to reduce water and soil pollution and salinization while maintaining or improving water use efficiency, crop productivity and soil fertility

1.3ML ha

surface cultivated with rice in the Mediterranean area

Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1.874.242 €



Duration

42 months



State and Coordinator Entity

GERMANY

University of Hohenheim,
Department of Plant Production
and Agroecology in the Tropics
and Subtropics



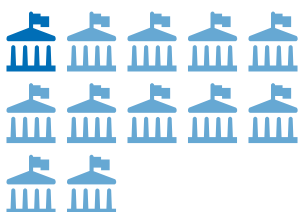
UNIVERSITY OF
HOHENHEIM

Scientific Coordinator:
GERMER, Joern

Participating States/ 8



Research Units/ 12



Section 2

PureCircles

Maximising resource use efficiency within the energy, water and nutrient nexus for sustainable agriculture in Mediterranean marginal environments

Context

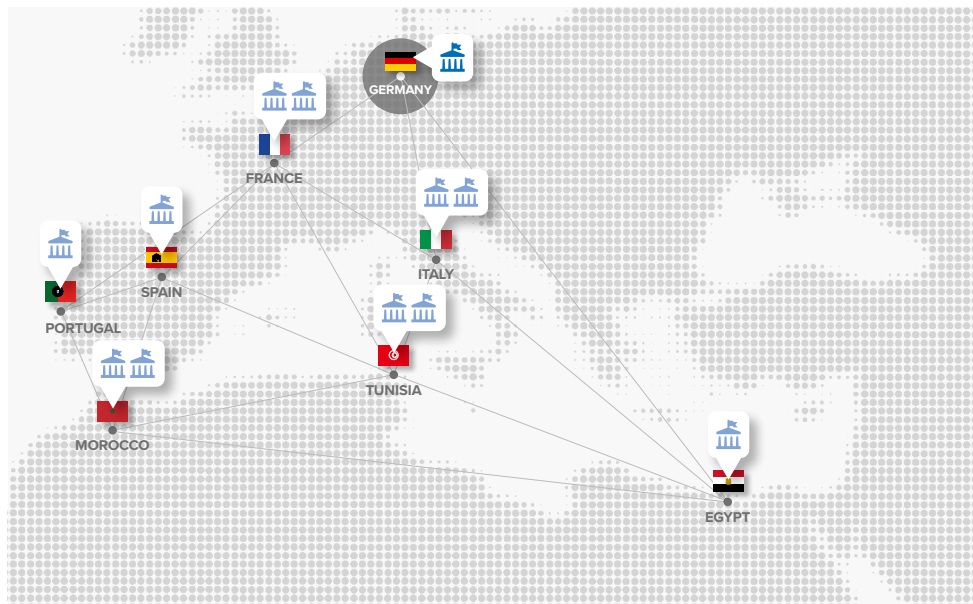
In the Mediterranean, freshwater availability is put under increasing pressure by global warming, land use changes, and water abstraction. Moreover, deteriorating water and soil quality put agricultural productivity and safe water supply for the population at further risk and urgently demand sustainable solutions.

Objective and contents

PureCircles wants to realize such solutions at four Mediterranean study sites (2 in Europe and 2 in the Maghreb) by integrating water technology with agrotechnical setups and management strategies. For the first time, we will demonstrate the power and effectiveness of a combination of agrophotovoltaics, hydroponics, smart irrigation and innovative water storage and treatment technology, all of which are intelligently linked and regulated through Artificial Intelligence (AI). Sophisticated, but robust technology (e.g., flexible greenhouse photovoltaics (PV), water-harvesting field PV-arrays, energy-efficient RO/NF treatment, AI-assisted farm management) will meet nature-based and sustainable water treatment solutions (hydroponics, microbial bioremediation) and shall be assembled and activated dependent on need and framing conditions (financial resources, availability and quality of water, crop choice, weather forecast, etc.).

The work plan proposed will provide and validate concepts and tools to buffer water availability between extreme weather events, reduce the net water extraction, unburden natural water bodies from nitrates, pesticides, salts and other pollutants, and at the same time, advance agroecological production sustainability.

Our multidisciplinary consortium of academic, management and industry partners brings together long-standing scientific expertise and broad experience from other projects. Building up on this and being reinforced by a reliable network of stakeholders, we want to develop site-specific solutions that are sustainable beyond the project duration. For this, all study sites will adopt the "Living Lab" approach, which is crucial for stakeholder-centered innovation, co-creation, sustainable implementation and long-lasting success beyond project duration. We will encourage entrepreneurial



Other in Consortium/ 11

British University in Egypt (BUE) - EG

INRAE - Institut National pour la Recherche en Agriculture, Alimentation et Environnement - FR

Solar Cloth System - FR

Consiglio Nazionale delle Ricerche, Istituto di Studi sui Sistemi Intelligenti per l'Automazione (CNR-ISSIA) - IT

Università degli Studi di Salerno, Dipartimento di Chimica e Biologia "Adolfo Zambelli" (UNISA-DCB) - IT

Institute of Agronomy and Veterinary Medicine Hassan II (IAV) - MA

Université Hassan I (UH1) - MA

INEGI - Institute of Science and Innovation in Mechanical and Industrial Engineering - PT

Algodonera del Sur SA (ALGOSUR) - ES

Centre de Biotechnologie de Borj Cédria (CBBC) - TN

Institut Supérieur des Beaux-Arts de Tunis (ISBAT) - TN

spirit and establish co-creation spaces (virtual and real ones) to motivate all stakeholders to get involved actively. Special emphasis will be put on the integration of the young generation and local women, which will be aided by our existing connections to women entrepreneurial initiatives in the Maghreb region and innovation networks in Europe.

To aid widespread implementation, technical developments and tailoring will be discussed and optimized together with our expert stakeholders. Moreover, all solutions developed (and their systemic combinations) will be evaluated by life cycle (LCA) and sustainability analyses, as well as with regard to socioeconomic implications and cost-benefit ratios. Finally, modelling and decision support tools for the catchment areas of our study sites will be developed to validate the envisaged effects of the PureCircles concept with regard to water pollution, salinization, and availability.

Expected impacts and results

Our study sites and technical solutions shall become reference sites for the Mediterranean region and respective KPI, recommendations and best practice examples widely adopted by farmer cooperatives and regulating-authorities on municipal, regional and national level to leverage the great potential of the concept proposed. As reliable partners for political and societal stakeholders we will support the implementation of National and European Action plans and pave the way for a more sustainable and competitive agriculture in marginal Mediterranean regions.

Keywords

[#renewable_energies](#)

[#IWRM](#)

[#circular_economies](#)

[#climate_adaptation](#)

[#soil_remediation](#)



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1.400.950 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi di Perugia, Dipartimento di Scienze Agrarie, Alimentari ed Ambientali (UNIPG)



A.D. 1308
unipg
UNIVERSITÀ DEGLI STUDI
DI PERUGIA

Scientific Coordinator:
FARNESELLI, Michela

Participating States/ 7



Research Units/ 7



Section 2

Safe-H2O-Farm

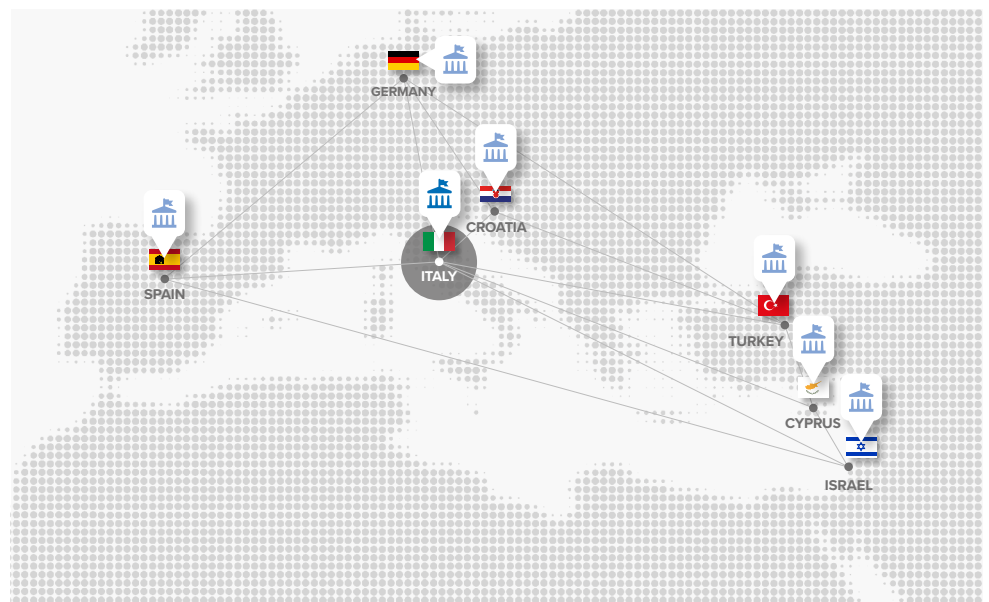
Innovative farm strategies that integrate sustainable N fertilization, water management and pest control to reduce water and soil pollution and salinization in the Mediterranean.

Context

Intensive agricultural production utilizes large amounts of chemical input such as nitrogen and pesticides that are applied to the crop or soil to secure high crop yields. Mismanagement of these inputs in combination with excessive irrigation poses high risks of water and soil pollution in the Mediterranean regions where the agri-food activities represent two of the most important economic sectors. Within these agri-food chains, tomato (*Solanum Lycopersicon L*) and olive (*Olea europaea L.*) represent the most widespread species cultivated in the Mediterranean.

Objective and contents

The project aims to propose innovative farm management strategies able to prevent and reduce nitrate, pesticide environmental pollution and salinization related to agricultural practices, with an approach that will consider the management of the main chemical inputs involved in the agricultural production and their interaction with the irrigation management. The project will focus on two of the most widespread crops in the Mediterranean basin as tomato within vegetable crops (grown in open field and greenhouse conditions) and olive for fruit tree crops. The specific objectives are: 1) Improvement of N fertilization management with different N sources (organic and/or mineral fertilizers, green manuring, biostimulants), doses and crop N monitoring tools (optical sensors, quick tests) to increase crop N use efficiency while reducing N leaching; 2) Reduction of the use of pesticides (herbicides and copper to control plant diseases) to avoid or minimize the risk of water and soil pollution by chemical inputs; 3) Improvement of combined irrigation and salinity management strategies to reduce N leaching, pesticides movement with the soil water, and salinization of soil and water bodies; 4) Scaling of optimal N fertilizer, pesticide and irrigation management across the different soil-climate situations in Mediterranean countries using agro-ecosystem modeling; 5) Socio-economic evaluations to assess the cost and benefit of the innovative proposed management strategies. Field trials, pot/greenhouse experiments and on farm-fields will be set in different countries of the Mediterranean basin to achieve the objectives described above.



Other in Consortium/ 6

Institute for Adriatic Crops and Karst Reclamation (KRS) - HR

The Cyprus Institute (CYI) - CY

Leibniz Centre for Agricultural Landscape Research (ZALF) - DE

Agricultural Research Organization - Volcani Center (ARO) - IL

Universidad de Almería (UAL) - ES

Akdeniz Üniversitesi - TR

Expected impacts and results

The effects of the proposed agricultural strategies on the reduction of pollution in soil and water (soil solution and groundwater bodies) and salinization will be evaluated through a multidisciplinary approach thanks to the several experts involved in the partnership (agronomists, hydrologists, plant physiologists, plant pathologists, geoecologists, chemists, economists) that will work in seven different countries around the Mediterranean basin. The ambition of our project is to combine these approaches to offer an integrated panel of agricultural practices that will consider all these aspects (salinity, N leaching, pesticides) and that can be easily transferred to farmers. Moreover, the outputs from this proposal will be integrated with results from previous national and international research activities linked to this project and carried out in the same environments to improve the parameterisation of agroecosystem models and to better evaluate socio-economic effects. In such a way, these results may be extended to a wider environment or to future changed climatic conditions. Indices and/or ranges for soil and water chemical parameters will be carried out for stakeholder uses. The project will contribute to developing sustainable agricultural practices for food systems according to “Farm to fork” strategies. The proposed N management strategies will allow respecting the European Nitrate Directive. With the proposed agricultural technologies Safe-H2O-Farm aims to contribute to improved surface water quality (reduction in Biochemical Oxygen demand) and reduced nitrate leaching to groundwater. We also aim to contribute to SDG6.3, especially Indicator 6.3.2 and to SDG 6.4, Indicator 6.4.1. The expected results will reach TRLs ranging from 3 to 7.

Keywords

#agroecosystem_modelling

#biostimulant

#copper

#decision-support_system

#herbicides

#Irrigation

#nitrogen

#olive

#pollutans

#salinity

#tomato



Irrigation management and interaction with the main chemical inputs in intensive tomato and olive production.



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1.357.183 €



Duration

36 months



State and Coordinator Entity

TUNISIA

Centre Biotechnologie de Sfax (CBS)

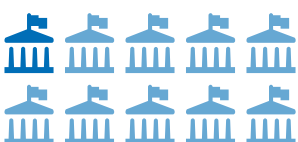


Scientific Coordinator:
ROUIS, Souad

Participating States/ 7



Research Units/ 10



Section 2

SAFWA

Alternative biopesticides for safe integrated pest and water management around mediterranean

Context

In all modern agricultural crops, the improvement of vegetable production of economic interest is based mainly on the control of pests and vectors of diseases. Pesticides application involves the use of chemicals with insecticidal, fungicidal, bactericidal properties. However, the expansion of their field application has created serious problems impacting human health and animals. In addition, excessive use of pesticides can leach into soils and water leading to land as well as groundwater pollution and wider biodiversity losses. Some of these products currently used to control pests are extremely toxic in inducing serious human diseases, such as cancer and immune and nervous system disorders. Current use of plant protection products in conventional and/or organic farming systems should be reconsidered taking in account their side effect on environment, non-target organisms, animal and human health. Such potential risk can be reduced through development, testing and demonstrating of approaches based on products safe for environment and life.

Objective and contents

This project aims to release to the market an innovative solution combining a new competitive biopesticide to cultural trainings aiming to reduce land and water pollution through new agricultural practices. SAFWA specific challenges are to meet the requirement of the EU regulation regarding the registration of safe biopesticides and to provide an environment in which agriculture production contributes to reduce the pollution of the water and the land. The main goal of SAFWA is to market a new alternative intended to minimize the risk associated with the use of pesticides. Biopesticides, based on two sporulating (BLB1, LIP) and one non sporulating (S22) *Bacillus thuringiensis* strains, will be used in the field assays to treat olive, citrus and pomegranate trees as well as tomato to protect these different cultures against five pest species. SAFWA will build on the ongoing European project IPM-4-Citrus achievements both at technological and market assessment levels to drive new cultural practices to farmers in 3 experimental farms around the Mediterranean.



Other in Consortium/ 9

Centre Technique des Agrumes (CTA) - TN

Laboratoire MédiS -TN

Toulouse Biotechnology Institute (TBI) - FR

Julius Kühn-Institut (JKI) - DE

Università degli Studi di Scienze Gastronomiche di Pollenzo (UNISG) - IT

Université Saint-Joseph de Beyrouth, Faculté des sciences (USJ) - LB

Universitat de València, Institute of Biotechnology and Biomedicine (UV-BIOTECMED) - ES

IRTA - Institute of Agrifood Research and Technology (IRTA Ampostà) - ES

Biyans Biological Products R&D -TR

Expected impacts and results

SAFWA will provide to:

- ensure land and water sustainability through eco-friendly integrated pest management;
- implement alternative approaches to the current ones that negatively affect the quality and the safety of water and land around the Mediterranean;
- introduce an alternative approach: Integrated Pest Management (IPM) to overcome the negative effects of pesticides use on Human Health and Environment;
- raise the farmer's knowledge on agro-ecology and on alternative pest management on the urgent need to trust and rely on the novel, more durable and sustainable integrated health approach that will be developed, tested and demonstrated in the framework of the project activities.

Keywords

[#rEnvironment](#)

[#sustainability](#)

[#Water_safety](#)

[#farming](#)

[#agriculture](#)

[#behavioral_sciences](#)



Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1.131.730 €



Duration

36 months



State and Coordinator Entity

ITALY

Centro Siciliano di Fisica Nucleare e di Struttura della Materia

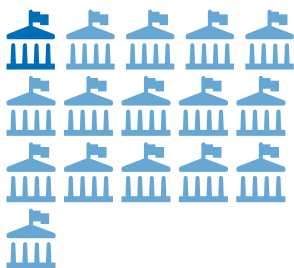


Scientific Coordinator:
TRICOMI, Alessia Rita

Participating States/ 6



Research Units/ 16



Section 2

SWRIPS

Sustainable Wastewater Re-use with Innovative Purification and Sensing system for the agrifood supply chain

Context

The problem of scarcity of freshwater and of excessive salinization of the soil and contamination of aquifers, is particularly critical in the Mediterranean areas.

Objective and contents

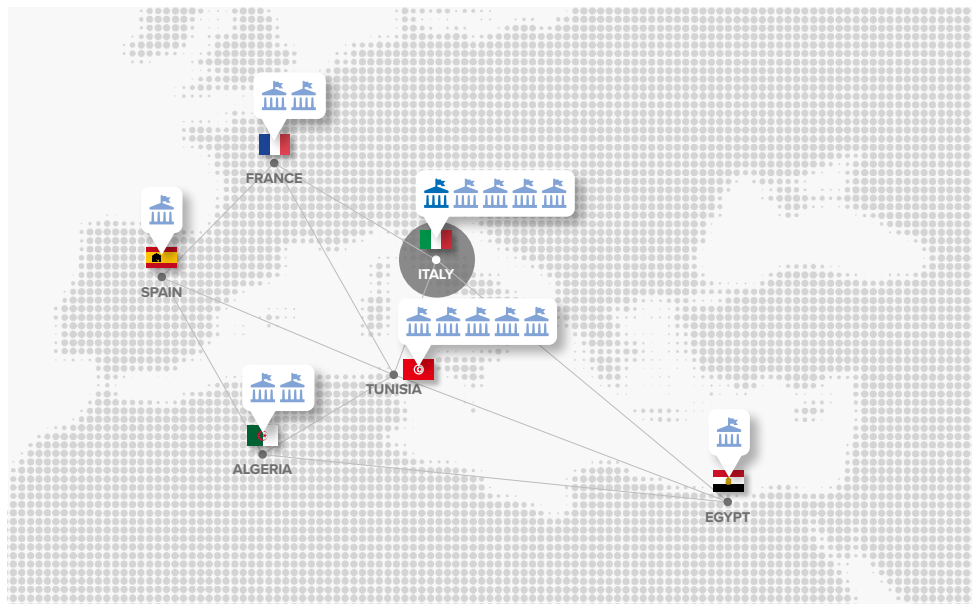
The overall objective of SWRIPS project is to increase the efficiency, sustainability and competitiveness of the water usage in the agri-food supply chain (SC) in the EU-Med area under a circular economy approach aimed to saving water and minimize the external use of resources, avoiding further contamination of land and water. It aims to recover the wastewater produced in the agri-food processing and to reuse the purified water for fertigation purpose while at the same time recovering the substances produced in the process as a matrix for fertilizer, thus putting in place a virtuous cycle that reduces the overall consumption of freshwater, guarantees water availability to farmers, reduce soil drying out and the overall amount of additional fertilizers, is cost effective both for agri-food industries and farmers and, finally, is environmental and human-health friendly.

SWRIPS will achieve it by implementing a circular economy and management system based on a Life Cycle Assessment: the environmental impact would be considered along the entire production chain, from the cultivation to the food processing and end-of-life water cycle.

Expected impacts and results

SWRIPS aims to demonstrate the possibility to

- reduce the need of external fertilizers and therefore the presence of nitrates, phosphates, sulphates etc. through the re-use of water and excess sludge produced in the purification process;
- provide, thanks to an innovative integrated monitoring system, a continuous control of the quality of purified water, also guaranteeing the possibility of early warning in case of excessive pollutant levels (organic components, pesticides, metals) in any of



Other in Consortium/ 15

Università di Catania, Dipartimento di Fisica e Astronomia "Ettore Majorana" (UNICT-DFA) - IT

Consiglio Nazionale delle Ricerche, Istituto per la Microelettronica e Microsistemi (CNR-IMM) - IT

Università degli Studi di Palermo, Dipartimento di Ingegneria Idraulica ed Applicazioni Ambientali (UNIPA) - IT

Agrumaria Corleone spa - IT

Université Akli Mohand Oulhadj de Bouira - DZ

École Nationale Supérieure Agronomique d'Alger (ENSA) - DZ

Genetic Engineering and Biotechnology Research Institute (SRTACITY-GEBRI) - EG

École Nationale Supérieure de Chimie de Rennes (ENSCR) - FR

Institut européen des membranes del Montpellier (IEM-UM) - FR

Universitat de València (UV) - ES

Université de Tunis El Manar (UTM) - TN

Institut National de la Recherche en Génie Rural, Eaux et Forêts (INRGREF) - TN

Centre des Recherches et des Technologies des Eaux (CERTE) - TN

Groupement des Industries de Conserves Alimentaires (GICA) - TN

Société des conserves modernes du Cap Bon (COMOCAP) - TN

the purification phases;

- control, through microbiology and chemical-physical analyses, all the relevant water, soil and crop parameters involved in the process to define fertiliser application better tailored to crop needs, soil conditions, and the agroecosystem's nitrogen cycle;

- develop a flexible and cost-effective system that allows an optimized use based on crop seasonality and characteristics of the water to be treated, typical of the agri-food industry under study.

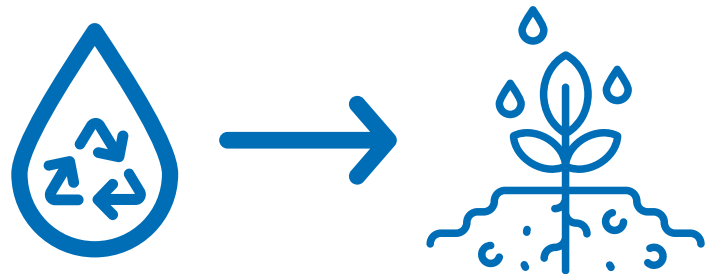
SWRIPS identifies 3 fundamental innovative technical elements:

-an innovative multi-stage purification system based on aerobic granular biomass and nanocomposite and photocatalyst based filters to remove pollutants;

-an integrated test system for continuous monitoring of the physical and micro-bio-chemical parameters of the purified water, consisting of a compact solid-state UV spectroscopy apparatus and visible sensing system for early warning;

-the usage of innovative deep-learning algorithms to optimize the whole water/crop cycle and reduce water footprint and environmental impact on water basins, soil and crop itself.

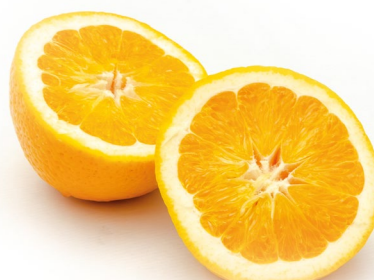
SWRIPS foresees a very strong consortium combining expertise in the development and set-up of innovative wastewater treatment and sensors with those of control software development and advanced optimization algorithms. SWRIPS partners have documented experience in quality water and fertilization crop control. These experiences are complemented by the technical-engineering ones on water distribution. An added value for SWRIPS is the presence of the end-users of the process: agricultural consortia and agri-food industries. This will allow not only to test the system in the laboratory and through software models but also to test its functionality in the field, in different operating and environmental conditions



Recovery and reuse of waste water from agri-food processing for fertigation



Oil industry in Algeria



Citrus derivatives for the food industry and fragrances in Sicily



Tomato canning industry in Tunisia

Thematic Area

Water Management



Action and Topic

Topic 2.1.1-2022 (RIA) Prevent and reduce land and water salinization and pollution due to agri-food activities



Budget

1,520,000 €



Duration

36 months



State and Coordinator Entity

SPAGNA

Consejo Superior de Investigaciones Científicas, Centre of Edafology and Applied Biology of Segura (CSIC-CEBAS)



Scientific Coordinator:
GARCIA SANCHEZ, Francisco

Participating States/ 4



Research Units/ 5



Section 2

TeleNitro

New low cost strategies of crop based on biodiversity and remote sensing to reduce the application of nitrogen fertilizers in the Mediterranean area

Context

Fertilization is an essential practice to obtain the maximum production and quality of the crop harvest. However, the excessive use of nitrogenous fertilizers produces environmental problems related to the accumulation of nitrates in the soil and in the environment, mainly in lagoons, seas, oceans, etc., which trigger a series of problems that affect different society sectors. Mediterranean basin countries such as Spain, Italy, Morocco, and Tunisia have vulnerable areas in terms of the accumulation of nitrates in the environment, so there is a need to develop cultivation strategies that minimize the damage of nitrates in the environment by reducing the amount of nitrogen fertilizers applied on farms. Therefore, the objective of TeleNitro is to reduce nitrogen fertilizer in the crops by the design of a new cultivation strategy to reduce the contribution of nitrogenous fertilizers through the use of plants and/or botanical extracts with the capacity to slow down the transformation of ammonium into nitrate. Plants absorb and assimilate ammonium more effectively than nitrate, and in the environment ammonium pollutes less than nitrate.

Objective and contents

The main objective of TeleNitro is to create a low-cost and convenient agronomic strategy to reduce nitrogen fertilizers in agriculture systems (small or large farms) to limit the amount of nitrates that reach the soil and minimize their leaching into water bodies, without affecting the production and quality of the crops.

To achieve this objective, the following specific objectives are proposed:

- to gain understanding on spatial and temporal distribution of nitrates in agricultural systems and the nutritional requirements of different varieties of crops;
- to calibrate and validate nitrate monitoring technology in agricultural systems;
- plant selection with natural nitrification inhibitors;
- introduction and validation of NI use in crops;
- development of a decision support system (DSS) to help farmers manage crop fertilization in a sustainable way.



Other in Consortium/ 4

Consiglio Nazionale delle Ricerche,
Istituto di Bioscienze E Biorisorse
(CNR-IBBR) - IT

Université Mohammed V de Rabat
(UM5) - MA

Universidad Miguel Hernández de
Elche (UMH) - ES

Higher institute of the Sciences
and Techniques of Waters of
Gabès (ISSTEG) - TN

- useful life cycle analysis and economic study.

The methodology and technology used in this project will include biodiversity such as will be used plants and exudates with NI activity, and, TIC to monitor the nitrate in plants, soil, and water.

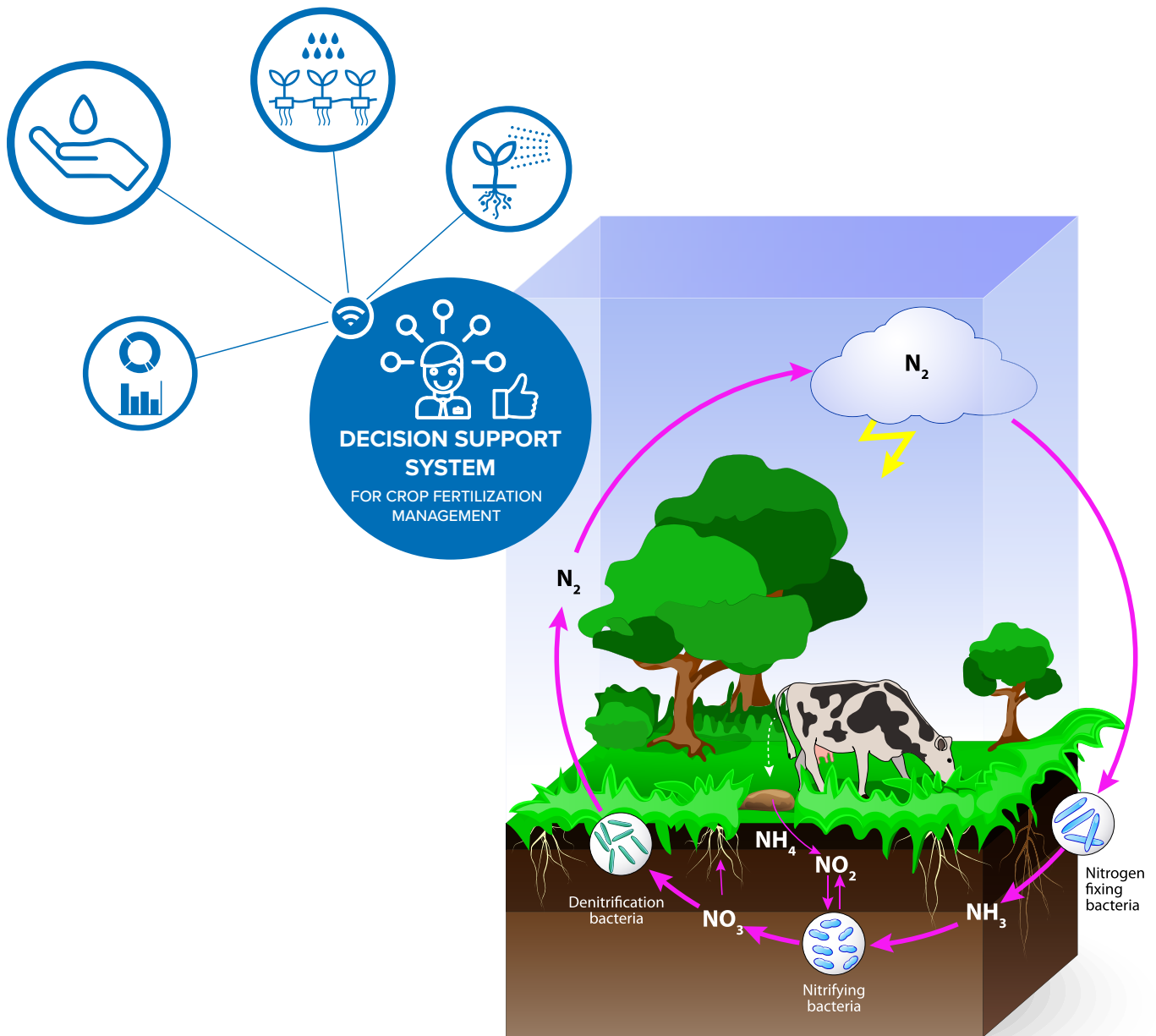
Expected impacts and results

Reduction of surface and ground water contamination by decreasing the use of nitrogen fertilizers in 30% to 50% in agricultural practices upscaling results from the farm to the whole water basin area such as quaternaries aquifers, lakes and the Mediterranean Sea of Spain, Italy, Tunisia and Morocco, considered Vulnerable Zones under the Nitrate Directive of the European Union.

Development of a site-specific solution to reduce nitrate leaching under specific Mediterranean soil conditions. Thus, nitrification biological inhibitors will boost biodiversity by decreasing the amount of nitrogen fertilizers applied to horticultural crops, increasing the efficiency of nitrogen fertilizers, and slowing down nitrification with plant-based natural solutions secreted by the roots.

Natural reduction of nitrogen fertilizers in horticultural will help restore polluted soils and water bodies without stopping the agricultural activity.

Development and on-site use of innovative and environmental-friendly technical solutions, such as NBI plants and natural products, will help naturally restore damaged soils and water bodies, due to a decrease in the input of nitrate fertilization.



Thematic Area

Farming Systems



Action and Topic

Topic 2.2.1-2022 (RIA) Improving the sustainability of agro-pastoralism in the Mediterranean Region under the context of climate change



Budget

1.286.883 €



Duration

36 months



State and Coordinator Entity

FRANCE

Institut de l'Élevage,
Département Qualité des
produits, bien-être et santé
(IDELE-QAPS)



INSTITUT DE
L'ÉLEVAGE **idele**

Scientific Coordinator:
ABDENNEBI-NAJAR, Latifa

Participating States/ 6



Research Units/ 13



Section 2

MEDGOAT

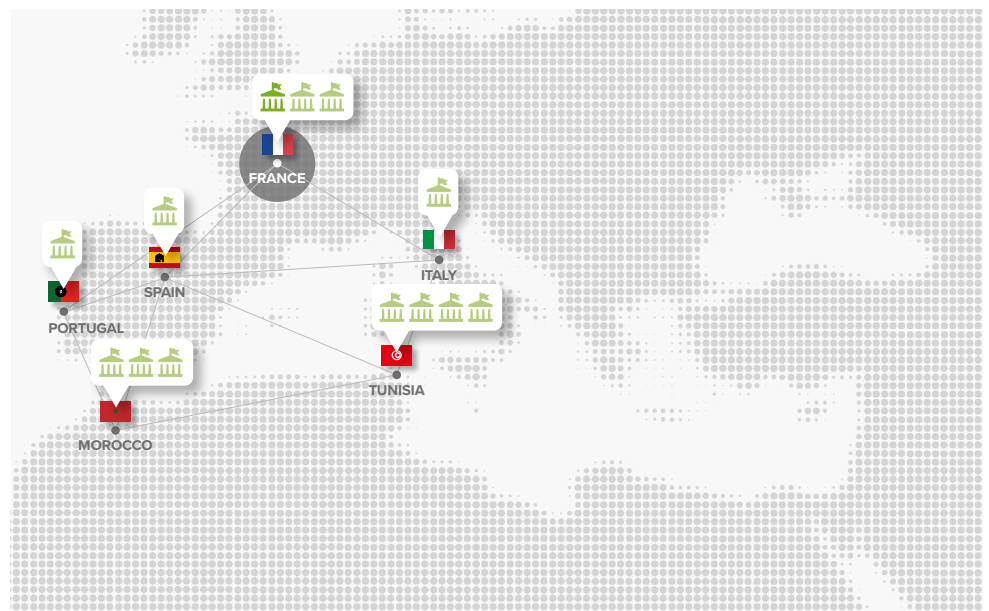
Goat farming systems characterization and novel strategies to sustain production in the changing climate scenario in the Mediterranean regions

Context

The Mediterranean basin has been facing the challenge of increasing temperatures and drought due to climate change for several years. This situation threatens the availability of feed resources, the sustainability of grazing livestock and the livelihood of rural communities, particularly those living in marginal rural areas. Given the economic importance of livestock in the Mediterranean, if these effects persist as predicted by the IPCC scenarios (<https://www.ipcc.ch/report/ar6/wg1/>), they will disrupt food security in this area and jeopardize small-scale traditional livestock systems that do not have the basic infrastructure necessary for efficient livestock management, nor the early warning systems to address the problem well in advance. According to recent studies, the goat has been shown to provide the solution to face these environmental challenges in the Mediterranean. It is evident that the goat, is ideal due to its resilience and high tolerance to heat and drought, its ability to survive on poor pastures and its high resistance to diseases, thus providing a source of animal proteins (meat and milk) to reduce human malnutrition in marginal areas where other livestock systems are not feasible, and to face climate changes and support agro-pastoral society. In addition, there are advantages associated with consuming goat meat and milk (low-fat content, healthy fatty acids profile, better tolerance and digestibility), so it could be part of the solution to reduce metabolic diseases.

Objective and contents

Based on these findings, the objectives of the MEDGOAT project are to support viable agro-pastoral agriculture and rational use of agro-pastoral lands by a) strengthening the knowledge of local goat breeds for their climate resilience and promoting the use of these specific breeds in the Mediterranean region b) assessing the potential of local goat breeds, in a perspective of potentiating biodiversity, exploiting their resistance to the effects of climate change, and improving animal management systems (especially feeding practices) to face climate challenges and reduce the water footprint of goat farming, in a circular bioeconomy approach. c) evaluating the impact of the contribution of non-conventional feed resources (e.g., cactus, olive and date



Other in Consortium/ 12

INRAE - Institut National pour la Recherche en Agriculture, Alimentation et Environnement, UMR Herbivores Theix - FR

Institut National de la Santé et de la Recherche Médicale (INSERM) - FR

Università degli Studi di Milano, Dipartimento di Medicina Veterinaria e Scienze Animali (UNIMI) - IT

Association Nationale Ovine et Caprine (ANOC) - MA

Université Ibn Tofail, Faculté des Sciences, Biologie Department - Kénitra (UIT) - MA

Institute of Agronomy and Veterinary Medicine Hassan II (IAV) - MA

Universidade do Porto, Faculdade de Farmácia (UP) - PT

Instituto de Ganadería de Montaña (IGM - CSIC ULE) - ES

INRAT - Institut National de la Recherche Agronomique de Tunisie - TN

Boudjebel SA VACPA (Valorisation et Conditionnement du Produit Agricole) - TN

Centre de Biotechnologie de Borj Cedria, Laboratoires des Plantes Aromatiques et Médicinales (CBBC-LPAM) - TN

Office de l'Élevage et des Pâturages (OEP) - TN

co-products), non-protein nitrogen sources (e.g., urea and nitrate) and local plants that can be valorized on both the environmental impact of farming systems and the productivity of the goat and its health. The trials will also make it possible to characterize the quality of milk and meat and develop innovations for their storage. MEDGOAT implements an interconnected multidisciplinary approach that brings together academic and non-academic actors, including breeders and industrialists (13 partners), from six countries (France, Italy, Portugal, Spain, Tunisia and Morocco) and that covers several disciplines: breeding, nutrition, animal and human health, animal welfare, sociology and economics. With the technical support of one of the world's leading goat experts (ICAR-National Institute of Animal Nutrition and Physiology in Bangalore, India), this project will involve a technological and organizational model of multi-stakeholder collaboration for sustainable goat production to ensure food security and sustainability in the Mediterranean regions. MEDGOAT responds to FAO recommendations by aiming to ensure the livelihood security of farmers in rural areas, especially women, the primary holders of small ruminants in the Mediterranean regions.

Expected impacts and results

MEDGOAT will provide to:

- improve of the economic, social and environmental conditions of agro-pastoral farming and livelihoods;
- preserve and rehabilitate pastoral ecosystems, including animal and plant biodiversity, rangeland recovery and landscape management;
- enhance the quality, typicity, diversity, value-adding and related value chains for traditional pastoral products;
- support generational renewal of agro-pastoral farming through the involvement of women, youth and newcomers.



Thematic Area

Farming Systems



Action and Topic

Topic 2.2.1-2022 (RIA) Improving the sustainability of agro-pastoralism in the Mediterranean Region under the context of climate change



Budget

1.682.185 €



Duration

36 months



State and Coordinator Entity

PORTUGAL

Instituto Politécnico de Bragança, Centro de Investigação de Montanha (CIMO-IPB)



Centro de Investigação de Montanha

Scientific Coordinator:
CADAVEZ, Vasco

Participating States/ 8



Research Units/ 11



Section 2

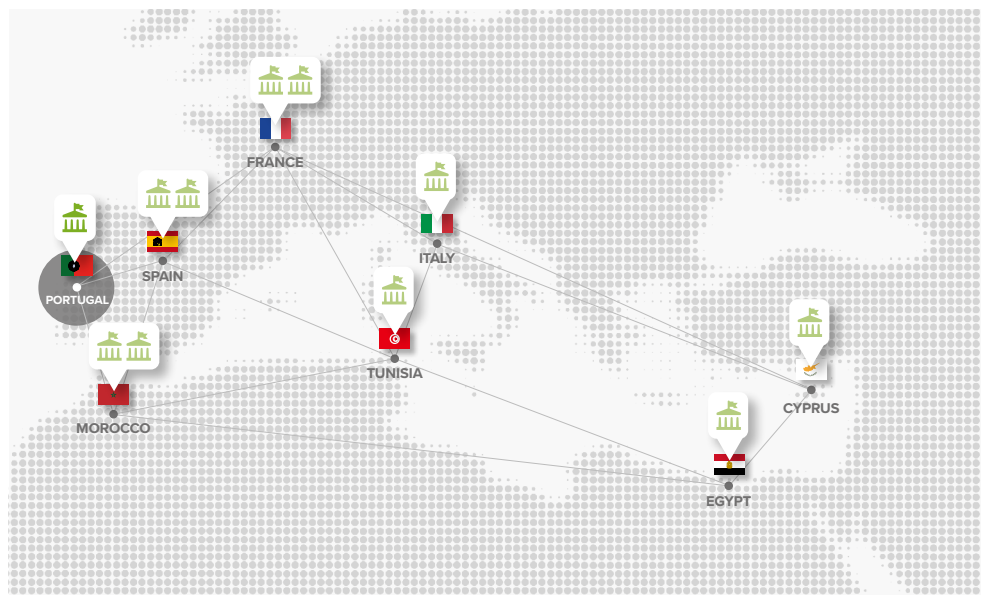
PAS-AGRO-PAS

The Making of Fragile Agro-ecosystems Productive, Adaptive and Sustainable: Multifunctional Agro-pastoralism

Objective and contents

The objective of the PAS-AGRO-PAS project is to increase productivity, adaptiveness, sustainability and profitability of Mediterranean agro-pastoral production systems, by exploiting every dimension of their multifunctionality through a novel systemic approach that will identify stressors currently impacting on agro-pastoral systems' viability, with views to implementing tailored strategies that redirect agro-pastoralism from subsistence-oriented fragile production systems towards commercially-oriented resilient systems. To achieve this objective, PAS-AGRO-PAS will explore a representation of 10 agro-pastoral production systems from Portugal, Spain, France, Italy, Cyprus, Morocco, Egypt and Tunisia, covering a wide range of environmental, agro-ecological, economic, socio-cultural and institutional traits and challenges; and will apply a systemic approach from farm to global scale, interlinking three systems:

- (i) "agro-ecosystem", with interventions on the productivity and diversification of crops, pasture and livestock resources (such as better utilisation of crop residues, new grazing surfaces, use of biodiverse pasture seeds, including forage legumes into rotations with crops, alley cropping with barley, drought-tolerant forage and crop varieties, effective treatment of manure, matching livestock production cycle to feed resources, multi-nutrient blocks to enhance digestibility, etc.) that will be implemented, in order to ensure low input, maintenance/increase of biodiversity, enhanced soil fertility and custody for local adapted breeds – in the short term, and the rehabilitation of rangelands and the reduction of vulnerabilities to climate change – in the long term;
- (ii) "socioeconomic system", with interventions towards the valorisation of agro-pastoral products (through assurance of quality, safety and typicity, and creation of notebooks of product standards for origin/quality certification), the leveraging of the marketable "healthy" trait of food produced with environmentally friendly systems, the efficient integration into markets, and the rising of the "commercialisation mentality" of agro-pastoralists, in order to ensure economic benefits and generational renewal; and
- (iii) "information system", whereby, within a multi-actor co-creation process, the agro-pastoralists' traditional knowledge will be sourced and steadily integrated with



Other in Consortium/ 10

**Cyprus University of Technology,
ERATOSTHENES Centre of
Excellence - CY**

**Animal Production Research
Institute (APRI) - EG**

**Modélisation systémique
appliquée aux ruminants
(MoSARUMR 791 AgroParisTech,
INRAE, Université Paris-Saclay) -
FR**

**Systèmes d'élevage
méditerranéens et tropicaux
(SELMET UMR CIRADINRAE
InstitutAgro Montpellier) - FR**

**Università degli Studi di Sassari,
Dipartimento di Agraria (UNISS) -
IT**

**Institute of Agronomy and
Veterinary Medicine Hassan II
(IAV) - MA**

**Université Ibn Zohr d'Agadir (UIZ)
- MA**

**Centro Tecnológico da Carne
(CETECA) - ES**

**Instituto Tecnológico Agrario de
Castilla y León (ITACyL) - ES**

**Institut des Régions Arides,
Laboratoire d'Elevage et Faune
Sauvage (IRA) - TN**

the outputs of this project, taking advantage of the networked and cooperative digitalisation of Agriculture 4.0, in order to efficiently manage information resources and access to decision-making support e-tools.

Expected impacts and results

The successful implementation of PAS-AGRO-PAS with the expected impacts at the farm, at the regional and at the global scale will be sustained by two important pillars: (i) "capacity building activities" for agro-pastoralists on effective strategies, climate change mitigation and adaptation, quality of their products, pricing and economic profitability, commercialisation and entrepreneurship, inclusive development, with special focus on women, the youth and newcomers; and "divulgation activities" with key stakeholders and policy-makers for providing policy guidelines for more enabling structural, economic and institutional settings; and (ii) the development of the PAS-AGRO-PAS Mediterranean e-platform, which through systematised data, reports, models and web applications for resource allocation, ration formulation and feed management, optimum slaughter weight prediction, and e-commerce, will better inform evidence-based decisions for both agro-pastoralists and policy-makers.

Keywords

#Agriculture_4.0

#Agrobiodiversity

#Climate_change adaptiveness

#Commercialisation

#Crop_management

#Endangered_breeds

#Information_systems

#Landscape

#Livestock_management

#Profitability

#Valorisation



Thematic Area

Farming Systems



Action and Topic

Topic 2.2.1-2022 (RIA) Improving the sustainability of agro-pastoralism in the Mediterranean Region under the context of climate change.



Budget

939.999 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi di Firenze, Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali (UNIFI-DAGRI)



UNIVERSITÀ
DEGLI STUDI
FIRENZE

Scientific Coordinator:
PUGLIESE, Carolina

Participating States/ 4



Research Units/ 7



Section 2

SUREPASTOR

Management Strategies to Enable SUsustainable REsilient AgroPASTORalism

Objective and contents

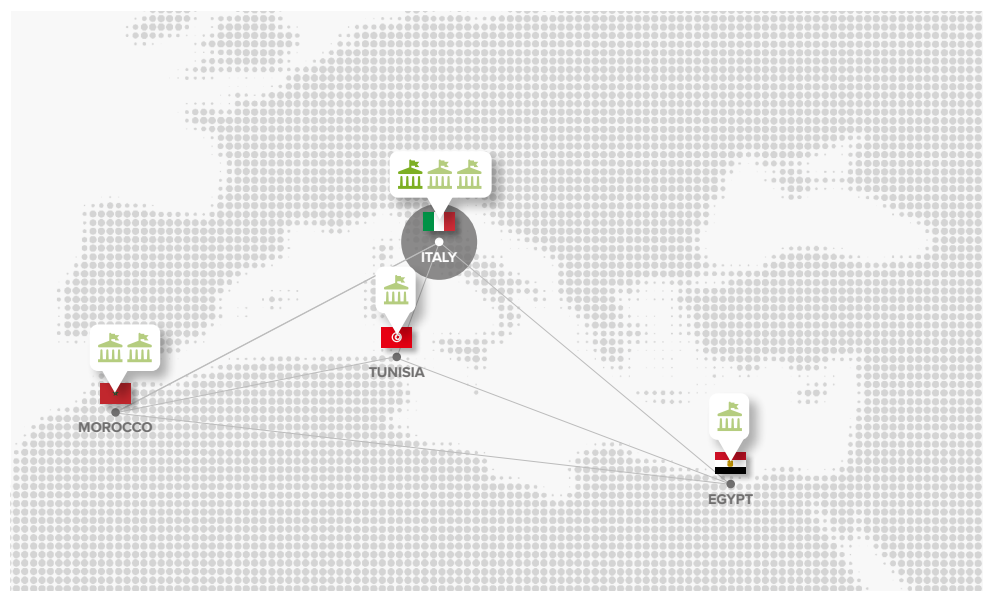
SUREPASTOR aims at increasing the resilience of the Mediterranean agro-pastoral sector, by introducing a series of innovative management approaches for sheep farming systems in areas where the sector is traditionally linked to the exploitation of marginal lands, improving its environmental, economic and social sustainability. The project will last 36 months and in the first phase the Mediterranean agro pastoral systems will be investigated, focusing on the relationships between sheep farming with traditional breeds and rangeland management.

A preliminary analysis will be carried out in 4 Mediterranean countries such as Italy, Tunisia, Morocco and Egypt to make the state of art on farm characteristics, pastoral areas, small ruminants management and performance, local trends related to climate change, and social issues. This information will be then used to identify new management strategies (e.g. best practices, new technologies, digital tools) for their improvement in terms of climate change adaptation, resilience, environmental and socio-economic sustainability, gender and youth issues, market promotion. Models of intervention and promotion will be formulated in close collaboration with the farmers with a special focus on women and younger generations needs, leveraging technology and innovative agronomic managements to enable sustainable, resilient agropastoral farming.

Expected impacts and results

A Life Cycle Assessment (LCA) will be performed to quantify the impacts of the innovations proposed on the basis of also a modelling approach to estimate pasture productivities, stocking rates while maintaining the ecosystem services.

The second phase of the project will be focuses in test and validate ad-hoc protocols based on specific needs of each case study country (at least 2 selected extensive sheep farms per each country, with a total of 10 pilot farms), leveraging on local or traditionally adapted breeds. At farm level, experimental plots will be settled so as to identify constraints, barriers and incentives to be promoted and sustained to counteract climate change and as strategies for adaptation. Best practices to increase soil fertility and Carbon stock will be implemented (relevance to Call: Proposals, building



Other in Consortium/ 6

Consiglio Nazionale delle Ricerche,
Istituto di Biometereologia (CNR-
IBIMET) - IT

Kontor 46 sas - IT

Desert Research Center (DRC) - EG

Institute of Agronomy and
Veterinary Medicine Hassan II
(IAV) - MA

Université Hassan I (UH1) - MA

École Supérieure d'Agriculture de
Mograne (ESAMograne) - TN

on good pastoral practices in the Mediterranean Area, should promote an enabling environment for viable agro-pastoral farming and rational use of rangelands: land, water and biodiversity management (including local animal breeds), Carbon, Nitrogen and overall GHG footprint.

The possibility of exploiting innovative technologies of Precision Livestock Farming Technologies will be also tested and evaluated.

Animal performance will be also analysed in terms of animal intake, forage digestibility, milk yield and its composition, and average daily gain. Moreover, meat production and quality will be analysed, taking into consideration the physical and chemical characteristics of the product of the supply chain (relevance to Call: Proposals should also consider products' quality in terms of consumers' health and safety, provision of socio-ecosystem services, questions of social, gender and generational dynamics). The project will analyse the entire value chain to identify feasible and effective strategies, to promote and exploit traditional pastoral products in the Mediterranean market.

Social Life Cycle Assessment (S-LCA) will also be performed to analyse the socio-economic consequences of the proposed strategies in the different sheep farming systems along their life cycle, in order to assess the environmental and socio-economic performance of the best practices identified in the project and to highlight eco-innovative solutions that will support an effective transition to a more sustainable Med agro-pastoral system.

Demo sites/case studies

10

extensive sheep farms
(at least 2 for each country)



SUREPASTOR investigates the sustainability of Mediterranean agro-pastoral systems and the relationship between pastoralism with traditional breeds and pasture management through:

- ✓ Life Cycle Assessment (LCA) to quantify the impacts of proposed innovations and estimate productivity, load rates and maintenance of ecosystem services;
- ✓ Social Life Cycle Assessment (S-LCA) to analyze the socio-economic consequences of the proposed strategies.



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

487.430 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi di Bari Aldo Moro, Dipartimento di Scienze biomediche e oncologia umana (UNIBA)



Scientific Coordinator:
PORTINCASA, Piero

Participating States/ 4



Research Units/ 5



Section 2

B4HT

Box for Health by Tradition & Innovation: promoting sustainable mediterranean diet by Healthy Foods

Context

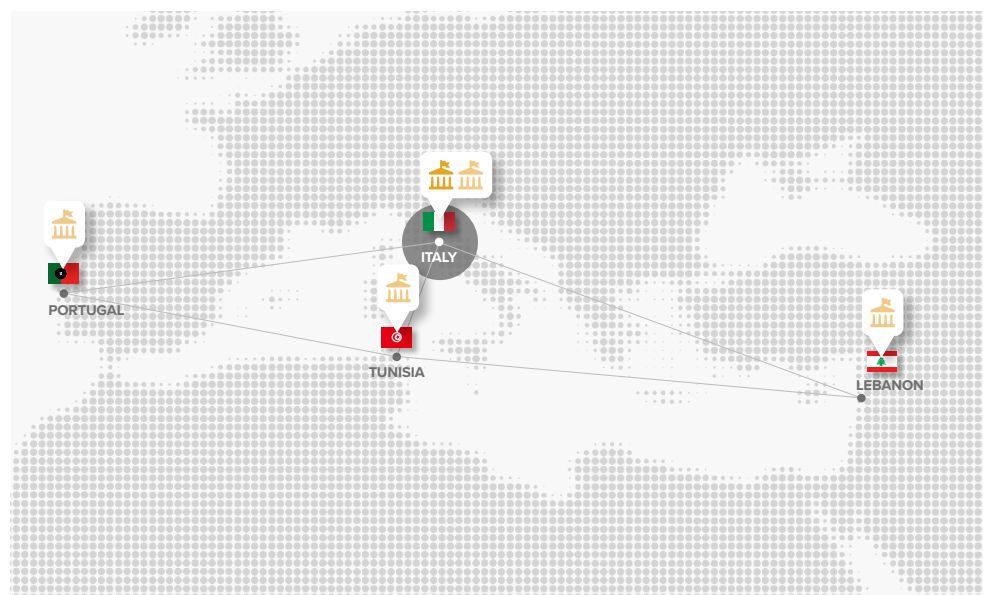
Recently a syndemic combination hit dramatically the populations worldwide. The COVID-19 pandemic has developed on top of the chronic metabolically-related non-communicable pandemic (obesity, cardiovascular diseases). During lockdowns and social restrictions, the health status of people has deteriorated by increasing diagnostic delay, cardiometabolic risk and tumorigenesis. This has underlined the urgency of ensuring access to affordable healthy diets and lifestyles.

The Mediterranean Diet (MD) is a dietary pattern rooted in the cuisine of Mediterranean countries such those involved in the proposal (Italy, Portugal, Lebanon, and Tunisia). The MD not only refers to eating habits, but it is a cultural model involving the way through which foods are selected, produced, processed, distributed, and UNESCO recognised the MD as an “Intangible Cultural Heritage of Humanity”. Association of MD with reduced appearance of metabolic and neurodegenerative diseases and cancers, and its low environmental impact were established. The MD foods promoting health include local and traditional vegetables, legumes, nuts, fruits, olive oil and seafood.

In the Mediterranean basin, two dietary/health problems exist: (i) the high prevalence of risk of non-communicable disorders co-exist with some macro- and micronutrient deficiencies; (ii) individual choices influence food security and the population's health and nutrition (climate change, ecosystem health, environment sustainability). The modern lifestyle shifted dietary habits of Mediterranean regions towards highly processed takeaway (“junk”) food, containing hypercaloric, sweet, salted unhealthy ingredients, but with easy and quick access, being often arranged as a ready-to-eat box/bag. Unhealthy diets together with physical inactivity are risk factors for chronic non-communicable disorders. Tailored strategies based on a correct healthy diet and education/information are crucial to improve the quality of life.

Objective and contents

Our proposal aims to help the adoption of healthy diets and lifestyles through implementing a B4HT combining in “a Box” tangible healthy food plus the APP iFoodMed. We envision a ready-to-use meal as lunch-box, easy-to-make, easy-to-cook, easy-to-



Other in Consortium/ 4

Università di Genova,
Dipartimento di scienze della terra,
dell'ambiente e della vita (UNIGE-
DISTAV) - IT

Lebanese University (UL) - LB

Associação Protectora dos
Diabéticos de Portugal (APDP) - PT

Université de Monastir (UM) - TN

export, easy-to-find (locally), eco-friendly, culturally sound, and nutritionally adequate. Because adoption of the MD outside the Mediterranean region entails difficulties relevant to cultural differences, lifestyles, poor education, higher cost, our box could make available a healthy MD to all European citizens.

B4HT will address both healthy and metabolically-unhealthy populations. We will enrol 450 adults among the countries participating in the study (33% healthy normal-weight and 67% obese/overweight people). Through validated approaches, we will analyse the dietary pattern of both cohorts to target the best lifestyle intervention. Based on dietary habits, we will provide specific B4H not containing animal proteins in favour of low-processed and pre-assembled local, biodiverse, and sustainable plant-based products (legumes, whole cereals), added of healthy accessible and attractive Mediterranean ingredients (dried fruit and/or vegetables, spices). The box will be developed to be used in an affordable and smart way. Several combinations of ingredients will be tested/implemented to obtain boxes that meet the nutritional recommendations, but also the sensorial acceptability. B4HT will be supplied with a smart APP (iFoodMed) providing tailored information and guidelines and a link to participate in online surveys to make easier adoption of MD and lifestyles. iFoodMed will act as a "virtual nutritionist" making possible an easy access to diet and lifestyle notions.

Expected impacts and results

In both healthy and unhealthy people, we expect a better adherence to the MD resulting in health 'risk' and obesity rate reduction. The economic impact of B4HT on preventing morbidity and mortality will be calculated by specific algorithms.

Platforms/ Hubs/ Apps

1

APP iFoodMed



Keywords

#app

#dietary_shifts

#healthy_habits

#innovative_process

#lunch-box

#Mediterranean_diet

#nutrition

#traditional_foods

#sustainable_diet

#nontransmissible_and_chronic_diseases

B4HT helps the adoption of the Mediterranean diet and healthy lifestyles through:

- ✓ a lunch box that is easy to prepare, cook and export, with local products, ecological, culturally healthy and with adequate nutritional levels
- ✓ an app that provides tailored information and guidelines and will make adopting the diet easier.

Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

1.399.495 €



Duration

36 months



State and Coordinator Entity

ITALY

Consiglio Nazionale delle Ricerche, Istituto di Biologia e Biotecnologia Agraria (CNR-IBBA)



Scientific Coordinator:
DE FILIPPO, Carlotta

Participating States/ 6



Research Units/ 10



Section 2

FEED

From edible sprouts to healthy food

Context

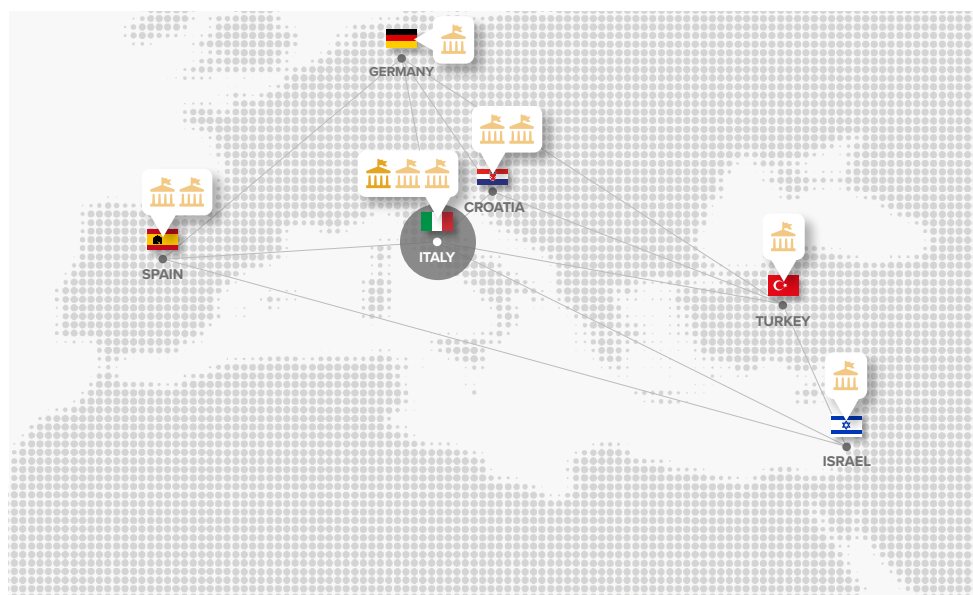
Sprouts are defined by the EU regulation 208/2013 as “the products obtained from seed germination, harvested before the development of the first leaf and fully consumed including the seed”. These vegetable foods are rich in phytonutrients, such as polyphenols, glucosinolates, isoflavones, vitamins and minerals. Compared to seeds, sprouts represent a higher source of nutrients, since the germination process reactivates metabolism, resulting in the new synthesis of secondary metabolites with potential health benefits, and in the reduction of antinutrients compounds. Depending on plant species, sprouts synthesize bioactive compounds with specific biological activities (antioxidant, antidiabetic, hypocholesterolemic, anti-obesity and anticancer), crucial to cope with chronic diseases.

Objective and contents

In this context, the objective of FEED will be to improve the development of a new trend towards the consumption of “functional foods”, using fresh or dried sprouts of different botanical origins, with particular attention to traditional, local and wild edible species. Sprouts will be characterized for their bioactive compounds, antioxidant and anti-inflammatory activities. In addition, the study of microbiota changes, associated with diets enriched with specific sprouts, will establish a relationship between diet and the inflammatory status of the cells.

Moreover, as fresh sprouts are very perishable and possess a short shelf-life, new bio-based and biodegradable active packaging will be developed by formulating antioxidants and antimicrobial sprout-derived compounds in bio-based and biodegradable edible coatings and active thermoplastic packaging, with the aim of extending the sprout shelf-life and safety.

FEED will also propose the production of new functional foods using dried sprout powder through innovative and sustainable technologies: Microencapsulation and three-dimensional (3D) food printing. Microencapsulation will be realized to produce two different traditional Turkish foods: a drinkable yogurt “Ayran” and Turkish noodles “Erişte”. 3D food printing and non-thermal innovative pre-treatments (e.g., high-power ultrasound, pulsed electric fields) will be carried out to produce snacks, juices and



Other in Consortium/ 9

Consiglio per la ricerca in agricoltura e l'analisi dell'economia agraria, Centro di Ingegneria e Trasformazioni Agroalimentari (CREA-IT) - IT

Consorzio Italbiotec - IT

University of Zagreb (UNIZG) - HR

ARGONAUTA Association for Nature and Environment Conservation and Sustainable Development of Murter - HR

Chair of Brewing and Beverage Technology, TUM School of Life Sciences, Technical University of Munich (LSE-LS-TUM) - DE

Agricultural Research Organization - Volcani Center (ARO) - IL

Consejo Superior de Investigaciones Científicas (CSIC) - ES

Instituto Tecnológico de Productos Infantiles y Ocio (AIJU) - ES

Adana Alparslan Türkes Sciences and Technology University (ATÜ) - TR

low-sugar jellies that will meet individual customer requirements in terms of colour, shape, taste, texture and nutritional value.

FEED also takes into account the environmental sustainability for the packaging of the fresh sprouts through the preparation of biodegradable edible active packaging.

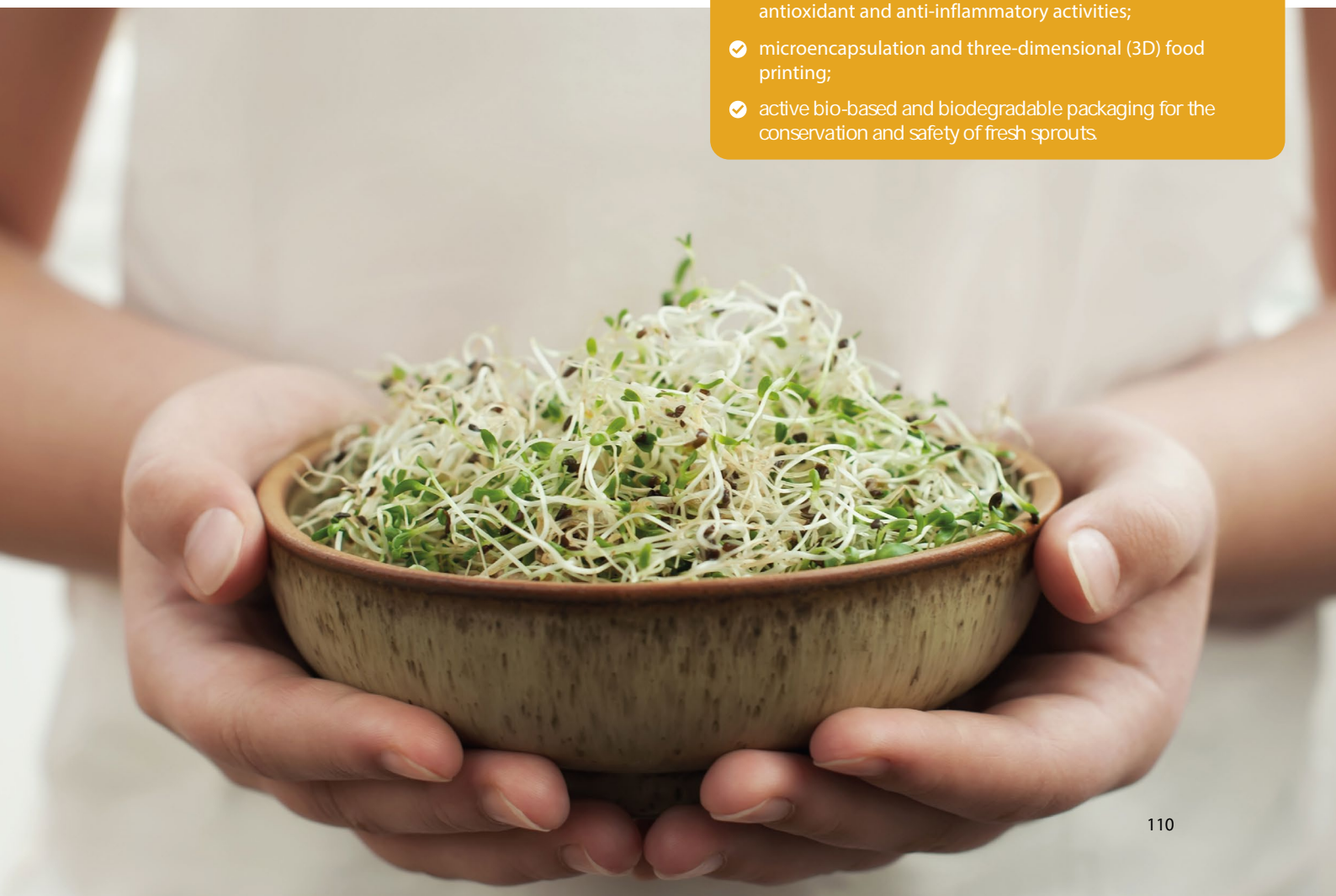
The carbon footprint analyses of the developed products will aid to assess the environmental impacts of the products by estimating the GHGs emission for the entire life cycle of the products (from cultivation to packaging). This evaluation represents a winning marketing strategy for a consumer that is more and more aware of the environmental impacts of its purchases.

Expected impacts and results

Aiming at developing new vegetable-based products active on chronic diseases (i.e., cardiovascular, inflammatory), the project will thus contribute to reducing the pressure on the healthcare systems. In this context, FEED will be addressing the SDG 3, target 3.4: "By 2030 reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being". Moreover, FEED will link to relevant EU policies and objectives in the context of the European Green Deal (Farm to fork strategy) in the action of reducing the use of pesticides, antimicrobials and excess fertilisation, since the sprout production does not involve intensive agriculture.

FEED promotes the consumption of fresh sprouts and new functional foods from dried sprouts through

- ✓ characterization of sprouts for their bioactive compounds, antioxidant and anti-inflammatory activities;
- ✓ microencapsulation and three-dimensional (3D) food printing;
- ✓ active bio-based and biodegradable packaging for the conservation and safety of fresh sprouts.



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

1.132.695,75 €



Duration

36 months



State and Coordinator Entity

SPAIN

Universidad de Cádiz, Instituto de Investigación Vitivinícola y Agroalimentaria (UCA-IVAGRO)



UCA

Universidad de Cádiz

Scientific Coordinator:
MANTELL, Casimiro

Participating States/ 7



Research Units/ 9



Section 2

Im-Pack

Technological and economic potential of the active packaging obtained by supercritical techniques for the preservation of Mediterranean fresh food

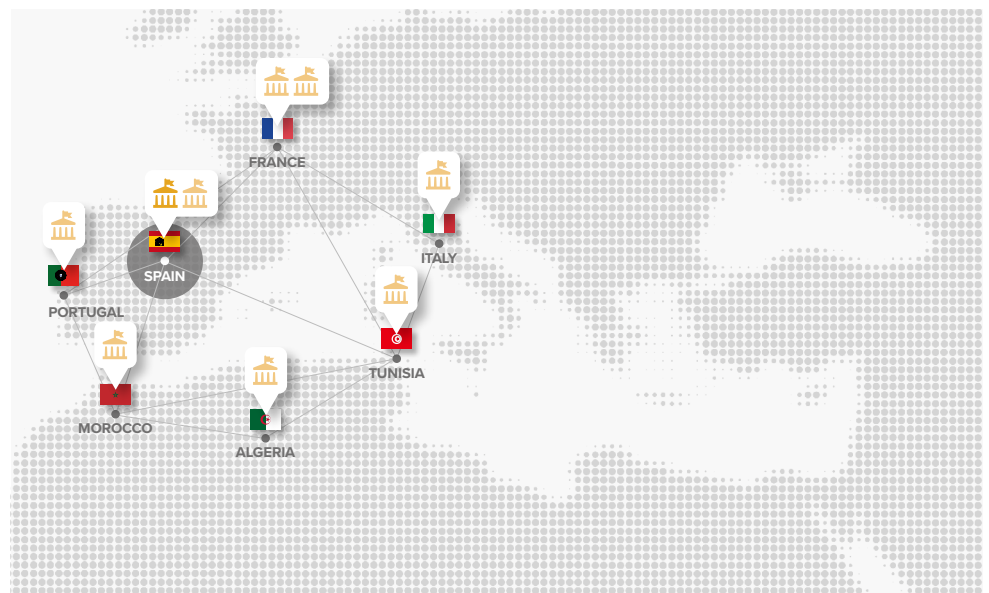
Context

This project analyses the economic impact and technological aspect related to the agri-food sector of the utilization of biodegradable active packaging in the commercialization of Mediterranean fresh products. When the objective is to reach a more extensive market with a fair price, one of the critical points in the process production is the selection of the most appropriated packaging method. In these cases, the profitability of the process is clearly affected by the shelf-life of the product. In this sense, there is a trend in the search of the named active packaging in order to increase the shelf-life of fresh products. There are different kinds of active packaging. One of the most promising alternatives is the packaging produced adding an active substance. These compounds could have different functional properties including the capacity to minimize the oxidation and microbiological degradation of fresh food during storage. The result is a significant increase in the shelf-life of the packaged food. In this project, the addition of natural extracts obtained from agricultural by-products as active substances is proposed. The result will be an increase in the added value of these wastes, thus promoting a circle economy, which increases the profitability of the overall process. By other side, the directives of EU indicate that it is necessary to replace plastic packaging with biodegradable substitutes.

Objective and contents

Im-Pack proposes the use of these biodegradable plastics in order to increase the quality of the package elaborated and to decrease the environmental impact of the use of conventional plastics. In the Im-Pack project, the application of a new technology using supercritical fluids to generate the active packaging is proposed. This technology has been proved in conventional plastics with excellent results, increasing the self-life of the fresh food in several days, and then, the capacity of exportation of agri-food companies.

The project is focused on the development of innovative solutions that increase the competitiveness of the small and medium farmers by implementing new biodegradable active packaging suitable for the commercialization of their Mediterranean fresh food. These packaged, are adapted to the new European regulations regarding the



Other in Consortium/ 8

EVERSIA SA - ES

**University Constantine 3 (UC3SB)
- DZ**

Keey Aerogel SAS - FR

**University of Aix-Marseilles (AMU)
- FR**

**Università degli Studi di Udine
(UNIUD) - IT**

**Université Abdelmalek Essaâdi
(UAE) - MA**

Universidade de Aveiro (UA) - PT

**Université de Carthage (UCAR) -
TN**

use of biodegradable packaging, and intended to increase the shelf-life of fresh food products. With the proposed packaging, the agro-food companies can reach new markets and decrease food losses due to product expiration.

Expected impacts and results

The main expected result is an increase in the profit of all the stakeholders, including farmers, small-scale food manufacturers and local distributors. The introduction of this packaging in the agro-food supply chain provides a local and distinguished benefit, economically, environmentally and socially to smallholders. Finally, this benefit will result in a fair price for consumers. So, the Im-Pack project is integrated into the concept of circular economy in order to apply the profitability of active packaging produced from agricultural by-products, obtained and impregnated by a sustainable technique. The utilization of biodegradable plastics and the valorisation of agricultural by-products as source of interesting bioactive compounds minimize waste generation. In addition, the production of active packaging that increases the shelf-life of fresh food products reduces organic waste from expired food.

Keywords

Agri-food_exportations

#biodegradable_packaging

#active_packaging

#supercritical_impregnation

#Mediterranean_fresh_foods



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

1.601.412,42 €



Duration

36 months



State and Coordinator Entity

CROATIA

University of Split,
Department of Marine Studies
(UNIST)



Scientific Coordinator:
ŠIMAT, Vida

Participating States/ 5



Research Units/ 11



Section 2

InnoSol4Med

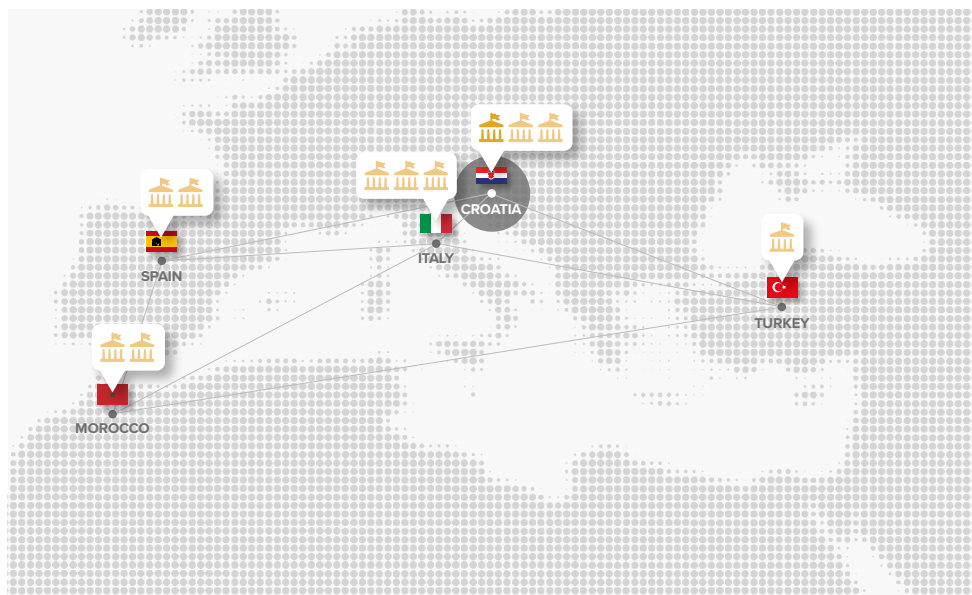
Innovative sustainable solutions for ready-to-eat traditional Mediterranean products and non-conventional healthy foods

Context

The Mediterranean diet is acceptable and easily adaptable in different cultures and promotes the health and well-being of individuals in all areas. To contribute to individual and overall public health, the InnoSol4Med project proposal is launched based on the concept that prevention of unhealthy lifestyle and dietary habits is more effective when healthy foods are formulated to fit modern lifestyles and are readily available and ready to eat. The strategic options for the development and commercialization of the new healthier foods are possible through the formulation of new concepts that include ingredient improvement (from nutritive to functional/nutraceutical) and technological solutions (from intense to mild).

Objective and contents

InnoSol4Med aims to introduce innovative matrices (essential oils, natural compounds and extracts) from sustainable sources (agricultural by-products) and autochthonous microbial strains as new functional ingredients and solutions to improve the quality, safety, nutritional value and functionality of traditional foods. Moreover, these concepts will be used in synergy with non-thermal innovative technological solutions (ozone, nanoemulsions) and fermentation by autochthonous Mediterranean starter cultures for the development of new ready-to-eat foods. Another objective is to conduct a cross-national survey on consumer attitudes and preferences for mild processed and healthy ready-to-eat foods and promote customised business models to support local producers, create new market opportunities, and improve consumer value perception through awareness campaigns that can support the adoption and use of the innovative food prototypes developed in the project. InnoSol4Med will use an interdisciplinary approach (from the perspective of food safety, technological properties, and nutritional value assessment) to investigate bioprotective protocols using ingredients from Mediterranean agriculture by-products and starter/bioprotective strains with environmentally friendly technologies (TRL5 for fresh and TRL6 for fermented foods).



Other in Consortium/ 10

Centaurus Ltd - HR

GREENER Green Environmental Research Ltd - HR

Università di Bologna, Dipartimento di Scienze e Tecnologie Agro-Alimentari (UNIBO) - IT

Università Cattolica del Sacro Cuore, Dipartimento di Scienze e Tecnologie Alimentari per una filiera agro-alimentare Sostenibile (UNICATT-DiSTAS) - IT

Martino Rossi spa - IT

Université Chouaib Doukkali (UCD) - MA

Université Sidi Mohamed Ben Abdellah de Fès (USMBA) - MA

Domca SA - ES

Consejo Superior de Investigaciones Científicas (CSIC) - ES

Çukurova Üniversitesi, Department of Seafood Processing and Technology (CUNI) - TR

Expected impacts and results

The project will raise public awareness of the health benefits of the Mediterranean diet and the benefits derived from the improved properties of the innovative solutions developed under the project, thus changing consumption habits towards a healthier and more sustainable diet. The environmental impact of InnoSol4Med is related to the valorization of local agricultural by-products for the production of new high-value functional compounds and the promotion of their application in more cost-effective industrial processes as a contribution to waste reduction and sector sustainability.

Keywords

#agro-food_by-products

#antimicrobials

#fermentation

#essential_oils

#antioxidants

#Bioactive_compounds

#bioprotective_and_functional_starter_cultures

#nutraceuticals

#business_strategies

#consumer_awareness_on_the_healthy_diet

#innovative_ready-to-eat_foods

#nanoemulsions

#new_healthy_food_products

#non-thermal_processing_technology

#nutritive_value_and_metabolic_function

#ozone_in_food_application

#sustainable_solutions_for_Mediterranean_foods



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

812.643 €



Duration

36 months



State and Coordinator Entity

PORTUGAL

LandraTech LDA



Scientific Coordinator:
BABO, Pedro

Participating States/ 8



Research Units/ 11



Section 2

MEDACORNET

Rescuing acorns as a Mediterranean traditional superfood

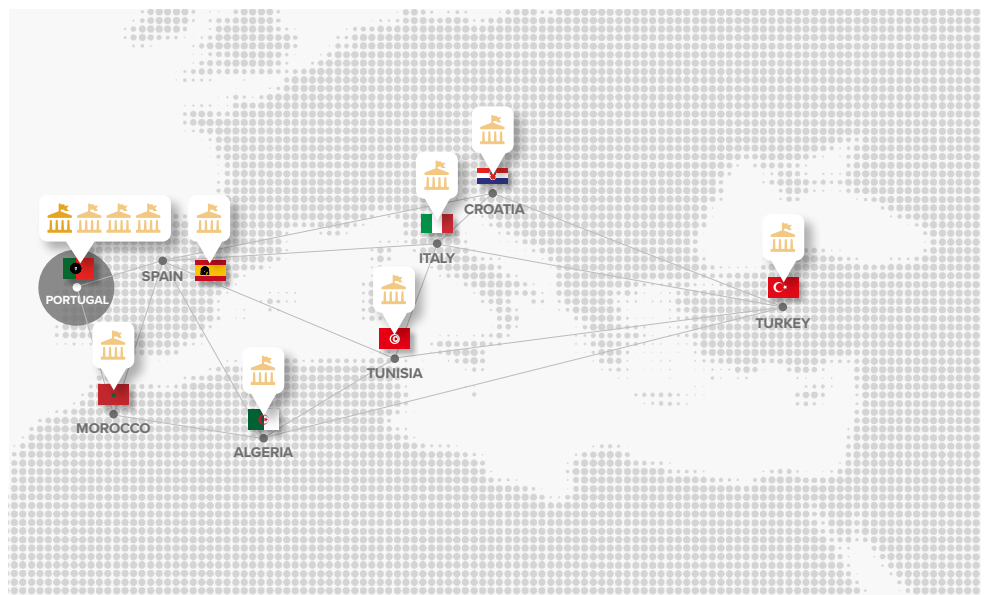
Context

The acorns are gluten-free and highly nutritious, rich in starch, fibres, and lipids and are the most abundant nut produced by the Mediterranean endemic forests. Despite historically consumed by several cultures around the Mediterranean basin, nowadays its use as food for humans is restricted to some regional dishes. The tannin-rich content of some species, the annual productivity variation, and the incipient value chain have impaired their adoption by the agro-food industry.

Objective and contents

Based on a Mediterranean-wide consortium, including partners from Portugal, Spain, Italy, Croatia, Turkey, Tunisia, Algeria, and Morocco, with extensive experience in the agro-food sector, management of agro-forestry systems, technological development, toxicology, microbiology, biomedicine, market analysis and strategic communication, MEDACORNET aims at rescuing acorns as a healthy traditional Mediterranean cuisine ingredient through the:

- evaluation of the socioeconomic impact of acorn food adoption;
- rescue of traditional/historical uses of acorns for human consumption;
- evaluation of the nutritional profile of acorns from the most relevant Mediterranean-native *Quercus* sp. species;
- evaluation of health benefits such as prebiotic and antioxidant effects of acorns;
- design of a pilot line to sustainably transform acorn into edible flour;
- implementation of a digital marketplace to bridge acorn producers and the market;
- vii) development of novel acorn-based gluten-free food;
- assessment of consumers feedback on acorn flour development and prototyped food products,
- exploration of the residues from the acorn transformation to improve the sustainability of the process;
- development of a strong communication strategy to foster the adoption of acorns and to inform the potential consumers about sustainable and healthy habits of the Mediterranean diet.



Other in Consortium/ 10

**Colab, Laboratório Colaborativo
Montanhas de Investigação - PT**

**Instituto Politécnico de Bragança
(IBP) - PT**

**Instituto Politécnico de Leiria
(ipleiria) - PT**

**University of Tlemcen,
Computational Mechanics
Laboratory - DZ**

**Josip Juraj Strossmayer University
of Osijek (UNIOS) - HR**

**Università degli Studi di Bari Aldo
Moro, Dipartimento di Scienze del
Suolo, della Pianta e degli Alimenti
(UNIBA-DiSSPA) - IT**

**Université Abdelmalek Essaâdi
(UAE) - MA**

GeoAI Analytics SL - ES

**Université de Tunis El Manar
(UTM) - TN**

Beykent University - TR

Expected impacts and results

MEDACORNET consortium will deliver scientific, technical, and socioeconomic knowledge centred in the consumer to foster the establishment of a sustainable value chain for the acorns in the agro-food industry, providing healthy, safe, and sustainable food products.

MEDACORNET will provide to:

- updating, modifying and developing dietary guidelines and promotion strategies for the adoption of Mediterranean healthy and sustainable diets;
- promoting and marketing of Mediterranean dietary habits and highlighting its benefits at all levels through media coverage, TV programmes, awareness campaigns in schools and communities;
- introducing new and healthy low-processed Mediterranean food products in acceptable, attractive, accessible and affordable formats;
- improving Med people health by facilitating the shifting to a Mediterranean healthy and sustainable diet;
- decrease in obesity rate and other diet-related non-communicable diseases in the Mediterranean area.

Keywords

#Acorn

#Endemic_forests

#Forest-to-fork

#Healthy_food

#Mediterranean_cuisine

#Short_value_chains

#Sustainability



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

2.369.357 €



Duration

36 months



State and Coordinator Entity

GERMANY

Johannes Gutenberg
Universität Mainz (UNI-MAINZ)



JOHANNES GUTENBERG
UNIVERSITÄT MAINZ

Scientific Coordinator:
ACHRAF, Ammar

Participating States/ 8



Research Units/ 10



Section 2

MEDIET4ALL

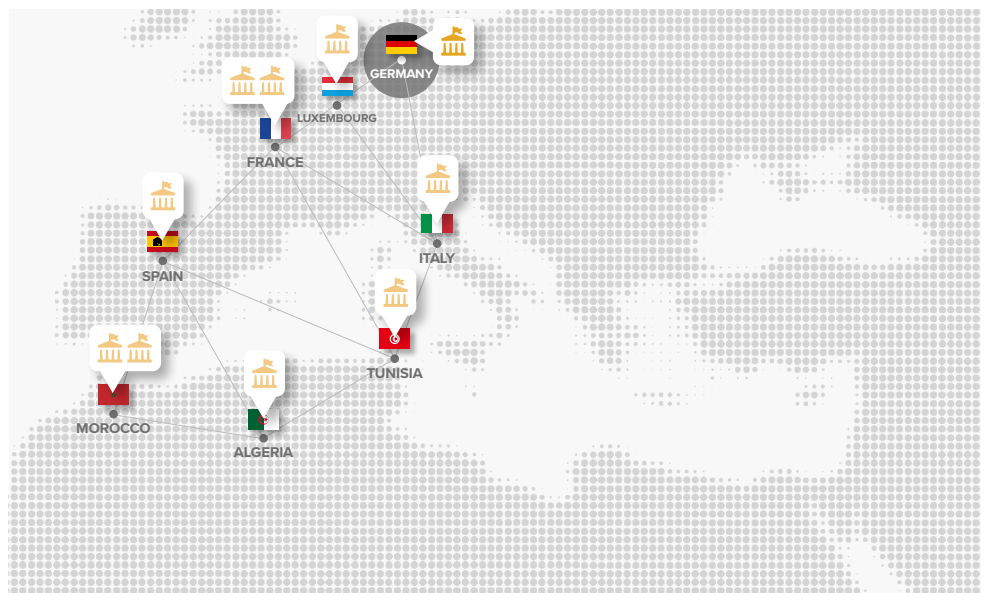
A Transnational movement to support the sustainable transition towards a healthy and Eco-friendly Agri-Food System through the promotion of MEDIET and its lifestyle in modern society

Context

Mediterranean diet (MEDIET) is considered the world's most evidence-based low processed eating pattern for promoting health and longevity while saving water/energy and conserving land. Unfortunately, due to the modern societal trends, adherence to MEDIET model is decreasing, while the consumption of takeout and ultra-processed foods and drinks (UPFDs) (having harmful impacts on health and environment) is exponentially growing, in all-ages, with alarming levels in many European-Mediterranean (EUR-MED) regions (e.g., UPFDs contribution to nutrient intakes ~ 61% in Spain and 79% in Germany). Therefore, there is an urgent need for actions to tackle this rapid negative shift of dietary patterns from MEDIET towards UPFDs, and to scrutinise the resulting harmful impact on both population and ecosystem.

Objective and contents

The overall objective of "MEDIET4ALL" is to support the transition from UPFs culture to modern and sustainable MEDIET through the creation of transnational movement aiming at implementing best practices and innovative solutions to enhance the convenience, modernity, competitiveness, and shelf life of MEDIET and the adherence to its lifestyle at all-age levels in modern societies. To achieve this overall objective, different multidisciplinary tailored approaches are proposed. Specifically, multi-center databases of MEDIET's ingredients/food and their providers will be created to promote the accessibility to MEDIET. Additionally, a variety of highly nutritional and antioxidant-rich "Quick & Easy" MED-recipes that respond to modern trends while following the accredited MED dietary patterns and considering sustainability aspects will be developed. To promote the availability of MEDIET, these modern recipes will be communicated to hotels, canteens, restaurants and food production companies to provide on-site, takeout, delivered, packaged and/or ready-to-eat MEDIET meals. To preserve the eco-friendly (e.g., reducing food waste) and food safety characteristics and extend the shelf life of the MEDIET products, active bio-packaging will also be designed. Interestingly, databases of MEDIET's products (e.g., ingredients, food, modern recipes, and active/bio packaging) and their providers will be uploaded to a strategic "MEDIET4ALL" platform and m-app to support farm to fork strategy, help con-



Other in Consortium/ 9

Université de M'hamed Bougara
Boumerdes - DZ

Procédés Alimentaires et
Microbiologiques (UMR PM -
Institut Agro DIJON, Université de
Bourgogne) - FR

Vitagora - FR

Università degli Studi di Palermo,
Dipartimento di Scienze Agrarie e
Forestali (UNIPA) - IT

MICROTARIANS SarIS - LU

Université Mohammed V de
Rabat, Faculté de Médecine et de
Pharmacie (UM5-FMP) - MA

National School of Agriculture of
Meknes (ENA) - MA

Universitat de València (UV) - ES

Université de Sfax - TN

struct multicenter MEDIET supply chains and obtain cheap ingredients, thereby improving the competitiveness and sustainability of MEDIET. The integrative “MEDIET4ALL” platform and m-apps (a smart MEDIET and lifestyle coach) will also include a variety of MEDIET programs, physical exercise, and psychosocial recommendations as well as combined MED-lifestyle intervention tailored to each user profile (considering users’ health status, age, preferences, cultural and socioeconomic groups).

Traditional and technology-based awareness and motivational campaigns with extensive marketing and advertising actions to promote MEDIET4ALL movement are also programmed and will also be included in the Platform and m-app. The acceptability and efficacy of these multidimensional approaches in promoting the (i) initial adherence to MED-lifestyle and (ii) the physical and mental health (e.g., BMI and mental wellbeing of smart-coach users) will be tested, at all age groups, during the collaborative research activities.

Expected impacts and results

Working under the concept of a multidisciplinary approach consortium, multiple impacts of MEDIET4ALL are expected including the promotion of (i) modern MEDIET guidelines and products, tailored to all-age, in attractive, accessible, affordable and durable formats, while preserving their low processing, high nutrition value, and eco-friendly characteristics (ii) MEDIET acceptability and the transition towards a healthy and sustainable MEDIET through extensive marketing and awareness campaigns, (iii) and Med people health (e.g., reducing obesity rate and other diet-related non-communicable diseases) by increasing their adherence to MEDIET and active lifestyle.

Keywords

#Active_bio-packaging

#Awareness_campaigns

#Cultural_adaptation

#Dietary_habits

#Extensive_marketing

#Food_shelf-life

#Food_waste

#Healthy_lifestyle

#Innovative_technology

#Mediterranean_food

#Minimally_processed_foods

#Public_health

#Sustainability

#Wellbeing



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

432.000 €



Duration

36 months



State and Coordinator Entity

PORTUGAL

Universidade do Porto,
Faculdade de Ciências da
Nutrição e Alimentação
(UP-FCNA)

U. PORTO

FACULDADE DE CIÊNCIAS DA
NUTRIÇÃO E ALIMENTAÇÃO
UNIVERSIDADE DO PORTO

Scientific Coordinator:
ROCHA, ADA

Participating States/ 3



Research Units/ 7



Section 2

MedDietMenus4Campus

Promoting stakeholder adherence to Mediterranean Diet on Campus through menu interventions and social marketing strategies

Context

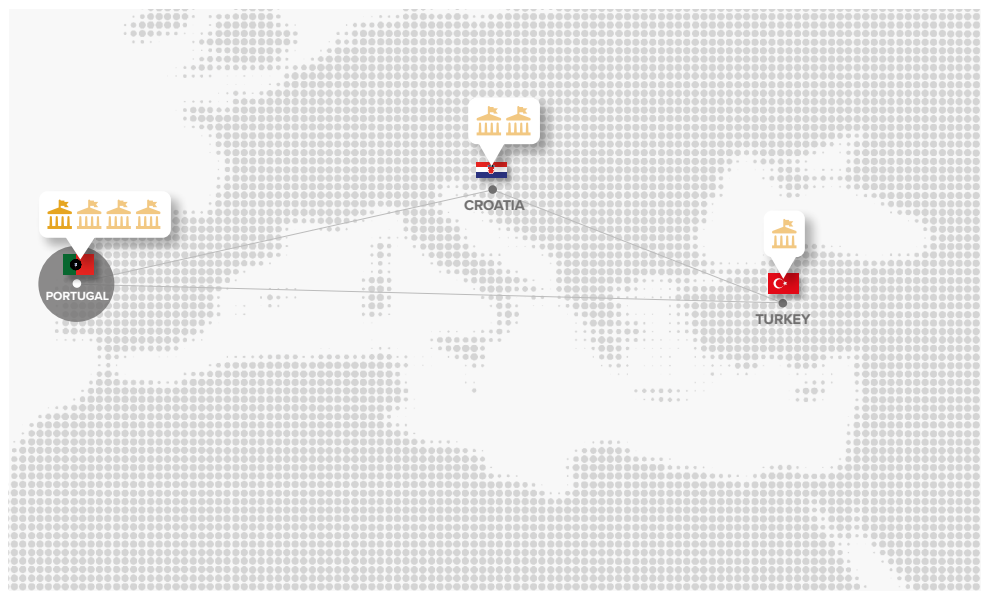
Food service comprises the production of meals consumed outside the home, including consumers from all age groups and in different sectors. This service sector has evolved through the years, providing an increasing number of meals, which have been drifting away from the Mediterranean Food Pattern. Food service is an important setting for public health interventions, educating consumers and modulating behaviours through the meals provided. Prior research on eating habits has mainly focused on a single stakeholder - typically consumers - and on a narrow set of outcome variables. Although these studies provide important clues about the determinants of adherence to food offer, research has yet to address this issue using an integrative approach of multiple stakeholders (e.g., the consumers, food providers, decisors) across a set of different variables. Also, intervention initiatives, usually act only on the environment without strategies that efficiently engage all the stakeholders involved. Social Marketing is one of the strategies, empirically verified, designed to promote change behavior, which contributions to health and well being of citizens are positively recognized by many. Establishing and managing long-term partnerships that include different groups of stakeholders - consumers, government, retailers and other players - are key elements in the application of mid and upstream social marketing to complex issues.

Objective and contents

This project, developed in Portugal, Turkey, and Croatia, aims to identify the compliance of food service menus with the Mediterranean Diet in public high education institutes canteens, pinpointing opportunities to intervene, namely:

- promoting changes in the food offer addressing proximity to the Mediterranean Food Pattern, creating, and offering plant-based meals, with seasonable and local food products;
- developing tailored social marketing strategies to engaging stakeholders to encourage healthier and sustainable food habits.

It gathers a team comprised of nutrition experts on public health and food service, food technologists, gastronomy experts, psychologists, and marketers, with a vast



Other in Consortium/ 6

Instituto Politécnico de Lisboa,
Escola Superior de Tecnologia da
Saúde (IPL-ESTeSL) - PT

Instituto Português de
Administração de Marketing
(IPAM) - PT

Instituto Universitário de Lisboa,
Centro de Investigação e
Intervenção Social (IULCIS-Iste) -
PT

University of Zagreb, Faculty of
Agriculture (UNIZG-AGR) - HR

University of Zagreb, Faculty
of Food Technology and
Biotechnology (UNIZG-PBF) - HR

Üniversitem Hacettepe, Faculty of
Health Sciences - TR

experience and professional skills. To achieve the objectives researches will:

1. develop and index to evaluate compliance of menus with the Mediterranean Diet;
2. based on personal interviews, define priority stakeholders and define methodology for engagement;
3. evaluate perceptions, barriers and facilitators through self-administered surveys and in-depth interviews;
4. develop of a 1-month meal plan framework;
5. develop tools concerning the concept premises to empower the catering employees and consumers to understand the proposed menu methodology;
6. develop a new food concept/product "student bag" (meal on the go) and test it for industry scale up;
7. use previous diagnose to develop social/emotional marketing strategies directed to stakeholders and consumers to achieve food behaviour change;
8. measure the impacts of the implemented strategies through a feasibility test.

Expected impacts and results

The project's main ambition is to change the food service paradigm, by creating and implementing a new healthy and sustainable food service concept that truly complies with the Mediterranean diet, as well as solutions that comply with consumers new needs, and also developing and implementing strategies that engage all the stakeholders with this concept. We expect to create the reference in terms of food offer that will be demanded by consumers of the next generations and the standpoint to inspire the other food service sectors/ settings achieving an effective and sustainable food offer change and positively influence food service consumers' food pattern towards Mediterranean recommendations, while addressing the Sustainable Development Goals (3 - good health and 12 - responsible consumption and production; 17 - partnerships for the goals).

Keywords

#Food_service

#Mediterranean_menus

#Social_marketing

#University_canteens



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

1.422.307 €



Duration

36 months



State and Coordinator Entity

SPAIN

Universidad de Extremadura,
Departamento de Producción
Animal y Ciencia de los
Alimentos (UEx)



Scientific Coordinator: CORDOBA,
María de Guía

Participating States/ 7



Research Units/ 12



Section 2

MoreMedDiet

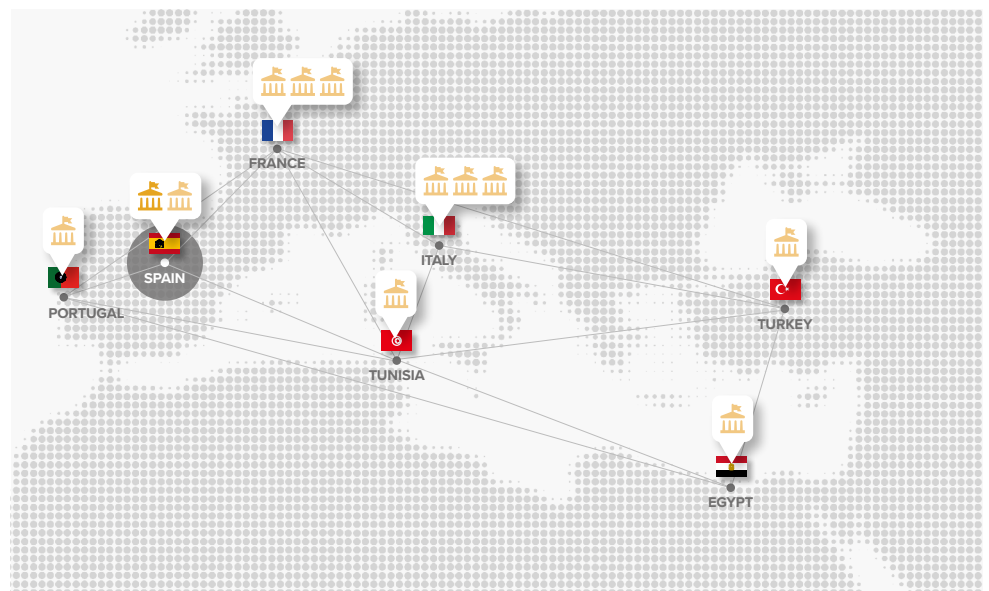
More on the adoption of a healthy Mediterranean diet

Context

The health benefits of the Mediterranean diet (MD) and its protective effect against chronic diseases have been widely studied by the scientific community. Recent studies associate this dietary pattern with a lower incidence of cardiovascular disease, cancer and lower mortality and may even strengthen the immune system against COVID 19. In addition, the MD has a great potential to have a low environmental impact in terms of land use, energy needs, water consumption and greenhouse gas emissions. Despite these benefits, it is well-known that the dietary habits of MED populations have gradually moved away from the traditional MD model. Contemporary eating habits, coupled with a more sedentary lifestyle, have led to an increase in the prevalence of obesity among MD populations.

Objective and contents

The main objective of MoreMedDiet is to improve the adoption of traditional MD food consumption in different population groups by designing nutritious, healthy and attractive low-processing recipes, taking into account consumers' opinions and ideas. For this, co-creation (CC) sessions will be organised with consumers of all ages (children/youth, adults and seniors) to create the healthiest and most attractive recipes based on the MD philosophy, and sensory testing with expert panels. In addition, to test and evaluate the real effect of the MedDiet recipes, monitoring will be carried out through in vivo and in vitro tests, together with a comprehensive assessment of the physical exercise, lifestyle and eating habits of the target population. To assess the authenticity, quality and safety of the designed recipes, a digital farm-to-fork traceability platform will be developed, based on data collection with rapid, mostly non-destructive tools. In addition, the system will be secured with blockchain systems. Business models will be developed to evaluate the socio-economic impact of the designed MD recipes. At the same time, their components and the actual effect on health will be evaluated, with the ultimate goal of activating mechanisms to engage the population and ensure recognition and adherence to MD. The success of the project lies largely in the number and continuity of the educational and experimental activities designed in the programme.



Other in Consortium/ 11

CICYTEX Centro de Investigaciones Científicas y Tecnológicas de Extremadura - ES

Damanhour University (DU) - EG

Centre de Recherche Institut Paul Bocuse - FR

JASSP SAS - FR

Télécom Sud Paris, École de Institut Mines-Télécom - FR

Consiglio Nazionale delle Ricerche, Istituto per la Bioeconomia (CNR-IBE) - IT

Università di Parma, Dipartimento di Scienze degli Alimenti e del Farmaco (UNIPR) - IT

Università degli Studi di Firenze, Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali (UNIFI-DAGRI) - IT

Instituto Politécnico de Leiria, Marine and Environmental Sciences Centre (ipleiria-MARE) - PT

Université de Tunis El Manar (UTM) - TN

Aydın Adnan Menderes Üniversitesi - TR

Consistency and continuity throughout the programme will be achieved through timely and repeated contact with affiliated stakeholders and the community. A comprehensive training system will be developed from the early years under a Living Labs (LL) approach, teaching children/youth about the importance of eating a balanced and healthy diet and its positive effect on health.

Expected impacts and results

MoreMedDiet will provide to:

- updating, modifying and developing dietary guidelines and promotion strategies for the adoption of Mediterranean healthy and sustainable diets;
- promoting and marketing of Mediterranean dietary habits and highlighting its benefits at all levels through media coverage, TV programmes, awareness campaigns in schools and communities;
- introducing new and healthy low-processed Mediterranean food products in acceptable, attractive, accessible and affordable formats;
- improving Med people health by facilitating the shifting to a Mediterranean healthy and sustainable diet;
- decrease in obesity rate and other diet-related non-communicable diseases in the Mediterranean area.

Keywords

#bioactive_compounds

#business_models

#healthy

#Design_and_development_of_MedDiet_recipes

#Living_Labs

#low_processed

#Mediterranean_Diet

#microencapsulated

#pesticide-free

#sustainable

#traceability

#traditional_raw_materials



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

550.500 €



Duration

36 months



State and Coordinator Entity

EGYPT

Genetic Engineering and Biotechnology Research Institute (SRTACITY-GEBRI)



Scientific Coordinator:
EL-DEEB, Nehal

Participating States/ 3



Research Units/ 3



Section 2

Mush-Med

Transition to Healthy Mediterranean Functional Food via Integrating Mushroom Beta-glucans and Proteins: Promoting Body Homeostasis After Stress-Related Health Problems

Context

Since there are no adequate actions for the restoration of the strongly-hit immune system post severe illness challenges (e.g. COVID-19 pandemic) the need for unclassical solutions for fortifying body immune system is evident. This conclusion has been raised clearly after health-care specialists around the world noticed that elderly people and people with severe obesity, heart problems, and diabetes have shown a higher risk for severe illness.

The current meat analogues (such as tofu, seitan, tempeh) are very different from meat in terms of texture, taste and aroma. For these reasons, understood as a low similarity to meat, they have low popularity among flexitarians and omnivores. Mushroom-based meat will join similar texture and taste of meat and could be able to cross the social and conventional barriers to reach the majority of people who usually eat meat, which in turn will pave the way for the expected impacts of Topic 2.3.1 "Improving Med people health by facilitating the shifting to a Mediterranean healthy and sustainable diet" and "Decrease in obesity rate and other diet-related non-communicable diseases in the Mediterranean area".

Objective and contents

The general objective of Mush-Med is to include immunomodulatory nutritive agents such as mushroom beta-glucans and proteins in the Mediterranean human diets to boost our immune system resilience to get protection against the emergence and spread of current and future diseases.

Mush-MED Consortium has developed technologies of mushroom processing with which a protein transition is possible. Mushrooms will be produced with less time-consuming and environmental friendly methodologies.

Four Work Packages (WP) will be implemented by 3 groups of scientific entities belonging to 3 countries in the Mediterranean region (Egypt, Italy and Turkey). These groups are collaborating for developing two functional food products (vegetarian burgers meatballs and hamburger bread) supplemented with mushroom beta-glucans and proteins produced from *Pleurotus* spp. The production of mushroom beta-glucans and proteins will be optimized for maximum possible yield with zero waste and



Other in Consortium/ 2

Università degli Studi di Messina,
Dipartimento di Scienze
Veterinarie (UNIME) - IT
Bursa Teknik Üniversitesi (BTU) -
TR

minimum possible cost using three systems 1) new designed Air Sparging System (ASS), 2) different size bioreactors, and 3) growth chamber cultivation systems. The produced beta-glucans and proteins from the selected cultivation system/s, as well as the food products made out of them will be assessed for their in-vitro and in-vivo safety, dietary values, and immune system boosting and regulatory efficacies in both mice models and human volunteers. In addition, the effect of beta-glucans and proteins and its functional food-based products on the host gut microbiome composition and cognitive and emotional behavior to assess the comorbidity of neuroinflammatory disorders will be studied. The nutritional value of the products will be evaluated in terms of their content of protein and amino acids, fat and fatty acids, ash, and mineral composition. In addition, the storage stability of the products under refrigeration conditions will be determined. In order to support project transfer from concept to commercialization and to reach the different end users, an adhoc dissemination plan will be continuously developed to match the expected impact of Topic 2.3.1 “Updating, modifying and developing dietary guidelines and promotion strategies for the adoption of Mediterranean healthy and sustainable diets” and “Promoting and marketing of Mediterranean dietary habits and highlighting its benefits at all levels through media coverage, TV programmes, awareness campaigns in schools and communities”.

Expected impacts and results

Optimize the production of mushroom glucan and proteins on a semiindustrial scale and two low-input and circular economy units.

Enhance human immune system due to the incorporation of mushroom beta-glucans and proteins, this impact will be on the same way of the new Sustainable Development Goals (SDGs), SDG 3.

Reduction of inflammatory disorders and activation of the weak immune system that related to the unhealthy diet, that in turns could help to control Non-Communicable Diseases (NCDs) as these types of diseases are driven by forces that include unhealthy diets and immune systems disorders.

Opening new markets to the science-based health products in the Mediterranean region.

Increase the consumer motivation to select our products via providing information about the product nutritional contents, safety, immunomodulatory effects and their effects on human gut microbiota.

Avoid the excess mushroom production during winter, which lowers its price for producers that in turn mean reducing the accumulation of more agro-waste.

Lowering energy consumption in the production process by the implementation of simple technology that requires minimal input elements and shortening the required time for the production of the components is of substantial sustainability.



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

1.263.586 €



Duration

36 months



State and Coordinator Entity

TURKEY

İstanbul Teknik Üniversitesi (ITU)



Scientific Coordinator:
CAPANOGLU GUVEN, Esra

Participating States/ 6



Research Units/ 9



Section 2

Oli4food

Microbial resources for a sustainable olive oil system and a healthier Mediterranean food: from by-products to functional food

Context

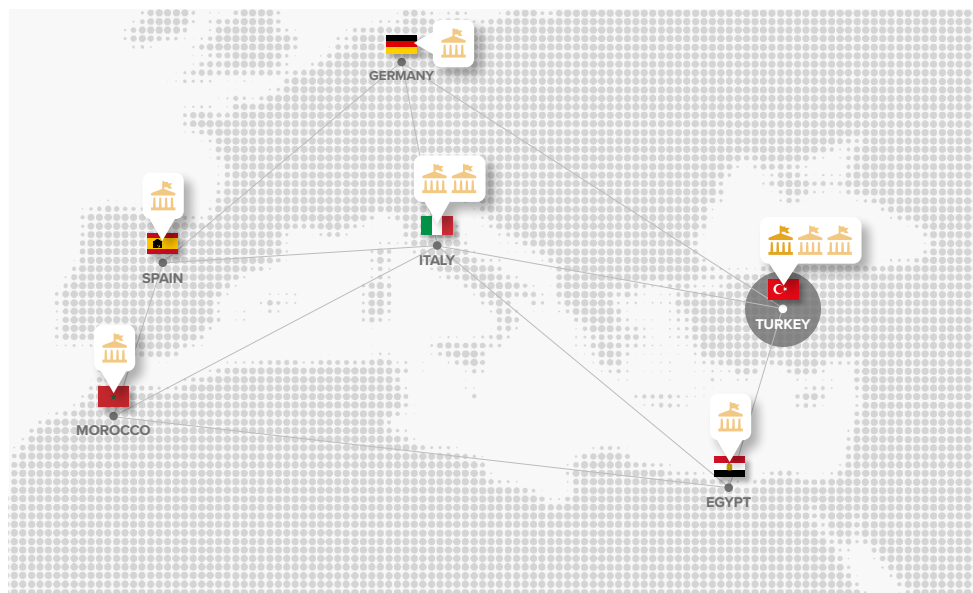
The Mediterranean diet (MD) represents a set of skills, knowledge, practices, and traditions ranging from landscape to table, between crops, harvesting, fishing, food processing, and, in particular, food consumption. The MD is a nutritional model that has remained constant over time and space, consisting mainly of olive oil, cereals, fresh or dried fruits, and vegetables.

Nowadays, the strong demand for adequate nutrition is accompanied by concern about environmental issues and a considerable emphasis is paid on recovery and recycling of food by-products and wastes. The transition towards more sustainable food systems, as a new “Farm to Fork Strategy”, requires the involvement of all actors of the food systems with the final goal to provide healthy, adequate, safe, nutritious, and sustainable food to everyone, taking into account the three pillars of sustainability: environmental, economic and societal.

Objective and contents

The Oli4food proposal aims to increase the adherence to MD removing the main barriers to consumption of olive-based products by a consumer-centered-design strategy. In particular, the proposal intends to apply a biotechnological sustainable production system to valorise by-products of olive oil extraction to satisfy the demand of taste acceptability, cultural identity, and economic accessibility. Besides, formulation/reformulation of the olive oil- and olive-based products will be carried out in order to enhance the diversity of healthy olive based food products.

Oli4food proposes to apply, at an industrial scale, a process based on an integrated multidisciplinary approach, using selected microbial pools for valorising olive-based products through a biological de-bittering process and addition of probiotic selected strains. In order to exploit resilient biodiversity, each partner in Mediterranean countries (Italy, Turkey, Spain, Germany, Egypt and Morocco) will focus on local olive cultivars and autochthonous selected microorganisms will be used to reduce the bitter taste of olive-based products. Safety traits, bioactive compounds availability, probiotic survival, and sensorial traits will be evaluated. Besides, new approaches such as an



Other in Consortium/ 8

Cairo University (CU) - EG

Leibniz Universität Hannover - DE

Università di Catania, Dipartimento di Agricoltura, Alimentazione e Ambiente (UNICT-Di3A) - IT

Università Politecnica delle Marche, Dipartimento di Scienze Cliniche Specialistiche ed Odontostomatologiche (UNIVPM) - IT

Université Mohammed Premier Oujda (UMP) - MA

Centro Tecnológico da Carne (CETECA) - ES

University of Health Sciences (UHS) - TR

Olive Research Institute, Bornova Izmir - TR

antifungal spray formulation by using olive oil by-products or non-thermal techniques including high hydrostatic pressure will be studied in order to overcome the microbial spoilage of table olive and olive based products during shelf-life.

Expected impacts and results

The health benefits of olive-based products will be proven through a cell culture study to analyze the ability of phenolic metabolites to modulate anti-inflammatory activities by evaluating macrophage cell line.

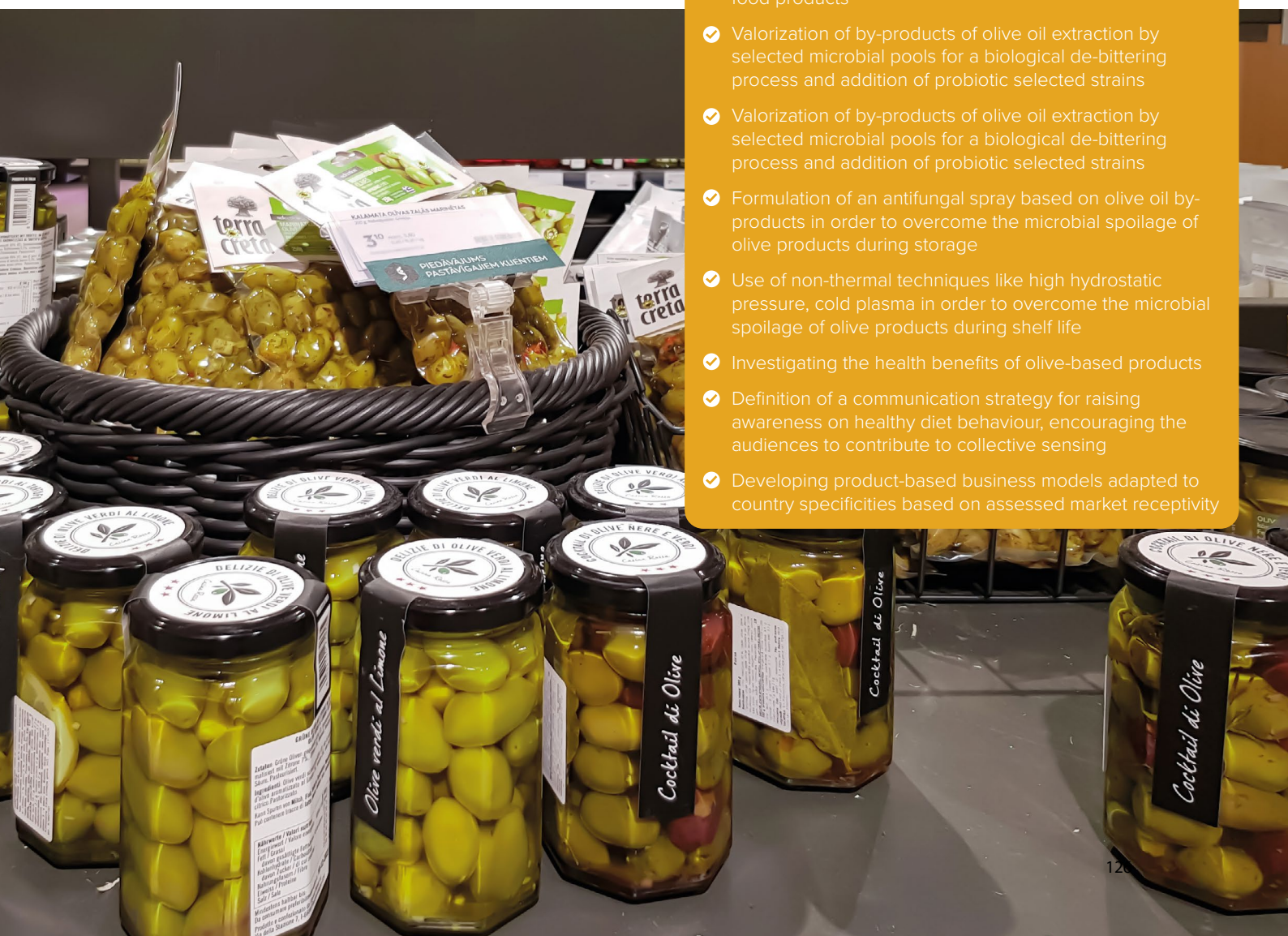
Finally, to increase the adherence to the MD pattern, a communication strategy will be defined for raising awareness on healthy diet behavior, encouraging the audiences to contribute to collective sensing. Oli4food will foster a sense of co-responsibility, increase motivation and willingness, to adopt a sustainable lifestyle model, and to promote the new olive-based products in a Mediterranean lifestyle concept.

The market analysis, the exploitation plan, and the techno-economic feasibility at the consumer and industrial level will also be performed.

In line with the Implementation of Research and Innovation in the Agro-food chain, promoting higher quality, sustainability, and competitiveness, with particular reference to smallholders, Oli4food will contribute to enrich the portfolio of products derived from olives, to promote and extend the adherence to the MD pattern, among consumers, demolishing the main barriers due to the high salt content (for table olives), and specifically among younger adults (who do not prefer the residual bitter taste of olives).

SPECIFIC OBJECTIVES

- ✓ Low salt fermentation of olives by commercial cholesterol-lowering probiotic strain
- ✓ Formulation/reformulation of olive oil- and olive-based food products
- ✓ Valorization of by-products of olive oil extraction by selected microbial pools for a biological de-bittering process and addition of probiotic selected strains
- ✓ Valorization of by-products of olive oil extraction by selected microbial pools for a biological de-bittering process and addition of probiotic selected strains
- ✓ Formulation of an antifungal spray based on olive oil by-products in order to overcome the microbial spoilage of olive products during storage
- ✓ Use of non-thermal techniques like high hydrostatic pressure, cold plasma in order to overcome the microbial spoilage of olive products during shelf life
- ✓ Investigating the health benefits of olive-based products
- ✓ Definition of a communication strategy for raising awareness on healthy diet behaviour, encouraging the audiences to contribute to collective sensing
- ✓ Developing product-based business models adapted to country specificities based on assessed market receptivity



Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

813.351,71 €



Duration

36 months



State and Coordinator Entity

ITALY

Università di Camerino, Scuola di Bioscienze e Medicina Veterinaria (UNICAM)



UNIVERSITÀ
DI CAMERINO

Scientific Coordinator:
VINCENZETTI, Silvia

Participating States/ 5



Research Units/ 7



Section 2

Tool4MEDLife



From Tradition to Innovation: New Foods and Educational Toolkits for a Healthy and Sustainable Mediterranean Lifestyle

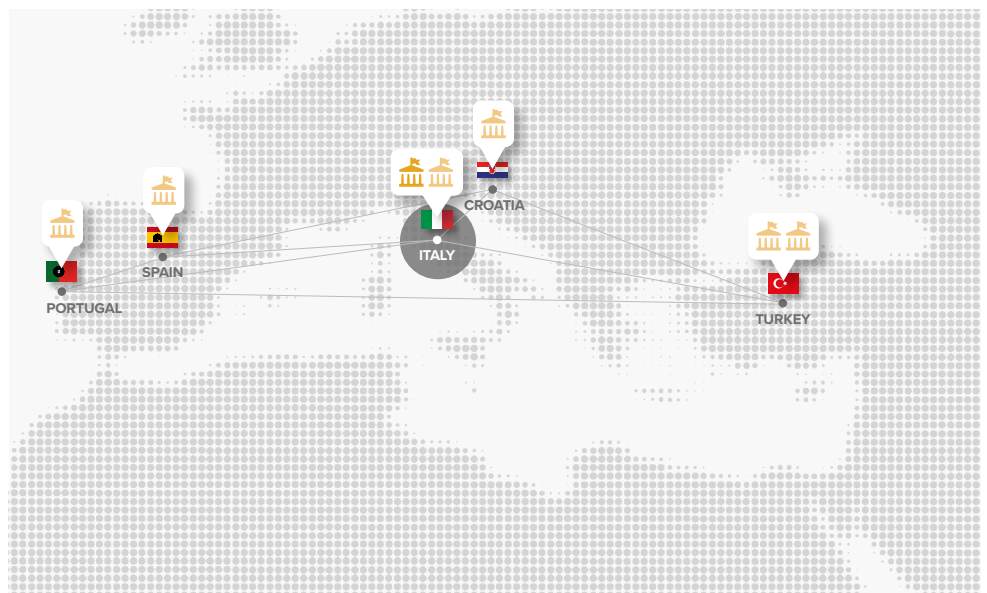
Context

Le régime méditerranéen (DM) est un régime alimentaire sain qui améliore l'état de santé en contribuant à la prévention de l'obésité et de la plupart des maladies non transmissibles et chroniques. Au cours des dernières années, une diminution de l'adhésion au DM. Les changements culturels et sociaux ont déplacé le mode de vie des gens vers un régime alimentaire occidental, entraînant un apport insuffisant en macro et micronutriments qui jouent un rôle central dans l'atteinte et le maintien d'un bon état nutritionnel. Il est important d'enquêter sur la consommation alimentaire et de mettre en oeuvre des actions correctives par la conception et la production de nouveaux aliments spécifiques et le développement de stratégies éducatives spécifiques.

Objective and contents

Les objectifs du projet sont d'étudier l'adhésion au DM et les comportements alimentaires dans les communautés locales méditerranéennes (pays partenaires du projet) et de mettre en oeuvre des actions correctives en concevant de nouveaux aliments sains basés sur la tradition méditerranéenne, y compris certains aliments enrichis en molécules fonctionnelles, et le développement de stratégies inclusives (boîtes à outils pédagogiques) pour aider la population à adopter des comportements alimentaires sains méditerranéens.

Pour atteindre les objectifs du projet, cinq WP complémentaires seront structurés: WP1- Gestion et coordination du projet. WP2-Réaliser des enquêtes nutritionnelles et sociales spécifiques sur les habitudes alimentaires des communautés méditerranéennes ciblant différents groupes en tenant compte de l'âge, du statut socio-économique, du sexe, du niveau d'éducation, de la profession, des attitudes et des croyances. L'attention sera portée sur l'état nutritionnel et de santé des personnes, les habitudes alimentaires et les éventuelles insuffisances nutritionnelles, l'observance du DM et les facteurs pouvant avoir un impact sur l'adoption de pratiques nutritionnelles saines. WP3-Concevoir et produire de nouveaux aliments sains pour aider les gens à couvrir leurs besoins nutritionnels : huile d'olive extra vierge enrichie, fromage faible en gras et aliments dérivés du lait (boissons au lactosérum,



Other in Consortium/ 6

Institute for Adriatic Crops and Karst Reclamation (KRS) - HR

Università degli Studi della Basilicata, Scuola di Scienze Agrarie, Forestali, Alimentari e Ambientali (UNIBAS-SAFE) - IT

Instituto Politécnico de Lisboa, Escola Superior de Tecnologia da Saúde de Lisboa (IPL-ESTeSL) - PT

Universitat Ramon Llull (URL) - ES

Adana Alparslan Türkes Sciences and Technology University (ATÜ) - TR

Konya Food and Agriculture University (KFAU) - TR

collations au fromage, laits fermentés) enrichis en molécules bioactives (vitamines, antioxydants). Les molécules bioactives seront extraites en utilisant des méthodologies vertes à partir de déchets végétaux organiques selon le modèle d'économie circulaire. WP4-Développer des stratégies éducatives adaptées et inclusives pour améliorer l'adhésion au DM, la sensibilisation aux comportements alimentaires sains et sensibiliser les gens à l'impact bénéfique d'une alimentation saine. Des instruments et actions spécifiques seront conçus en tenant compte des méthodes d'éducation non formelles et innovantes. WP5-Communication, diffusion et exploitation des résultats du projet.

Expected impacts and results

La proposition répond au défi spécifique de l'appel puisqu'il vise à promouvoir la santé physique et mentale humaine, conformément au pacte vert européen, à la stratégie de la ferme à la fourchette et aux objectifs du partenariat Horizon Europe pour un système alimentaire sûr et durable pour les personnes, la planète & climat, en promouvant des comportements liés au mode de vie méditerranéen. Un réseau existant d'acteurs (y compris un agriculteur local, un petit exploitant, des écoles maternelles, une école primaire et secondaire, des universités, une organisation à but non lucratif et une maison de retraite) sera impliqué dans une approche de co-création dans laquelle les acteurs et les consommateurs joueront un rôle central dès la étape de démarrage des processus de conception à la production.

Keywords

#Bioactive_molecules

#Fermented_milks

#Fortified EVOOs

#Healthy_and_sustainable_diet

#Low-fat_cheese

#MEDdiet

#Organic_vegetable_waste

#Snack_cheese

#Whey_beverages



3 interconnected types of intervention, for the enhancement of the Mediterranean Diet

- ✓ nutritional and social investigations on the eating habits of Mediterranean communities (project partner countries);
- ✓ design of functional foods based on the Mediterranean tradition to cover nutrient needs;
- ✓ design of educational tools (nutrition education toolkit) to help the population adopt healthy behavior based on the Mediterranean diet.

Thematic Area

Agri-food Value Chain



Action and Topic

Topic 2.3.1-2022 (RIA) Enabling the transition to healthy and sustainable dietary behaviour



Budget

753.545,33 €



Duration

36 months



State and Coordinator Entity

TUNISIA

Université de Gabès,
Faculté des Sciences (UNIVGB)



UNIVERSITÉ DE GABÈS
University of Gabès جامعة قابس

Scientific Coordinator:
MAALEJ, Hana

Participating States/ 6



Research Units/ 7



Section 2

VALOstones

Valorization of olive stone by-product as a green source of innovative and healthy value-added products in the context of the circular bioeconomy and sustainability

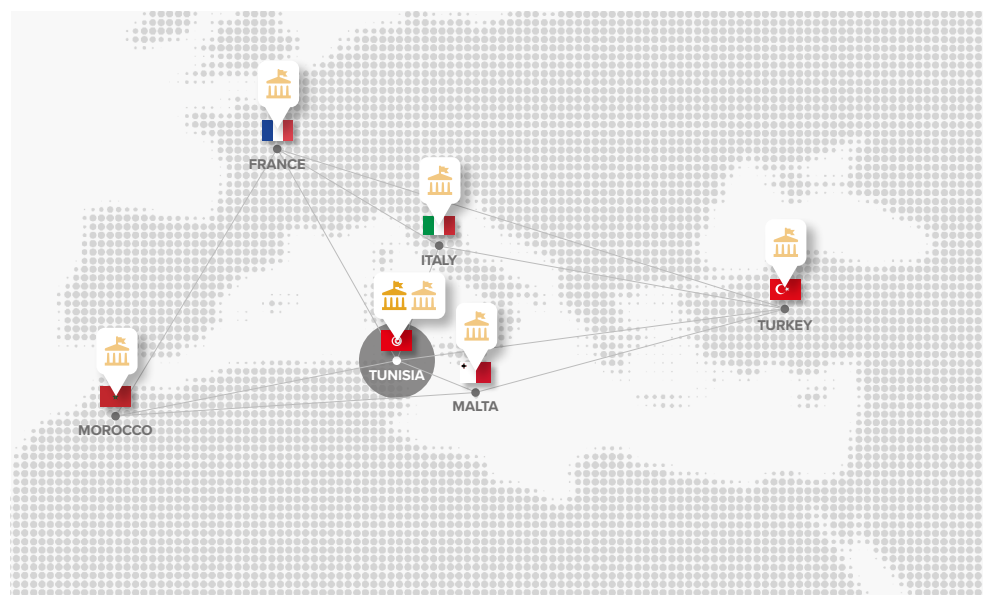
Context

The Mediterranean Diet plays an important role in Mediterranean societies and its benefits have been recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO), Food and Agriculture Organization (FAO) of the United Nations, the International Olive Council (IOC) and the European Union (EU), among other institutions.

Agricultural intensification strategies to meet the consumers' increasing demand, particularly changes in the Mediterranean olive oil production in all stages of the production chain, are creating a paradoxical situation in the sense that the promotion of a healthier, sustainable diet is yielding serious environmental issues and economic losses. Indeed, olive oil production, considered among the most important agro-industrial activities in the Mediterranean, has a high impact on the economy of many Mediterranean countries. Olive oil extraction generates huge quantities of by-products, including pomace, leaves, residues, wastewater and stones, which have severe environmental impacts.

In this regard, the waste derived from olive oil processing, particularly stone by-products, is challenging to manage as it is becoming a significant waste source creating an environmental problem in the region. However, the huge availability together with the low cost of such by-products may be turned into an opportunity if handled with a sustainability and circular economy approach for its valorization to obtain high value-added compounds such as biopolymers, including carbohydrates and proteins, and antioxidants.

Consequently, the development of green extraction strategies and characterization techniques to manage olive stone powder by-product is a key challenge for the Mediterranean agricultural economy in general and for the olive sector in particular. In addition, deeper knowledge about the biological activities of the compounds present in the recovered products and their mechanism of action is crucial to allow their reuse for food, medical, pharmaceutical and cosmetic purposes following the sustainability and circular economy policies.



Other in Consortium/ 6

Huilerie Boukhris - TN

European Institute of Membranes,
UMR CNRS 5635, University of
Montpellier - FR

Università degli Studi di Udine,
Dipartimento di Scienze
agroalimentari, ambientali e
animali (UNIUD-DI4A) - IT

BioPowder, Schilling Ltd - MT

Université Mohammed V de Rabat
(UM5) - MA

Marmara Üniversitesi,
Department of Bioengineering - TR

Objective and contents

The overall objective of VALOstones is the exploitation of new opportunities for the management of olive stone (OS) biomass in the Mediterranean Basin to generate innovative products with high added-value in food, pharmaceutical and cosmeceutical sectors, enabling the transition to healthy and sustainable behaviour in the Mediterranean region. VALOstones aims to develop and optimize novel methodologies that allow maximizing the production of compounds of interest from olive stones biomass. Concretely, we aim to undertake the efficient extraction, purification, physico-chemical characterization and biological evaluation of produced extracts and value-added products.

One of the main advantages of recovering valuable compounds from olive stones is their incorporation into functional foods as health-promoting components and as preserving agents due to their antioxidant properties. Besides, the stone biomass contains a substantial amount of valuable carbohydrates and proteins which can be incorporated for the development of bio-based materials, including gels, emulsions, films, fibers and nanoparticles.

Expected impacts and results

Scientific and technical results and impact: provide novel ingredients and biomaterials of interest in food technology and packaging applications, as well as cosmeceuticals and health-promoting products.

Industrial and economic valorization/exploitation: The development of new products and functional food ingredients will be linked to traditional agri-food market and follow sustainable production patterns.

Environmental impact: VALOstones addresses environmental protection by valorizing an important agri-food by-product, OS, focusing on the main characteristics regarding waste quantities and ways for valorizing this biomass.

Contribution to education: During the three years of the project, several temporary research positions (MSc and PhD students, Post-doctoral researchers, etc.).

Societal impact and communication: VALOstones will create societal impact by providing (1) awareness, information and recommendations on food safety and quality on the use of natural preservatives and novel ingredients for consumers and food industries.

Recycling of olive stone biomass for innovative products with high added value in the food, pharmaceutical and cosmetic sectors.



PRIMA WEF E Nexus Award 2022



Winner



Hani Sewilam

Professor at American University of Cairo, Institute of Global Health and Human Ecology and Director of CARES Center for Applied Research on the Environment and Sustainability

WEFE MODEL

Egypt and the Mediterranean region face extreme water scarcity. Estimates have shown that temperatures will increase and rainfall will decrease by 20% by the end of this century. Globally 70% and locally 80% of freshwaters are used for agriculture. Saline water is far more abundant than freshwater, but desalination is an energy intensive process. Energy is needed to desalinate and transport water and water is needed to grow crops. This is where the idea for combining the three Ss of Sun, Sand and Salty Water came to fruition to produce food in a sustainable manner. The implementation of this concept has been enabled by two EU funded projects (2018-2022). Powered by a 10 kWh PV system, water starts its journey at the desalination unit combining different membrane technologies including innovative Forward Osmosis. The desalinated water is then supplied to a recirculating aquaculture system (RAS) at different salinities allowing for diverse aquaculture production. The RAS is then connected to the decoupled hydroponic where it is able to supply fertilized water to grow high-value crops and maximize the productivity of each unit of water. The brine (byproduct) of the desalination is used to grow algae through a bioreactor. Brine is also used to grow Artemia, a cost-effective and easy-to-use food that is supplied back to feed the fish. This closed-loop approach allows the entire system to be environmentally friendly.

The success of the WEFE model and its potential upscaling in the Mediterranean have been proven through a set of KPIs; a) commercialization agreement with industrial partners b) an experiential capacity building that empowered more than 500 youth, c) dissemination through many events and at least 15 scientific journal publications, d) now partner universities offer MSc. and Diploma in Sustainable Development, WEF technologies professional diploma and MSc in Water-Energy Management that are enriched by state-of-the-art integrations happening at the WEFE model.



Winner



Atef Jaouani

Professor at University of Tunis El Manar,
Higher Institute for Applied Biological
Sciences of Tunis

WINWATER

The Mediterranean region is characterized by a very limited and irregular availability of water resources, aggravated by climate change. Agriculture is very sensitive to the availability and quality of water since it represents more than 80% of water consumption in North African. The consequences of water scarcity and the shortage and poor water quality in this region are expected to reach dramatic proportions over the next 30 years in the absence of appropriate water management solutions. It is imperative to exploit the high potential of unconventional water sources namely treated wastewater and desalinated water which can help to bridge the gap between availability and needs and provide a steady supply of water for agriculture throughout the year. In this context, we have been working in the framework of several R&I projects to develop innovative and integrated solutions for the management of non-conventional water resources that are adapted to the local context. Multidisciplinary consortiums have collaborated to offer solutions that take into account the various technical, economic, social and regulatory aspects.

Low cost and energy efficient solutions for urban and industrial wastewater treatment have been developed. Pilots are installed in industrial plants and in wastewater treatment plants for textile and urban wastewaters, respectively.

The treated wastewater was tested for field irrigation and the results were very satisfactory. The yields obtained were comparable to those attained when drinking water was used without any noticeable adverse effect on the plants or the soil.

On the other hand, we have developed innovative desalination systems combining nanofiltration and reverse osmosis powered by photovoltaic panels, which considerably reduces energy requirements and improves the recovery rate of desalinated water. The results are validated on relatively high flow rates up to 24 m³/day.



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