



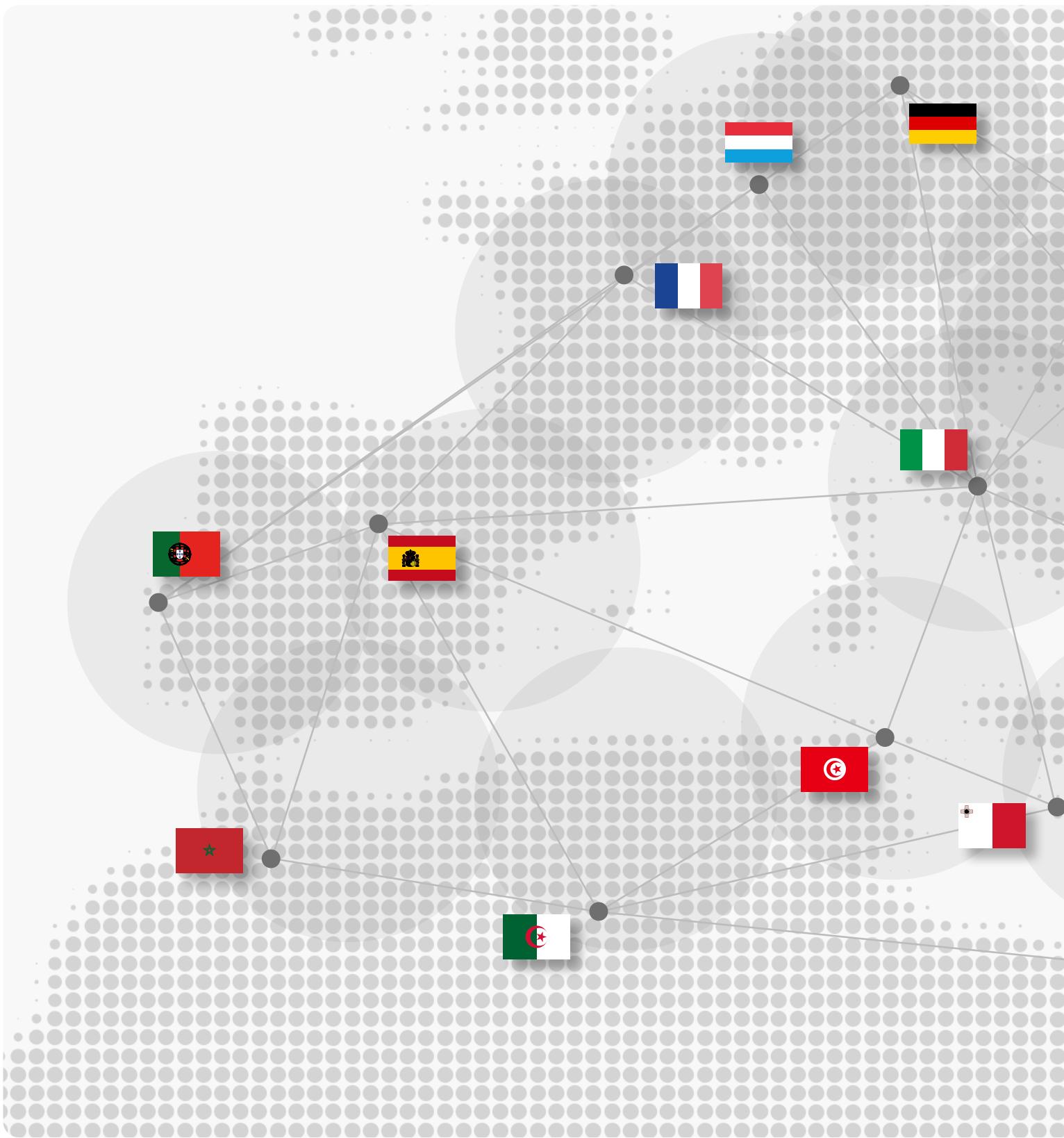
PRIMA

PARTNERSHIP FOR RESEARCH AND INNOVATION
IN THE MEDITERRANEAN AREA

Funded Projects 2021



Funded Projects 2021



Portugal



Spain



France



Luxembourg



Germany



Morocco



Algeria



Tunisia



Italy



Malta





Slovenia



REPUBLIC OF SLOVENIA
MINISTRY OF EDUCATION,
SCIENCE AND SPORT

Greece



GENERAL SECRETARIAT FOR
RESEARCH AND TECHNOLOGY

Turkey



TÜBİTAK

Lebanon



National Council for Scientific Research

Cyprus



Research
Promotion
Foundation

Croatia



REPUBLIC OF CROATIA
Ministry of Science and
Education

Egypt



Academy of Scientific Research
And Technology
أكاديمية البحث العلمي والتكنولوجيا



STDF
مندوق العلوم والتنمية التكنولوجية
Science and Technology Development Fund

Israel



רשות החדשנות
Israel Innovation
Authority



ISEARD
המסלול הישראלי-אירופי ל-B&I
Israel-Europe R&I Directorate

Jordan



وزارة التعليم العالي والبحث العلمي
Ministry of Education and Higher Education



مركز دعم البحث العلمي
Scientific Research Support Center



المملكة الأردنية الهاشمية
وزارة التعليم العالي والبحث العلمي
مندوق دعم البحث العلمي والابتكار
National Center for Scientific Research



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

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PRIMA, Funded Projects 2021 - June 2022

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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”.

Foreword

As we are publishing the current booklet, the geopolitical crisis in Ukraine is seriously impacting on a variety of aspects, including key issues such as food security, food availability and price, agro-food value chain competitiveness, and rural productivity just to mention some of those on which PRIMA is actively involved.

This situation is coupled with the challenges posed by the effects of climate change on the region, which, according to a recent report by the International Panel on Climate Change, will cause great problems in the Mediterranean in terms of biodiversity loss, water scarcity, desertification, food production and health-related issues. The thematic issues addressed, the challenges that PRIMA is contributing to face and the way PRIMA is trying to contribute to such endeavour makes PRIMA a successful example of research and innovation partnership, an effective model of cooperation among States and a solid instrument of science diplomacy between Europe, Africa and Middle East.

Based on the principle of equal footing among its members, PRIMA has been able to increase the participation of researchers to international calls and projects, and to align national policies on key areas such as water management, sustainable agriculture and food value chain, ensuring coherence with the major agendas and initiatives for the region. This has allowed consolidating trust among countries, between the scientific community and PRIMA and between PRIMA and other relevant actors of the Region such as FAO, UfM and CIHEAM.

In only a few years, **it has funded 168 projects involving around 1600 research units**, 38% of non-EU countries, for an allocated budget of almost 230 million, with around 28% of it going to non-European countries. **From a thematic standpoint, PRIMA is dealing with some of the main challenges addressed at global level**, which are crucial for the Euro-Mediterranean societies, such as climate change adaptation and mitigation, sustainable use of natural resources, food safety and security, valorisation of small farmers' productivity, promotion of local products, and fight against food loss and waste. Furthermore, PRIMA has been innovative in the design of calls, adopting from 2019 a nexus approach able to integrate the interconnections among topics, and launching calls aligned with the EU Mission a Soil Deal for Europe.

The current results could not be achieved without the joint commitment and work of the Secretariat, the Board Members, the Funding Agencies' representatives and the involved units of the European Commission.

Recognizably, **PRIMA has a major geostrategic role to play**. It could foster the green transition in the Mediterranean, contribute to deal with food insecurity, and promote the WEF Nexus Approach, also thanks its strong partnerships with Union for the Mediterranean, FAO and other key institutions such as CIHEAM.

PRIMA has enormous potentialities to deliver results, solutions and concrete innovations for more sustainable food systems, which are crucial for the future of the whole Europe and the Mediterranean. As Co-Chairs, we are committed to valorise further our Initiative to the benefit of researchers, citizens and enterprises of European and Mediterranean societies.

Calls Report PRIMA 2021

The background features a large, light green circular arc on the left side. To the right of the arc is a stylized plant with a central stem and several leaves. Below the plant is a wavy, horizontal line representing the ground or a field.

Calls Report PRIMA 2021

Section 1 / S1 at a glance

11



311
Proposals submitted

Funded Projects

of which

Projects per nationality of coordinating Entities



Projects per thematic area

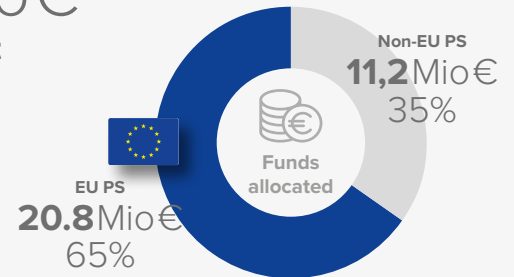
19

Participating States /PS
of which



32 Mio€

EU Budget

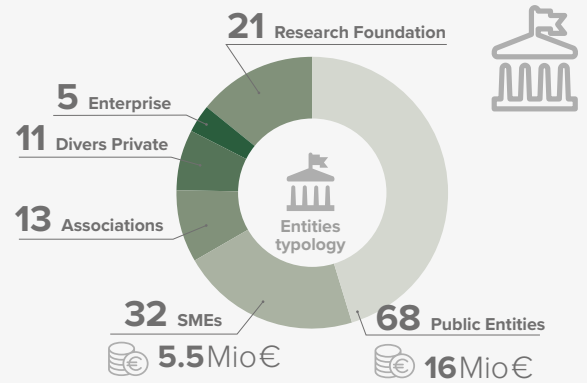
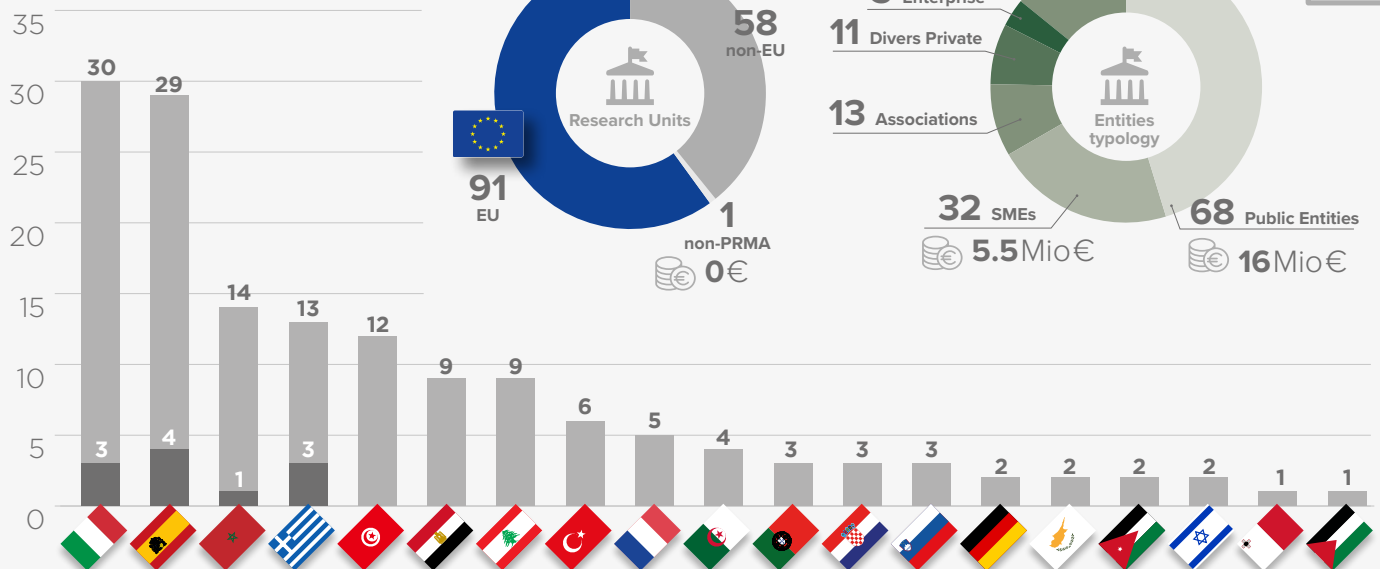


3 RIAs 8 IAs



Actions per thematic area

150 Research Units



Research Units per nationality

5.5 Mio€

16 Mio€

0€

Section 1 /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		Paesi	Research Units	Budget
<p>1</p>  <p>Mara-Mediterra Safeguarding the livelihood of rural communities and the environment in the Mediterranean through Nature-based Solutions</p>	 <p>RIA</p>	Greece		
		Algeria		
		Egypt		
		France		2.549.850 €
		Italy		
		Lebanon		
		Malta		
		Turkey		
		8	8	
<p>2</p>  <p>REACT4MED Inclusive Outscaling of Agro-ecosystem REstoration ACTions for the MEDiterranean</p>	 <p>RIA</p>	Greece	 	
		Italy	 	
		Cyprus		2.750.000 €
		Egypt		
		Germany		
		Israel		
		Morocco		
		Spain		
		Turkey		
9	11			

SECTION 1



3

**SALAM-MED**

Sustainable Approaches to LAnd and water Management in MEditerranean Drylands



RIA

Italy Spain Egypt France Tunisia Greece Morocco Palestine
(Non PRIMA PS) 

8

16

2.835.714 €



4

**FARMS4CLIMATE**

Smart governance and operational models for agroecological carbon farming



IA

Spain Italy Egypt Tunisia Greece Lebanon 

6

12

2.749.438 €



5

**MountainHER**

Empowering women associations as drivers for agro-ecological transformation to generate income for Mountain farming communities



IA

Morocco Italy Lebanon Algeria Croatia Spain Tunisia 

7

9

2.750.000 €






6

**PASTINNOVA**

Innovative models for sustainable future of Mediterranean pastoral systems



IA

Greece Italy Spain Algeria Croatia Cyprus France Lebanon Morocco Slovenia Tunisia Turkey 

12

20

2.750.000 €


7



DELICIOUS

UnDErstanding consumer food choices & promotion of healthy and sustainable Mediterranean diets and Lifestyles in Children through behavIOUral change actionS



IA

Spain	
Italy	
Egypt	
Lebanon	
Portugal	



5 10

8



PROMEDLIFE

PROMotion of MEDiterranean LIFEstyle and healthy diet



IA

Italy	
Morocco	
Slovenia	
Tunisia	
Greece	



5 12

9



SWITCHtoHEALTHY

Switching Mediterranean consumers to Mediterranean sustainable healthy dietary patterns



IA

Italy	
Spain	
Morocco	
Turkey	
Egypt	
Greece	
Lebanon	
Tunisia	



8 18

10



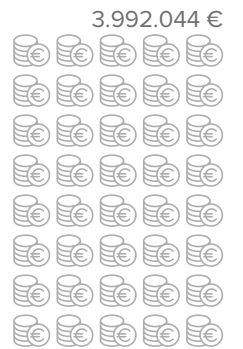
BONEX

Boosting Nexus Framework Implementation in the Mediterranean



IA

Spain	
Jordan	
Italy	
Lebanon	
Morocco	
Portugal	
Tunisia	
Germany	




















8 17

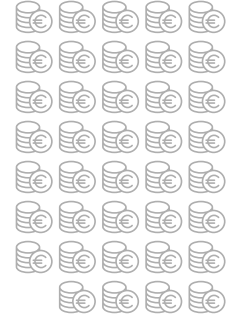
11

**SURE_NEXUS**

Ensure Fair NEXUS transition for climate change adaptation and sustainable development

**IA**

Spain	   	
Greece	  	
Italy	  	
Morocco	  	
Egypt		
France		
Israel		
Tunisia		
8	17	3.891.543 €

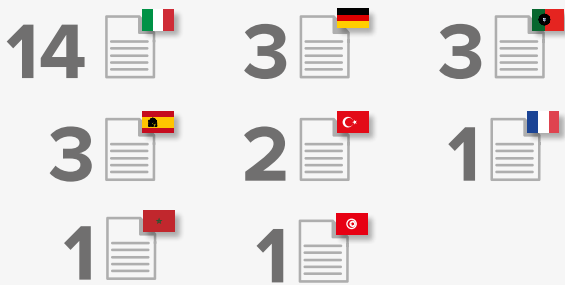


Calls Report PRIMA 2021

Section 2 /S2 at a glance

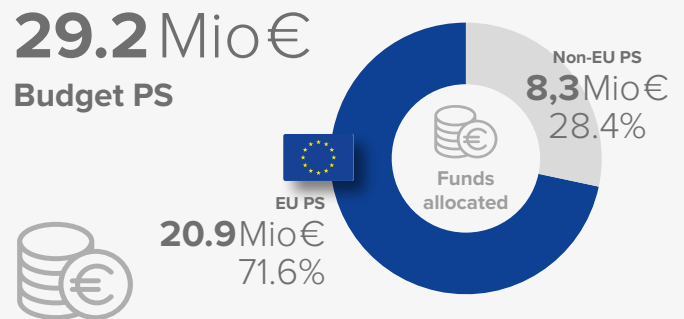
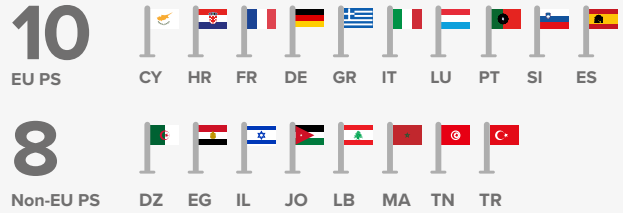


of which
Projects per nationality of coordinating Entities



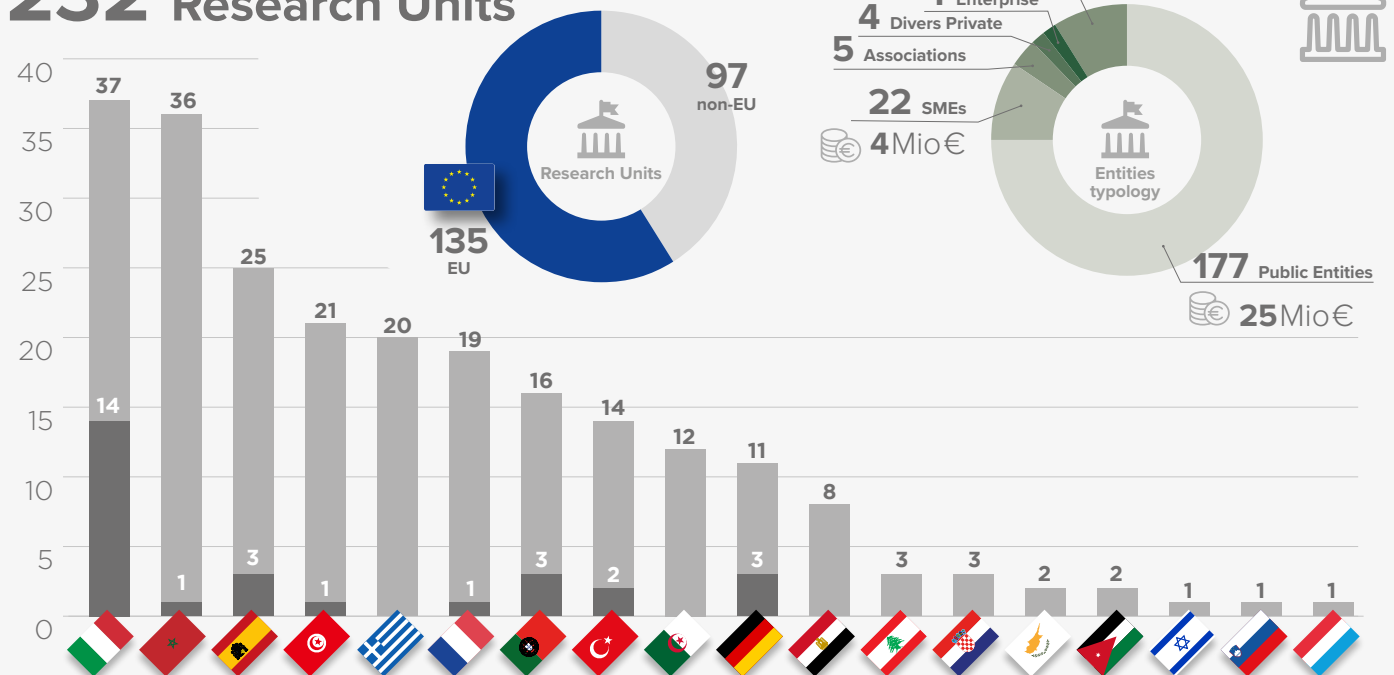
Projects per thematic area

18
Participating States /PS
of which



28 RIAs
Actions

232 Research Units



Research Units per nationality



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.

SECTION 2

Funded Projects	Paesi	Research Units	Budget
1 AGREEMAR Adaptive agreements on benefits sharing for managed aquifer recharge in the Mediterranean region	Germany		1.000.909 €
	Cyprus		
	Portugal		
	Spain		
	Tunisia		
	5	6	
2 AGREEMed Innovative Aquifers Governance for Resilient Water Management and Sustainable Ecosystems in Stressed Mediterranean Agricultural Areas	Morocco		1.300.140 €
	France		
	Germany		
	Jordan		
	Italy		
	Spain		
	Tunisia		
	7	10	
3 AG-WaMED Advancing non conventional water management for innovative climate-resilient water governance in the Mediterranean Area	Italy		1.049.850 €
	Algeria		
	Egypt		
	Greece		
	Spain		
	Tunisia		
	7	8	

4

**ADVAGROMED**

ADVanced AGROecological approaches based on the integration of insect farming with local field practices in MEDiterranean countries



RIA

Italy Germany Greece Morocco Portugal Spain **6** **6**

1.066.341 €


5

**AgrEcoMed**

New agroecological approach for soil fertility and biodiversity restoration to improve economic and social resilience of mediterranean farming systems



RIA

Italy   Morocco  Spain  Tunisia **4** **8**

920.165 €


6

**Agri-fiSh**

Circular economy application: from the field to the net. Sustainable and innovative feeds from agricultural wastes for a resilient and high-quality aquaculture



RIA

Italy  Algeria Spain **3** **4**

577.800 €



7

**ASTER**

Agroecology-inspired Strategies and Tools to Enhance Resilience and ecosystem services in tomato crop



RIA

Italy   Greece   Algeria  Morocco  Tunisia  Portugal Spain Turkey **8** **15**

1.582.799 €


8

**BENEFIT-Med**

Boosting technologies of orphan legumes towards resilient farming systems in the Greater Mediterranean Region: from bench to open field



RIA

Italy Greece   Morocco  Algeria France Germany Portugal Tunisia **8** **11**

833.736 €


9

**BIOMEnext**

Modelling integrated biodiversity-based next-generation Mediterranean farming systems



RIA

Italy



Morocco



Spain



Tunisia



France



Lebanon



6

11



10

**CICLICA**

Smart agriCulture optimization to CLimate Change Adaptation



RIA

Spain



Egypt



Algeria



Germany



Morocco

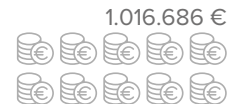


Turkey



6

8



11

**DREAM**

Diversified orchards for REsilient and sustAinable Mediterranean farming systems



RIA

Italy



France



Greece



Morocco



Spain



5

8



12

**ECOBOOST**

Boosting functional biodiversity to maximize ecosystem services for Mediterranean crop production



RIA

Italy



Greece



Morocco



Algeria



Germany



Tunisia



Turkey



7

10



13

**HaloSheep**

Agroecological sheep/goat production system based on the valorisation of halophytes of saline area in the méditerranéen basin



RIA

Tunisia



France



Greece



Italy



Spain



Turkey



6

7



14

**MED4PEST**

Novel Ecologically-Based ROdent management
DEvelopment in Mediterranean countries



RIA

Turkey



Morocco



Cyprus



Greece

**4****5**

527.460 €

15

**MEDPOME-STONE**

Valorizing some pome and stone fruit
germplasm variability to ensure resilience to
climate change in the Mediterranean area



RIA

Turkey



Morocco



Italy



Spain

**4****5**

620.150 €

16

**Quinoa4Med**

Quinoa as a climate-smart crop diversification
option for higher income generation from
marginal lands in the Mediterranean



RIA

Germany



Spain



Morocco



Algeria



France



Tunisia

**6****9**

1.747.173 €

17

**ReMe-diation**

Resilient Mediterranean with a holistic
approach to sustainable agriculture: Addressing
challenges of water, soil, energy and
biodiversity



RIA

Germany



Turkey



Greece



Portugal

**4****5**

606.804 €

18

**SAFE**

Sustainable water reuse practices improving
safety in agriculture, food and environment



RIA

Italy



Morocco



Tunisia



Algeria



France



Greece



Lebanon



Spain

**8****12**

1.340.320 €

19

**SEA FENNEL4MED**

Innovative sustainable organic sea fennel (*Crithmum maritimum* L.) - based cropping systems to boost agrobiodiversity, profitability, circularity, and resilience to climate changes in Mediterranean small farms



RIA

Italy	
Croatia	
France	
Tunisia	
Turkey	
5	8

964.600 €

20

**SIRAM**

Sustainable innovations for Regenerative Agriculture in the Mediterranean area



RIA

Italy	
Morocco	
Egypt	
France	
Greece	
Portugal	
Spain	
Tunisia	
8	10

1.566.293 €

21

**SUSTEMICROP**

Development of eco-sustainable systemic technologies and strategies in key Mediterranean crops systems, contributing to small farming socio-economic resilience



RIA

Spain	
Morocco	
France	
Italy	
Lebanon	
Slovenia	
Spain	
7	10

1.374.049 €

22

**VALMEDALM**

VALorization of MEDiterranean ALMond orchards through the use of intercropping integrated strategies



RIA

Portugal	
Morocco	
Croatia	
Egypt	
Israel	
Italy	
6	9

1.215.104 €

23

**VINEPROTECT**

Ecological survey for biological management and protection of Mediterranean vineyards facing climate changes



RIA

Portugal	
Turkey	
Morocco	
Italy	
4	7

760.722 €

24

**GreenDriedFruits**

Application of extreme temperatures in dried figs, dates, and currants disinfestation: sustainability in practice



RIA

Italy



Greece



Germany



Israel



Turkey



5

7

709.434 €

25

**InovFarmer.MED**

Improving Mediterranean supply chain through innovative agro-food business to strengthen small-scale farmers competitiveness, using prickly pear and fig as case study



RIA

Portugal



Algeria



Egypt



France



Morocco



5

9

674.100 €

26

**RESILINK**

Increasing Resilience of Smallholders with Multi-Platforms Linking Localized Resource Sharing



RIA

France



Egypt



Morocco



Algeria



4

7

766.966 €

27

**SMALLDERS**

Smart Models for Agrifood Local vaLue chain based on Digital technologies for Enabling covid-19 Resilience and Sustainability



RIA

Italy



France



Spain



Tunisia



4

5

1.061.328 €

28

**TECHONEY**

Development of a blockchain-based ecosystem that allows an improved positioning of small producers of honey on local and international markets



RIA

Spain



France



Morocco



Italy



Tunisia



Algeria



Luxembourg



Turkey



8

13

1.248.531 €

Calls Report PRIMA 2020

Section 1+2 overall data

39



451
Proposals submitted

Funded Projects

of which

Projects per nationality of coordinating Entities



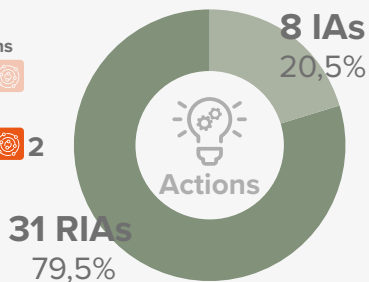
Projects per thematic area

Actions

Research and Innovation Actions



Innovation Actions



20

Participating States /PS
of which

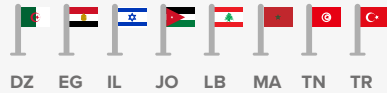
11

EU PS



8

Non-EU PS



1

PS non-PRIMA PS

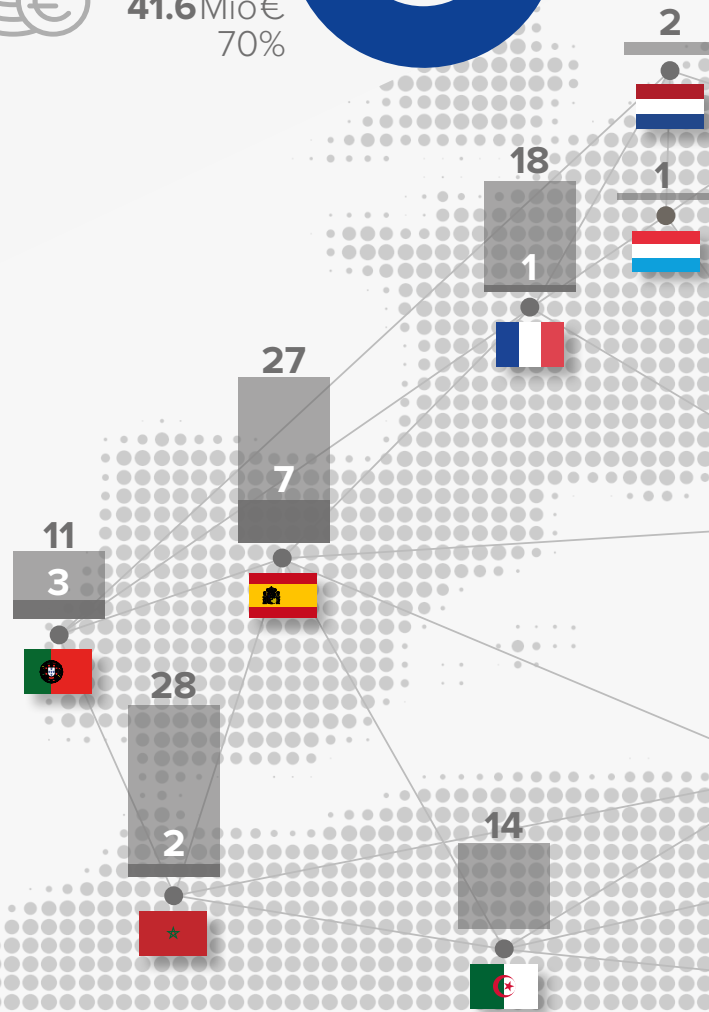
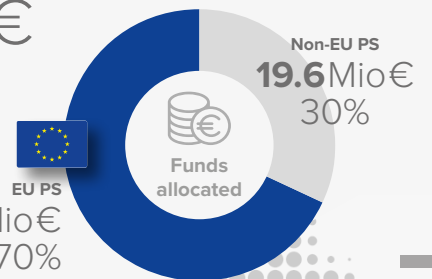


61.2 Mio€

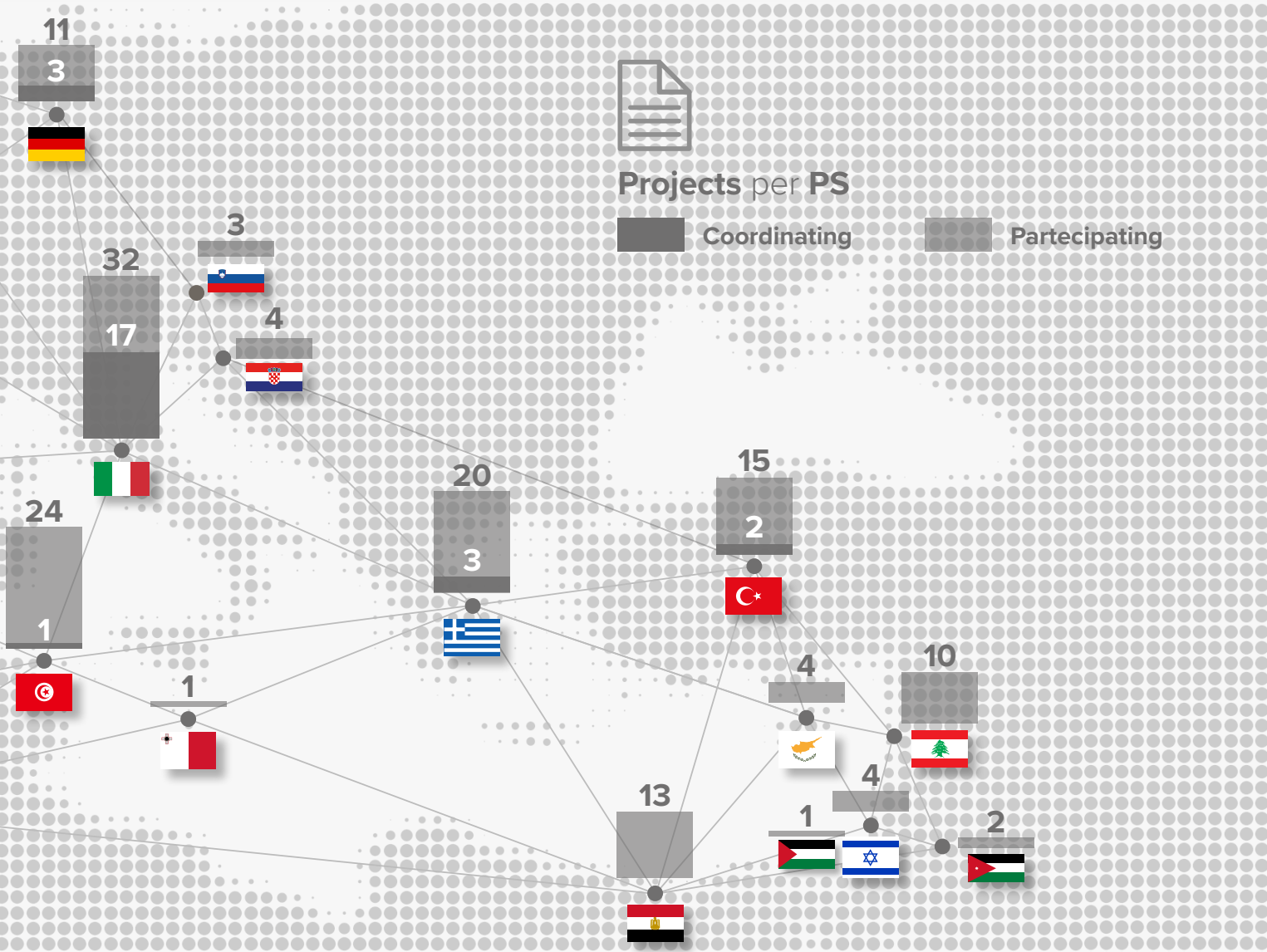
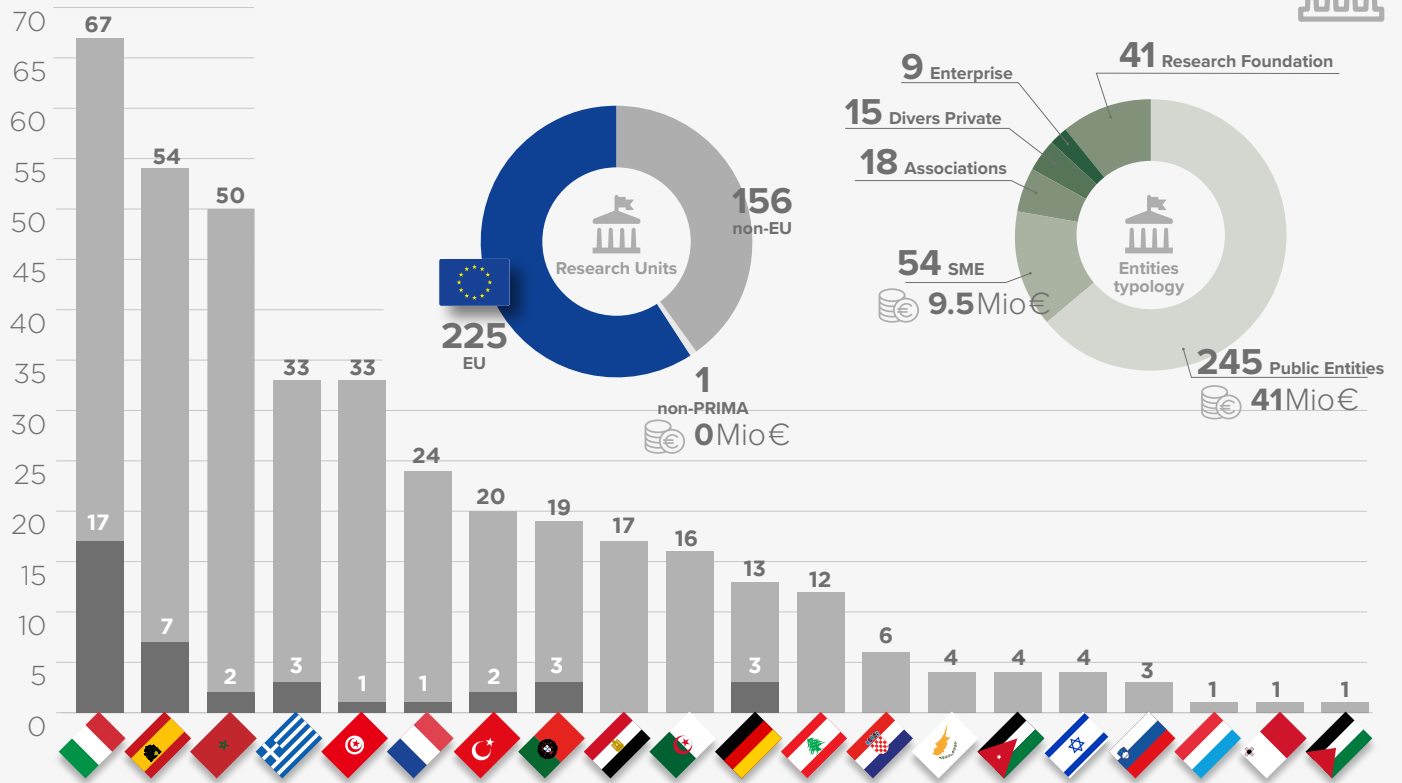
Budget
EU+PS



41.6 Mio€
70%



382 Research Units per nationality



Overall results

In **PRIMA 2021 calls**, the Partnership for Research and Innovation in the Mediterranean Area has allocated **61.2 million Euros** for funding **39 Research and Innovation Projects**.

Data shows the vital commitment of the European Commission and the 19 Euro-Mediterranean countries participating in this Partnership for supporting research and innovation in the agri-food and water management sectors.

The projects are divided into two sections: **Section 1**, which includes **11 projects funded** thru the European Commission financial contribution under the European Framework Programme for Research and Innovation, totaling **32 million Euros** for the 2021 calls; and **Section 2** which included **28 Projects**, funded thru the financial contribution of PRIMA participating states funding agencies, totaling **29.2 million Euros**.

31 projects out of 39 are **research and innovation actions (RIAs)**, and **8** are **innovation actions (IAs)**.

Content of the thematic areas

The Thematic Areas addressed by the 39 Projects are Water resources management, Agricultural Systems, Agri-Food Value Chains and WEFE Nexus.

Within the framework of the Thematic Area **Water Management**, the following topics are covered:

- Implementation of sustainable and integrated management of water resources in the Mediterranean under climate change conditions.
- Low-cost, lean solutions to improve irrigation efficiency in smallholder farms.

The **6 projects** financed in this thematic area aim to overcome water scarcity in the arid and semi-arid regions bordering the Mediterranean. Among the proposed solutions are safeguarding the livelihood of rural communities and the environment in the Mediterranean through Nature-based Solutions, inclusive Outscaling of Agroecosystem Restoration Actions as well as sustainable approaches to land and water Management in Mediterranean Dryland.

Regarding the thematic area of **Farming Systems**, the **23 funded projects** focused on Smart governance and operational models for agroecological carbon farming, empowering women associations as drivers for agroecological transformation to generate income for Mountain farming communities and creating innovative models for a sustainable future for Mediterranean pastoral systems.

The topics discussed by the **8 projects** funded in the thematic area of the **Agri-food Supply Chains** (Agro-food Value Chain) are various. Among them are projects dealing with consumer food choices and the promotion of healthy and sustainable Mediterranean diets and lifestyles in Children through behavioural change actions, promotion of Mediterranean lifestyle and healthy diet, and switching Mediterranean consumers to Mediterranean sustainable healthy dietary patterns.

Finally, the **2 projects** funded under the **Nexus** thematic area focus on boosting Nexus Framework Implementation in the Mediterranean and ensuring fair Nexus Transition for climate change adaptation and sustainable development.

Methods of implementation and use of innovation

This year, in particular, the tools and methods of implementation used by the 39 Projects are characterised by a **high level of innovation**, understood in all its declinations: product, process, technological and socio organisational.

In this regard, they come to prominence, among other things, **decision support systems** for irrigation management; **wireless sensor networks** for monitoring agrometeorology;

remotely piloted aircraft coupled with sensors; **imagery satellites**; **open-source geographic information systems**. There are also developed innovative machinery and processes to produce **healthier and more sustainable food**; practices for **reuse derivatives** of some typically Mediterranean products; tools for **preventive diagnostics** of animal diseases; and technologies and techniques for **precision irrigation**. As for the more appropriately organisational aspect, many Projects propose **innovative models of participation** to develop new governance of innovation, **open innovation**, actively involve **all stakeholders**, and obtain products and practices as much as possible usable at the **company level**. In this regard, it creates natural **innovation ecosystems**, i.e., living labs, models composite in which innovation is designed, developed, demonstrated, and disseminated. This confirms that co-creation experiences of innovation can be valuable tools for the recovery of the Mediterranean. Some Projects also seek to promote innovative models to the **marketing** level, exploiting, for example, e-commerce and procurement mechanisms Public.

PRIMA and alignment with international initiatives in the agricultural and food sectors

A strength of PRIMA, in addition to facing challenges, is its alignment with the leading initiatives in sustainability, research and innovation in the agri-food sector, carried out by important **international, regional, and European players**.

Firstly, PRIMA seeks to align with some **Sustainable Development Goals and specific targets set out in the United Nations 2030 Agenda** of September 2015. PRIMA projects contribute directly to the SDGs 1, 2, 3, 5, 6, 7, 8, 9; 10, 11, 12, 13 and 15. PRIMA projects tackle target 1.5 related to the Resilience of smallholders to climate-related extreme events through Farming systems. PRIMA projects also work on achieving target 2.3. double the agricultural productivity and the incomes of small-scale food producers and target 2.4 on resilient agricultural practices that increase productivity and production, help maintain ecosystems, and strengthen capacity for adaptation to climate change. The projects also are helping in realising target 2.5. by maintaining the genetic diversity of seeds, cultivated plants, farmed and domesticated animals and their related wild. They also work on target 2.6. related to food commodity markets and their derivatives, facilitating timely access to market information.

PRIMA projects are also working on Goal 3, mainly target 3.9. and work at reducing the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination. By enhancing the use of technologies, in particular ICT, to promote women's empowerment, PRIMA projects also work on addressing the SDG Goal 5. In addition, PRIMA projects aim to address Goal 6 target 6.3. by Improving water quality by reducing pollution, target 6.4. by increasing water-use efficiency across all sectors, target 6.5. by implementing integrated water resources management and target 6.6. by protecting and restoring water-related ecosystems. In the energy field, PRIMA funded projects address Goal 7 and aim to improve energy efficiency and access to clean energy research and technologies, including renewable energy and energy efficiency. All PRIMA projects in all thematic areas work on SDG 8 target 8.3 related to Job creation, entrepreneurship, creativity and innovation, and encourage formalisation and growth of micro-, small- and medium-sized enterprises.

Related to SDG 9, PRIMA projects help facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries. Furthermore, PRIMA funded projects are addressing the SDG target 11 through implementing integrated policies and plans toward inclusion, resource efficiency, mitigation and adaptation to climate change. In addition, PRIMA funded projects address the sustainable management and efficient use of natural resources and reduction of food losses along production and supply chains, including post-harvest losses, management of chemicals and substantially reduced waste generation through prevention, reduction, recycling, and reuse listed in SDG 12. In PRIMA, we work on achieving the SD13, like strengthening resilience and adaptive capacity to climate and integrating climate change measures into national policies, strategies, and planning. PRIMA projects SDG15 {combat desertification, and restore degraded land and soil, including land affected by desertification, drought and floods}, ensure the conservation of mountain ecosystems, including their

biodiversity, reduce degradation of natural habitat, halt the loss of biodiversity, and integrate ecosystems and biodiversity values into national and local planning, development processes and poverty reduction strategies.

PRIMA is also active in the discussion promoted within the **Union for the Mediterranean** on the new strategic agenda for the region Implementation Framework at the Euro-Mediterranean level. PRIMA is at the centre of the debate on implementing the new guidelines and priorities. The ability to respond to the increasingly urgent challenges will be required with effective and resilient solutions, bringing a concrete benefit to the small economic operators, local communities, and territories, thus contributing to the region's recovery.

At the European level, the objectives of PRIMA are also importantly reflected in the **Common Agricultural Policy of the European Union (CAP)** for 2021-2027, which, after two years of transitional regulation, will take a formal launch on 1 January 2023. As known, the emphasis of the next CAP will be the achievement of results related, in particular, to the issues of **protecting the environment and adaptation to climate change** by the sector agricultural. Among the proposed novelties, there is the introduction of ecological regimes. As a result, European farmers will access additional subsidies using **sustainable and resilient agricultural practices**.

Finally, it is worth mentioning the proximity of projects to the **Strategy 'From producer to consumer' by the European Commission** on 20 May 2020, included in the European Union's recovery and sustainable growth plan of December 2019, the **Green Deal**. The Strategy establishes **27 actions** to be taken to implement by 2023, including legislation on reducing the use of pesticides, animal welfare and strengthening the position of producers within the supply chain, issues on which it focuses in a more or the less direct way most of the PRIMA funded projects. Among the lines of action envisaged in the Strategy, objectives such as pursuing food production stand out. **Sustainable food security, the transition to healthy and sustainable feeding patterns, reduced use of fertilisers and pesticides**, and the fight against food waste are also present in PRIMA.

However, the alignment with the Strategy of the European Commission is not only in terms of actions and objectives. It extends to the centrality assigned in both initiatives to **research and innovation activities, the use of new technologies, new business models, data transfer and good practices, and, last but not least, cooperation in international and scientific diplomacy**.

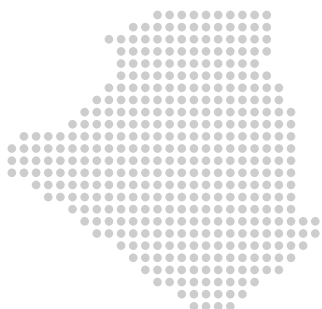
PRIMA is turning toward the themes and the approaches developed at the European level with the **five Missions** that the **new Horizon Europe Framework Programme** will characterise.



Data per participating States and Entities



ALGERIA



Budget
1.585.452 €



16 Research Units



14 Projects

involve one or more
algerian Research Units

Projects per thematic area



2

Mara-Mediterra /S1
AG-WaMED /S2



9

MountainHER /S1
PASTINNOVA /S1
Agri-fiSh /S2
ASTER /S2
BENEFIT-Med /S2
CICLICA /S2
ECOBOOST /S2
Quinoa4Med /S2
SAFE /S2



3

InovFarmer.MED /S2
RESILINK /S2
TECHONEY /S2




Entities	Research Units	Section 1 /S1	Section 2 /S2
AMengagement ENvironnement HYDraulique (AMENHYD)	1	Mara-Mediterra	
Institut Technique des Grandes Cultures (ITGC)	2	MountainHER	
Algerian National Agronomic Institute (INRAA)	3	PASTINNOVA	
Coopérative de Services d'élevage (COOPSSSEL)	4	PASTINNOVA	
Université Larbi Tebessi de Tébessa	5		AG-WaMED
Ibn Khaldoun University of Tiaret	6		Agri-fiSh
Badji Mokhtar - Annaba University (UBMA)	7		ASTER
University M'Hamed Bougara of Boumerdes (UMBB)	8		ASTER
Université Ferhat Abbas Sétif (UFAS1)	9		BENEFIT-Med
Université Djilali Bounaama Khemis Milliana (UDBKM)	10		CICLICA
Université Frères Mentouri Constantine 1 (UFMC1)	11		ECOBOOST
Université Kasdi Merbah, Département des Sciences Biologiques, Laboratoire Bioressources Sahariennes (UKMO)	12		Quinoa4Med
Université Djillali Liabes (UDL)	13		SAFE
Ecole Nationale Supérieure Vétérinaire d'Alger (ENSV)	14		InovFarmer.MED



Université Mohammed-Chérif Messaadia Souk-Ahras (UMCM)	15	RESILINK
Université Mouloud Mammeri de Tizi- Ouzou (UMMTO)	16	TECHONEY



 **Budget**
524.500 €


 **4 Research Units**






4 Projects
involve one or more
cypriot Research Units

Projects per thematic area

 **2**
AGREEMAR /S2
REACT4MED /S1

 **2**
MED4PEST /S2
PASTINNOVA /S1



Entities	 Research Units	 Section 1 /S1	 Section 2 /S2
The Cyprus Institute (CyI)	1	REACT4MED	
Cyprus Institute for Rural and Regional Development (CIRRD)	2	PASTINNOVA	
Cyprus University of Technology (CUT), ERATOSTHENES Centre of Excellence	3		AGREEMAR
CYENS Centre of Excellence Ltd	4		MED4PEST



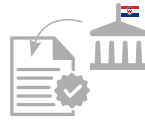
CROATIA



Budget
903.500 €



6 Research Units



4 Projects

involve one or more
croatian Research Units

Projects per thematic area



4

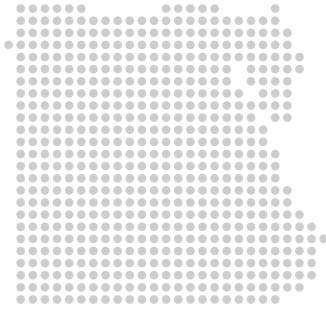


MountainHER /S1
PASTINNOVA /S1
SEA FENNEL4MED /S2
VALMEDALM /S2

Entities	Research Units	Section 1 /S1	Section 2 /S2
Lokalna razvojna agencija PINS	1	MountainHER	
University of Zagreb (UZ)	2	PASTINNOVA	
Agency for Rural Development of Istria Ltd Pazin (AZRRI)	3	PASTINNOVA	
University of Split (Sveučilište u Splitu - UNIST)	4 Department of Mediteranean agriculture		VALMEDALM
	5 Department of Food Technology and Biotechnology		SEA FENNEL4MED
Institute for Adriatic Crops and Karst Reclamation (KRS)	6 Institute for Adriatic Crops and Karst Reclamation (KRS)		SEA FENNEL4MED



EGYPT



Budget
2.503.245 €



17 Research Units
of which **3 SME**



13 Projects

involve one or more
egyptian Research Units

Projects per thematic area



4

AG-WaMED /S2
Mara-Mediterra /S1
REACT4MED /S1
SALAM-MED /S1



4

CICLICA /S2
FARMS4CLIMATE/S1
SIRAM /S2
VALMEDALM /S2



4

DELICIOUS /S1
InovFarmer.MED /S2
RESILINK /S2
SWITCHtoHEALTHY /S1



1

SURE_NEXUS /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Academy Company for Information and Communication Technology (ACICT)	1		InovFarmer.MED
	2		RESILINK
Agricultural Engineering Research Institute (AENRI)	3		CICLICA
Agricultural Research Center Egypt (ARC)	4		SIRAM
	5		RESILINK
Alexandria University (ALEXU)	6		AG-WaMED
Assiut University (AUN)	7	DELICIOUS	
Confederation of Egyptian European Business Associations, (CEEBA)	8	SWITCHtoHEALTHY	
Desert Research Center (DRC)	9	SALAM-MED	
Egyptian Chinese University (ECU), Research & Innovation Center	10	Mara-Mediterra	
FAO Regional Office for the Near East and North Africa (FAO/RNE)	11	SALAM-MED	
Heliopolis University (HU)	12	FARMS4CLIMATE	
Modern Machinery	13		CICLICA
National Research Centre (NRC) - EG	14	REACT4MED	
	15		VALMEDALM
Participatory Development Solutions (EIMahrousa PDS)	16	SURE_NEXUS	
SEKEM Development Foundation	17	FARMS4CLIMATE	



Budget
3.893.217 €

24 Research Units
of which **2 SME**



18 Projects
involve one or more
french Research Units

1 Project
is coordinated by
a french Research Unit

Projects per thematic area

3
AGREEMed /S2
Mara-Mediterra /S1
SALAM-MED /S1


10
BENEFIT-Med /S2
BIOMEnext /S2
DREAM /S2
HaloSheep /S2
PASTINNOVA /S1
Quinoa4Med /S2
SAFE /S2
SEA FENNEL4MED /S2
SIRAM /S2
SUSTEMICROP /S2

4
InovFarmer.MED /S2
RESILINK /S2
SMALLDERS /S2
TECHONEY /S2

1
SURE_NEXUS /S1

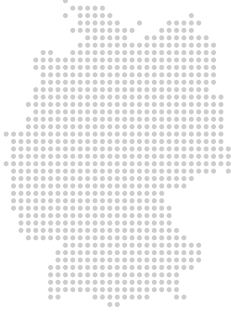
Entities	Research Units	Section 1 /S1	Section 2 /S2
	1	SALAM-MED	
Centre International de Hautes Etudes Agronomiques Méditerranéennes (CIHEAM)	2 Institut Agronomique et Méditerranéen de Montpellier, (CIHEAM - IAMM)		AGREEMed
DesertNet International (DNI)	3	SALAM-MED	
Ecole Nationale Supérieure des Mines d'Alès (IMT Mines Alès)	4		SMALLDERS
Euro-Mediterranean Information System on know-how in the Water sector (SEMIDE-EMWIS)	5		AGREEMed
Groupe de Recherche en Agriculture Biologique (GRAB)	6		DREAM
Institut Français de la Vigne et du Vin (IFV)	7		SUSTEMICROP
Institut Jean-Pierre Bourgin (JPB)	8		DREAM
	9		SUSTEMICROP
Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE)	10		BENEFIT-Med
	11		BIOMEnext
	12		InovFarmer.MED



Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement (INRAE)	13	Unité Mixte de Recherche sur les Herbivores, Centre INRA Rhône-Alpes-Auvergne (INRAE UMRH)	HaloSheep
	14	Systemes d'elevage mediterraneens et tropicaux - Laboratoire de Recherche sur le Developpement de l'Elevage (UR 045- SELMET LRDE, INRAE)	PASTINNOVA
JASSP Sas	15		TECHONEY
Laboratoire d'Informatique Gaspard-Monge - UMR 8049 CNRS (LIGM)	16		TECHONEY
Laboratoire Informatique de l'Université de Pau et des Pays de l'Adour (LIUPPA)	17		 RESILINK
Orange Labs, France Telecom-Orange Group	18		RESILINK
Savoirs, Environnement et Sociétés, Centre de coopération internationale en recherche agronomique pour le développement (UMR SENS - CIRAD)	19		Quinoa4Med
Tensor Consulting	20		Mara-Mediterra
UNESCO, Division of Water Sciences (SC/HYD)	21		SURE_NEXUS
Université Bourgogne Franche-Comté (UBFC)	22		SIRAM
Université de Bretagne Occidentale (UBO)	23		SEA FENNEL4MED
Université de Montpellier (UM)	24		SAFE



GERMANY



Budget
3.261.321 €



13 Research Units
of which **2 SME**



of which



11 Projects

involve one or more
german Research Units

3 Projects

are coordinated by
a german Research Unit

Projects per thematic area



3

[AGREEMAR](#) /S2
[AGREEMed](#) /S2
[REACT4MED](#) /S1



6

[ADVAGROMED](#) /S2
[BENEFIT-Med](#) /S2
[CICLICA](#) /S2
[ECOBOOST](#) /S2
[Quinoa4Med](#) /S2
[ReMe-diation](#) /S2



1

[GreenDriedFruits](#) /S2



1

[BONEX](#) /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Adelphi Research gemeinnützige GmbH	1		AGREEMAR
DELTA Umwelt-Technik GmbH	2		AGREEMed
Deutsches Institut für Lebensmitteltechnik e.V. (DIL)	3		ADVAGROMED
Karlsruhe Institute of Technology, Institute of Meteorology and Climate Research (KIT)	4		BENEFIT-Med
Osnabrück University (UOS)	5	REACT4MED	
Technische Universität Berlin (TUB)	6		AGREEMed
Technische Universität Dresden (TU Dresden)	7		AGREEMAR
Technische Universität Hamburg (TUHH)	8		ReMe-diation
Technische Universität München (TUM)	9		CICLICA
	10		GreenDriedFruits
Universität Göttingen (UGOE)	11		ECOBOOST
Universität Hohenheim	12		Quinoa4Med
Universität Kassel (UKS)	13	BONEX	



JORDAN



Budget
667.985 €



3 Research Units
of which **1 SME**



2 Projects

involve one or more
jordan Research Units

Projects per thematic area






1

AGREEMed /S2



1

BONEX /S1

Entities	 Research Units	 Section 1 /S1	 Section 2 /S2
German Jordanian University (GJU)	2	BONEX	
	3		AGREEMed
International Union for the Conservation of Nature, Regional Office for West Asia (IUCN- ROWA)	4	BONEX	



GREECE



Budget
4.973.193 €



33 Research Units
of which **8 SME**



of which



20 Projects

involve one or more
greek Research Units

3 Projects

are coordinated by
a greek Research Unit

Projects per thematic area



4

AG-WaMED /S2
Mara-Mediterra /S1
REACT4MED /S1
SALAM-MED /S1



12

ADVAGROMED /S2
ASTER /S2
BENEFIT-Med /S2
DREAM /S2
ECOBOOST /S2
FARMS4CLIMATE /S1
HaloSheep /S2
MED4PEST /S2
PASTINNOVA /S1
ReMe-diation /S2
SAFE /S2
SIRAM /S2



3

GreenDriedFruits /S2
PROMEDLIFE /S1
SWITCHtoHEALTHY/S1






1

SURE_NEXUS /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Academy of Athens (AoA)	1	SALAM-MED	
Agricultural and Environmental Solutions (AGENSO)	2	SURE_NEXUS	
Agricultural Cooperative of Pella	3		DREAM
Agricultural Cooperatives Union, Aeghion SA	4		GreenDriedFruits
Agricultural University of Athens (AUA)	5		BENEFIT-Med
AgroApps PC	6		DREAM
AGROLAND SA	7		BENEFIT-Med
Antonis Vezyroglou & SIA EE	8		ASTER
Aristotle University of Thessaloniki (AUTH)	9	PASTINNOVA	
	10		ASTER
Benaki Phytopathological Institute (BPI)	11		ECOBOOST
	12		BENEFIT-Med
Centre for Research and Technology Hellas (CERTH)	13	SWITCHtoHEALTHY	



Democritus University of Thrace (DUTH)	14		ASTER
	15		ECOBOOST
Ellinogermaniki Agogi (EA) - GR	16		PROMEDLIFE
EVOTROPIA Ecological Finance Architectures P.C. - GR	17		SIRAM
Harokopio University of Athens (HUA) - GR	18		GreenDriedFruits
Hellenic Agricultural Organization – DEMETER	19	Agricultural Economics Research Institute (AGRERI) - GR	AG-WaMED
	20	Agricultural Economics Research Institute (AGRERI)	 PASTINNOVA
	21	Ellinikos Georgikos Organismos, Veterinary Research Institute (ELGO-DIMITRA-VRI)	HaloSheep
	22	Soil and Water Resources Institute (SWRI)	 Mara-Mediterra
	23	Institute of Plant Breeding and Genetic Resources (ELGO-DIMITRA IPBGR)	SAFE
Hellenic Mediterranean University (HMU)	24		 REACT4MED
	25		MED4PEST
IFOAM AgriBioMediterraneo, (IFOAM-ABM)	26		FARMS4CLIMATE
National Technical University of Athens (NTUA)	27		SURE_NEXUS
Technical University of Crete (TUC)	28		REACT4MED
	29		ReMe-diation
Tinos Eco Lodge	30		SURE_NEXUS
Trofý.Lab	31		PASTINNOVA
University of Thessaly (UTH) - GR	32		ADVAGROMED
	33		GreenDriedFruits



ISRAEL



Budget
858.381 €



4 Research Units
of which **1 SME**



4 Projects

involve one or more
israeli Research Units

Projects per thematic area



1

REACT4MED /S1



1

VALMEDALM /S2






1

GreenDriedFruits /S2



1

SURE_NEXUS /S1

Entities	 Research Units	 Section 1 /S1	 Section 2 /S2
Green-storage Ltd	1		GreenDriedFruits
Keren Kayemeth Lelsrael, Jewish National Fund (KKL-JNF)	2	SURE_NEXUS	
Organization, Volcani Center (ARO)	3		VALMEDALM
University of Haifa (UH)	4	REACT4MED	



ITALY



Budget
13.835.542 €



67 Research Units
of which **13 SME**



of which



32 Projects

involve one or more
italian Research Units

17 Projects

are coordinated by
a italian Research Unit

Projects per thematic area



5

[AGREEMed](#) /S2
[AG-WaMED](#) /S2
[Mara-Mediterra](#) /S1
[REACT4MED](#) /S1
[SALAM-MED](#) /S1



19

[ADVAGROMED](#) /S2
[AgrEcoMed](#) /S2
[Agr-fiSh](#) /S2
[ASTER](#) /S2
[BENEFIT-Med](#) /S2
[BIOMEnext](#) /S2
[DREAM](#) /S2
[ECOBOOST](#) /S2
[FARMS4CLIMATE](#) /S1
[HaloSheep](#) /S2
[MEDPOME-STONE](#) /S2
[MountainHER](#) /S1
[PASTINNOVA](#) /S1
[SAFE](#) /S2
[SEA FENNEL4MED](#) /S2
[SIRAM](#) /S2
[SUSTEMICROP](#) /S2
[VALMEDALM](#) /S2
[VINEPROTECT](#) /S2



6

[DELICIOUS](#) /S2
[GreenDriedFruits](#) /S2
[PROMEDLIFE](#) /S1
[SMALLDERS](#) /S2
[SWITCHtoHEALTHY](#) /S1
[TECHONEY](#) /S2



2









[BONEX](#) /S1
[SURE_NEXUS](#) /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Agenzia Nazionale per le nuove Tecnologie, l'Energia e lo Sviluppo Economico Sostenibile (ENEA)	1	PROMEDLIFE	
	2		BIOMEnext
Agreement srl	3	FARMS4CLIMATE	
	4	BONEX	
Alma Mater Studiorum Università di Bologna (UNIBO)	5		DREAM
	Dipartimento di Scienze e Tecnologie Agro-Alimentari (UNIBO-DISTAL)		
APPIA - Rete della Pastorizia Italiana	6	PASTINNOVA	
Birrificio Emiliano srl	7	MountainHER	
Centro Internazionale di Alti Studi Agronomici Mediterranei (CIHEAM)	8	REACT4MED	



Consiglio Nazionale delle Ricerche (CNR)	9	Istituto di Bioscienze e Biorisorse (IBBR-CNR)		BIOMEnext
	10	Istituto per il Sistema Produzione Animale in Ambiente Mediterraneo (SPAAM-CNR)	PASTINNOVA	
	11	Istituto per la Protezione Sostenibile delle Piante (IPSP-CNR)		 ASTER
	12	Istituto per la Protezione Sostenibile delle Piante (IPSP-CNR)	SALAM-MED	
	13	Istituto per le Risorse Biologiche e le Biotecnologie Marine (IRBIM-CNR)		AgrI-fiSh
	14	Istituto Ricerca sulle Acque (IRSA - CNR)		SAFE
Consiglio per la Ricerca in Agricoltura e l'analisi dell'Economia Agraria (CREA)	15	Centro di Ricerca Alimenti e Nutrizione (AN-CREA)		SEA FENNEL4MED
	16			AgrEcoMed
Consorzio della Bonifica Renana	17		BONEX	
Contento Trade srl	18		PROMEDLIFE	
ENCO Consulting srl	19		 SWITCHtoHEALTHY	
Fondazione Centro Ricerche Produzioni Animali (CRPA)	20			HaloSheep
Fondazione Edmund Mach (FEM)	21		 PROMEDLIFE	
Horta srl	22			SUSTEMICROP
Hortus Novus srl	23		PROMEDLIFE	
IRIDRA srl	24			AGREEMed
Open Fields srl	25		MountainHER	
OpenTea srl	26			SIRAM
Planet Di Villa Alessandro & C. sas	27		SURE_NEXUS	
Politecnico di Milano (POLIMI)	28	Dipartimento di Ingegneria Civile e Ambientale		AG-WaMED
Primo Principio Società Cooperativa	29		SALAM-MED	
Provincia d'Italia dei Fratelli Maristi delle Scuole	30		DELICIOUS	
Regione Campania	31		SWITCHtoHEALTHY	
REM TEC srl	32		SURE_NEXUS	
RINCI srl	33			SEA FENNEL4MED
Sapienza Università di Roma	34			SAFE
	35			TECHONEY
SoftWater srl	36		REACT4MED	
Università Cattolica del Sacro Cuore (UCSC)	37	Dipartimento di Scienze e Tecnologie Alimentari per una filiera agro-alimentare Sostenibile (DiSTAS)		 SIRAM
	38		FARMS4CLIMATE	
Università degli Studi della Basilicata (UNIBAS)	39	Dipartimento delle Culture Europee e del Mediterraneo (DICEM)		 AgrEcoMed
	40	Dipartimento di Scienze (DiS)		 SAFE
	41		FARMS4CLIMATE	
Università degli Studi di Bari Aldo Moro (UNIBA)	42			AgrEcoMed



Università degli Studi di Firenze (UNIFI)	43	Dipartimento di Scienze e Tecnologie Agrarie, Alimentari e Forestali (DAGRI)	Mara-Mediterra
	44	Dipartimento di Scienze e Tecnologie Agrarie, Alimentari, Ambientali e Forestali (DAGRI)	 AG-WaMED
	45		SALAM-MED
Università degli Studi di Milano (UNIMI)	46	Dipartimento di Scienze e Politiche Ambientali	 GreenDriedFruits
Università degli Studi di Napoli Federico II (UNINA)	47		TECHONEY
Università degli Studi di Palermo (UNIPA)	48		VALMEDALM
	49	Dipartimento Scienze Agrarie, Alimentari e Forestali	 ECOBOOST
Università degli Studi di Pavia (UNIPV)	50	Dipartimento di Biologia e Biotecnologie	 BENEFIT-Med
Università degli Studi di Perugia (UNIPG)	51	Dipartimento di Scienze Agrarie, Alimentari ed Ambientali	 BIOMEnext
Università degli Studi di Sassari (UNISS)	52	Desertification Research Center (NRD)	 SALAM-MED
Università degli Studi di Torino (UNITO)	53	Dipartimento di Scienze Agrarie, Forestali e Alimentari (DISAFA)	 ADVAGROMED
Università degli Studi di Verona (UNIVR)	54		VINEPROTECT
Università degli Studi Mediterranea di Reggio Calabria (UNIRC)	55		ECOBOOST
Università del Piemonte Orientale Amedeo Avogadro (UNIUPO)	56		ASTER
Università della Calabria (UNICAL)	57	Modeling & Simulation Center Laboratory of Enterprise Solutions, (MSC-LES)	 SMALLDERS
Università di Camerino (UNICAM)	58	Scuola di Scienze del Farmaco e dei Prodotti della Salute	 Agrl-fiSh
	59		DELICIOUS
Università di Catania (UNICT)	60		ASTER
	61		MEDPOME-STONE
	62		PROMEDLIFE
Università di Parma (UNIPR)	63		SWITCHtoHEALTHY
	64	Future Technology Lab	SMALLDERS
	65	Dipartimento di Scienze Agrarie, Alimentari, ed Ambientali (D3A)	 SEA FENNEL4MED
Università Politecnica delle Marche (UNIVPM)	66		SURE_NEXUS
	67		PASTINNOVA



LEBANON



Budget
2.293.438 €



12 Research Units
of which **2 SME**



10 Projects

involve one or more
lebanese Research Units

Projects per thematic area



1

Mara-Mediterra /S1



6

BIOMEnext /S2
FARMS4CLIMATE /S1
MountainHER /S1
PASTINNOVA /S1
SAFE /S2
SUSTEMICROP /S2



2

DELICIOUS /S1
SWITCHtoHEALTHY /S1



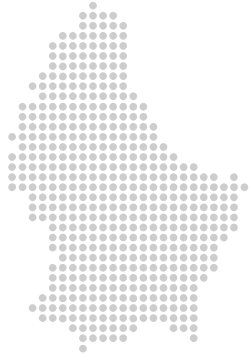
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BONEX /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
American University of Beirut (AUB)	1	BONEX	
Collège Mariste Notre Dame de Lourdes de Jbail-Amchit	2	DELICIOUS	
Consumers Lebanon	3	SWITCHtoHEALTHY	
International Center for Agricultural Research in the Dry Areas (ICARDA)	4	FARMS4CLIMATE	
	5	MountainHER	
Lebanese Agriculture Research Institute (LARI)	6	MountainHER	
Lebanese Development Network (LDN)	7		SAFE
	8	PASTINNOVA	
	9		SUSTEMICROP
Lebanese University (UL)	10	Mara-Mediterra	
	11		BIOMEnext
NovaEnergia SAL	12	BONEX	



LUXEMBOURG



Budget
185.531 €



1 Research Unit



1 Project

involve one
luxembourg Research Unit

Projects per thematic area



1

TECHONEY /S2



Entities



Research Units



Section 1 /S1



Section 2 /S2

Luxembourg Institute of Science and
Technology (LIST)

1

TECHONEY



MALTA



Budget
397.075 €



1 Research Units
of which **1 SME**



1 Project

involve one
maltese Research Unit

Projects per thematic area



1

Mara-Mediterra /S1



Entities



Research Units



Section 1 /S1



Section 2 /S2

Integrated Resources
Management Company Ltd.
(IRMCo)

1

Mara-Mediterra



MOROCCO



Budget
6.237.680 €



50 Research Units
of which **2 SME**



of which



28 Projects

involve one or more moroccan Research Units

2 Projects

are coordinated by a moroccan Research Unit

Projects per thematic area



3

AGREEMed /S2
REACT4MED /S1
SALAM-MED /S1



18

ADVAGROMED /S2
AgrEcoMed /S2
ASTER /S2
BENEFIT-Med /S2
BIOMEnext /S2
CICLICA /S2
DREAM /S2
ECOBOOST /S2
MED4PEST /S2
MEDPOME-STONE /S2
MountainHER /S1
PASTINNOVA /S1
Quinoa4Med /S2
SAFE /S2
SIRAM /S2
SUSTEMICROP /S2
VALMEDALM /S2
VINEPROTECT /S2



5

InovFarmer.MED /S2
PROMEDLIFE /S1
RESILINK /S2
SWITCHtoHEALTHY /S1
TECHONEY /S2



2

BONEX /S1
SURE_NEXUS /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Atlas Safran SA	1	PROMEDLIFE	
Cadi Ayyad University (UCA) - MO	2		BIOMEnext
	3 Faculté des Sciences Semlalia	SALAM-MED	
Centre Technique de Plasturgie et de Caoutchouc (CTPC)	4	SURE_NEXUS	
	5		TECHONEY
École Nationale d'Agriculture de Meknes (ENAM)	6		MEDPOME-STONE
	7		SIRAM
	8		ASTER
	9		AgrEcoMed
	10		BENEFIT-Med
Institut Agronomique et Vétérinaire Hassan II (IAV)	11	BONEX	
	12 Dept. of Production, Protection and Biotechnology		BONEX
	13		SAFE



Institut National de la Recherche Agronomique (INRA)	14		 MountainHER
	15		PROMEDLIFE
	16		REACT4MED
	17		SURE_NEXUS
	18		PASTINNOVA
	19		DREAM
	20		ECOBOOST
	21		VALMEDALM
	22		RESILINK
	23	Regional Center For Kenitra Agronomic Research	
Mohammed VI Polytechnic University (UM6P)	24		 AGREEMed
	25		BIOMEnext
Office National de l'Electricité et de l'Eau Potable (ONEE)	26		SURE_NEXUS
Office Régional de Mise en Valeur Agricole du Souss Massa (ORMVA-SM)	27		BONEX
Soconarjiss Sarl	28		SWITCHtoHEALTHY
	29		ADVAGROMED
	30		AgrEcoMed
Sultan Moulay Slimane University Beni-Mellal (USMS)	31		TECHONEY
	32		VINEPROTECT
	33		CICLICA
Université Cadi Ayyad (UCA)	32		VINEPROTECT
	33		CICLICA
Université Hassan II de Casablanca (UH2C)	34		BENEFIT-Med
Université Ibn Tofail de Kénitra (UIT Kénitra)	35	Unité Mixte de Recherche en Nutrition et Alimentation (CNESTEN-IUT)	SWITCHtoHEALTHY
	36		SAFE
Université Ibn Zohr (UIZ)	37		AGREEMed
	38		InovFarmer.MED
Université Mohammed Premier Oujda (UMP)	39		SUSTEMICROP
	40	Faculté des Sciences	SWITCHtoHEALTHY
	41		Quinoa4Med
Université Mohammed V de Rabat (MVU)	42		ECOBOOST
	43		MED4PEST
Université Mohammed VI Polytechnique (UM6P)	44		SUSTEMICROP
Université Moulay Ismaïl (UMI)	45		DREAM
Université Sidi Mohamed Ben Abdellah (USMBA)	46		ASTER
	47		SIRAM
Université Sultan Moulay Slimane - MO	48		MEDPOME-STONE
	49		VALMEDALM
	50		RESILINK



PALESTINE
Non-PRIMA PS

 **Budget**
0 €

 **1 Research Unit**



1 Project

involve one
netherlands Research Unit

Projects per thematic area



SALAM-MED /S2



Entities



Research Units



Section 1 /S1



Section 2 /S2

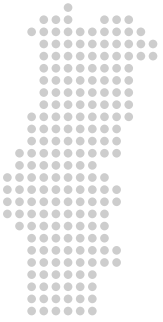
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1

SALAM-MED



PORTUGAL



Budget
1.842.670 €



19 Research Units
of which **4 SME**



of which



11 Projects

involve one or more portuguese Research Units

3 Project

is coordinated by a portuguese Research Unit

Projects per thematic area



1

AGREEMAR /S2



7

ADVAGROMED /S2
ASTER /S2
BENEFIT-Med /S2
ReMe-diation /S2
SIRAM /S2
VALMEDALM /S2
VINEPROTECT /S2



2

DELICIOUS /S1
InovFarmer.MED /S2



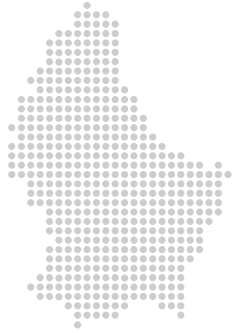
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BONEX /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Associação BLC3, Campus de Tecnologia e Inovação	1		BENEFIT-Med
Centro Nacional de Competências dos Frutos Secos (CNCFS)	2		VALMEDALM
Chatron Lda	3		InovFarmer.MED
Food4Sustainability - Associação Para A Inovação no Alimento Sustentável	4		InovFarmer.MED
Ingredient Odyssey SA (IO)	5		ADVAGROMED
Instituto Politécnico de Bragança (IPB)	6		VALMEDALM
Instituto Politécnico de Viseu (IPV)	7		InovFarmer.MED
Laboratório Colaborativo Montanhas de Investigação (MORE)	8		VALMEDALM
Laboratório Nacional de Engenharia Civil (LNEC)	9		AGREEMAR
Natural Business Intelligence (NBI)	10	BONEX	
Pais Da Costa & Esteves Pereira - Consultoria, Lda	11		InovFarmer.MED
Província Portuguesa Da Congregação Dos Irmãos Maristas	12	DELICIOUS	
Universidade da Beira Interior (UBI)	13		ReMe-diation
Universidade de Aveiro (UA)	14		InovFarmer.MED
Universidade de Coimbra (UC)	15		SIRAM
Universidade de Lisboa	16 Instituto Superior de Agronomia (ISA-PT)		ASTER
Universidade de Trás-os-Montes e Alto Douro (UTAD)	17		VINEPROTECT
Universidade do Porto	18 Faculdade de Ciências (FCUP)		VINEPROTECT
Universidade Nova de Lisboa	19 NOVA School of Science and Technology (FCT NOVA)	BONEX	



SLOVENIA



Budget
466.500 €



4 Research Units
of which **2 SME**



3 Projects

involve one or more
slovene Research Units

Projects per thematic area



2

PASTINNOVA /S1
SUSTEMICROP /S2



1

PROMEDLIFE /S1



Entities	Research Units	Section 1 /S1	Section 2 /S2
KMETIJSKI ZAVOD BRIC, SOČA	1	PASTINNOVA	
Jožef Stefan Institute (IJS)	2	PROMEDLIFE	
Mlekarna-Planika d.o.o. Kobarid	3	PROMEDLIFE	
Slovenian Institute of Hop Research and Brewing (SHIRB)	4		SUSTEMICROP



SPAIN



Budget
11.360.242 €



54 Research Units
of which **8 SME**



of which



27 Projects

involve one or more
spanish Research Units

7 Projects

are coordinated by
a spanish Research Unit

Projects per thematic area



5

AGREEMAR /S2
AGREEMed /S2
AG-WaMED /S2
REACT4MED /S1
SALAM-MED /S1



16

ADVAGROMED /S2
AgrEcoMed /S2
AgrI-fiSh /S2
ASTER /S2
BIOMEnext /S2
CICLICA /S2
DREAM /S2
FARMS4CLIMATE /S1
HaloSheep /S2
MEDPOME-STONE /S2
MountainHER /S1
PASTINNOVA /S1
Quinoa4Med /S2
SAFE /S2
SIRAM /S2
SUSTEMICROP /S2



4

DELICIOUS /S1
SMALLDERS /S2
SWITCHtoHEALTHY /S1
TECHONEY /S2



2


BONEX /S1
SURE_NEXUS /S1

Entities	Research Units	Section 1 /S1	Section 2 /S2
Abinsula Srl - ES	1	SALAM-MED	
Agrogenia Biotech SL - ES	2		SUSTEMICROP
ALGOSUR - Algodonera del Sur SA - ES	3		Quinoa4Med
Asociación AIveIAI - ES	4	FARMS4CLIMATE	
Asociación de investigación de la industria del juguete, conexas y afines (AIJUA) - ES	5	DELICIOUS	
Basque Culinary Center - ES	6	DELICIOUS	
BIOAZUL SL	7	BONEX	
	8	SALAM-MED	
Centre de Recerca en Economia i Desenvolupament Agroalimentari (CREDA)	9	SURE_NEXUS	
	10	SWITCHtoHEALTHY	
	11		TECHONEY
Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA)	12		TECHONEY
	13		MEDPOME-STONE



Centro Nacional de Tecnología y Seguridad Alimentaria (CNTA)	14		SWITCHtoHEALTHY
	15		PASTINNOVA
Consejo Superior de Investigaciones Científicas (CSIC)	16	Centre for Soil and Applied Biology Segura (CEBAS-CSIC)	 CICLICA
	17	Estación Experimental del Zaidín (EEZ-CSIC)	BIOMEnext
Contactica SL	18		DELICIOUS
Delafruit SLU (former Go Fruselva SLU)	19		SWITCHtoHEALTHY
Fundació EURECAT	20		SWITCHtoHEALTHY
Fundación Instituto Internacional de Investigación en Inteligencia Artificial y Ciencias de la Computación, (AIR Institute)	21		 FARMS4CLIMATE
FutureWater	22		BONEX
Generalitat de Catalunya, Departament d'Acció Climàtica, Alimentació i Agenda Rural (DACC)	23		SWITCHtoHEALTHY
Grupo Edelvives	24		 DELICIOUS
Institut Català de Recerca de l'Aigua (ICRA)	25		SAFE
Institut Català del Suro (ICSuro)	26		SURE_NEXUS
Institut de Recerca i Tecnologia Agroalimentàries (IRTA)	27		SIRAM
	28		SURE_NEXUS
Institut Valencià d'Investigacions Agràries (IVIA)	29		ASTER
Instituto Murciano de Investigación y Desarrollo Agrario y Medioambiental (IMIDA)	30		DREAM
International Centre for Advanced Mediterranean Agronomic Studies	31	Instituto Agronómico Mediterráneo de Zaragoza (CIHEAM Zaragoza)	PASTINNOVA
LCIbérica SL	32		DELICIOUS
Moreno Ruiz Hermanos SL	33		Quinoa4Med
OBREAL Global	34		AGREEMed
Red Española de Queserías de Campo y Artesanas (QueRed)	35		PASTINNOVA
Servicio Regional de Investigación y Desarrollo Agroalimentario (SERIDA)	36		ADVAGROMED
Sistema Azud SA	37		CICLICA
Soluciones Agrícolas Ecoinnovadoras SL (SAE)	38		FARMS4CLIMATE
Universidad de Almería (UAL)	39		BONEX
	40		BONEX
Universidad de Córdoba (UCO)	41		AgrEcoMed
	42		SMALLDERS
Universidad de Extremadura (UEX)	43		 SUSTEMICROP
	44		HaloSheep
Universidad de Salamanca	45	Departamento de Microbiología y Genética	BIOMEnext



Universidad Politécnica de Madrid (UPM)	46		AG-WaMED
	47	Centre for Plant Biotechnology and Genomics	Quinoa4Med
Universitat de València (UV)	48		Agri-fiSh
	49		REACT4MED
Universitat Politècnica de Catalunya (UPC)	50		 SURE_NEXUS
	51		AGREEMAR
Universitat Politècnica de Valencia (UPV)	52		AgrEcoMed
	53		SALAM-MED
OXFAM International	54		MountainHER



TUNISIA



Budget
3.339.802 €



33 Research Units
of which **3 SME**



of which



24 Projects

involve one or more
tunisian Research Units

1 Project

is coordinated by
a tunisian Research Unit

Projects per thematic area



4

AGREEMAR /S2
AGREEMed /S2
AG-WaMED /S2
SALAM-MED /S1



14

AgrEcoMed /S2
ASTER /S2
BENEFIT-Med /S2
BIOMEnext /S2
ECOBOOST /S2
FARMS4CLIMATE /S1
HaloSheep /S2
MountainHER /S1
PASTINNOVA /S1
Quinoa4Med /S2
SAFE /S2
SEA FENNEL4MED /S2
SIRAM /S2
SUSTEMICROP /S2



4

PROMEDLIFE /S1
SMALLDERS /S2
SWITCHtoHEALTHY /S1
TECHONEY /S2




2

BONEX /S1
SURE_NEXUS /S1

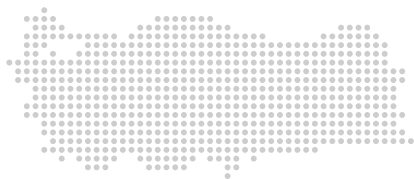
Entities	Research Units	Section 1 /S1	Section 2 /S2
Association Slow Food Tebourba	1	SWITCHtoHEALTHY	
Association Tunisienne des Sciences de la Nutrition (ATSN)	2	PROMEDLIFE	
Centre de Biotechnologie de Borj Cédria (CBBC)	3		Quinoa4Med
Centre de Recherches et des Technologies des Eaux (CERTE)	4		SAFE
	5		AGREEMed
Centre of Biotechnology of Sfax (CBS)	6		AgrEcoMed
Centre Régional des Recherches Agricoles Sidi Bouzid (CRRA)	7		SIRAM
	8		TECHONEY
	9	Laboratory of energy applications and renewable energy efficiency (LAPER, FST-UTM)	SMALLDERS
Faculté des Sciences de Tunis (FST)	10		AG-WaMED
	11	PASTINNOVA	
	12		BIOMEnext
Institut des Régions Arides (IRA)	13	SALAM-MED	



	14		AGREEMAR
Institut National Agronomique de Tunisie (INAT)	15		ASTER
	16		BIOMEnext
	17		TECHONEY
Institut National de la Recherche Agronomique de Tunisie (INRAT)	18		MountainHER
	19		BONEX
Institut National de la Recherche en Génie Rural, Eaux et Forêts (INRGREF)	20		SUSTEMICROP
	21		FARMS4CLIMATE
	22		SEA FENNEL4MED
Médnine Agro Tech (MAT)	23		SALAM-MED
Office de l'Elevage et des Pâturages (OEP)	24		HaloSheep
SMART LOGGER Sarl	25		BONEX
Société Agricole Innovante dans le Sud (INNOVAGRISUD)	26		SURE_NEXUS
SQLI Services	27		FARMS4CLIMATE
Université de Sfax	28		BENEFIT-Med
	29	Faculté des Sciences de Sfax (FSS)	SAFE
Université de Sousse	30	Institut Supérieur Agronomique Chott Mériem (ISA-CM)	 HaloSheep
	31	Institut Supérieur Agronomique Chott Mériem (ISA-CM)	ECOBOOST
	32	Institut Supérieur Agronomique Chott Mériem (ISA-CM)	ASTER
University of Carthage (UCAR)	33	National Institute of Applied Sciences and Technology	PROMEDLIFE



TURKEY



Budget
2.102.554 €



20 Research Units
of which **2 SME**



15 Projects

involve one or more
turkish Research Units

of which



2 Project

is coordinated by
a turkish Research Unit

Projects per thematic area



2

Mara-Mediterra /S1
REACT4MED /S1



10

ASTER /S2
CICLICA /S2
ECOBOOST /S2
HaloSheep /S2
MED4PEST /S2
MEDPOME-STONE /S2
PASTINNOVA /S1
ReMe-diation /S2
SEA FENNEL4MED /S2
VINEPROTECT /S2




3

GreenDriedFruits /S2
SWITCHtoHEALTHY /S1
TECHONEY /S2



Entities	Research Units	Section 1	Section 2 /S2
Akdeniz Üniversitesi	1		CICLICA
Akdeniz Üniversitesi (AKU)	2		ReMe-diation
Ankara Üniversitesi	3		GreenDriedFruits
	4		ReMe-diation
Burdur Mehmet Akif Ersoy Üniversitesi (MAKÜ)	5		HaloSheep
Bursa Uludağ Üniversitesi (BUÜ)	6	SWITCHtoHEALTHY	
Cukurova University Agricultural Faculty Department of Animal Science (CUNI)	7	PASTINNOVA	
Dokuz Eylül Üniversitesi (DEU)	8	Mara-Mediterra	
	Engineering Faculty, Civil Engineering Department, Division of Hydraulics, Hydrology and Water Resources - T		
Ege Üniversitesi	9		SEA FENNEL4MED
Erciyes Üniversitesi (ERÜ)	10		MEDPOME-STONE
Isparta Uygulamalı Bilimler Üniversitesi	11		ECOBOOST
	12		ASTER
İzmir Provincial Directorate of Culture and Tourism	13	SWITCHtoHEALTHY	
Kocahan Şekerleme	14	SWITCHtoHEALTHY	
Ministry of Agriculture and Forestry	15	Manisa Viticulture Research Institute	VINEPROTECT
Mersin Üniversitesi (MEU)	16		VINEPROTECT

Meta Meta Anatolia Ltd. Őti	17	 MED4PEST
Muęla Sıtkı Koęman Üniversitesi	18	VINEPROTECT
Ordu Üniversitesi (ODU)	19	TECHONEY
Uluslararası Tarımsal Arařtırma ve Eęitim Merkezi (UTAEM)	20	REACT4MED

Funded Project 2021





Section1 /S1

Project sheets follow the order by Thematic Area
(Water management; Agricultural systems; Agri-food value chain; Nexus)

Thematic Area

Water Management



Action and Topic

RIA - Sustainable soil and water management for combating land degradation and desertification and promoting ecosystem restoration



Budget

2.549.850 €



Duration

36 months



State and Coordinator Entity

GREECE

Hellenic Agricultural Organization – DEMETER, Soil and Water Resources Institute (SWRI)



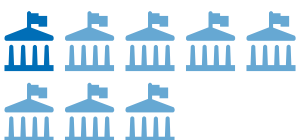
HELLENIC AGRICULTURAL ORGANIZATION "DEMETER"

Scientific Coordinator:
TAKAVAKOGLU, Vasileios

Participating States/ 8



Research Units/ 8



Section 1

Mara-Mediterra



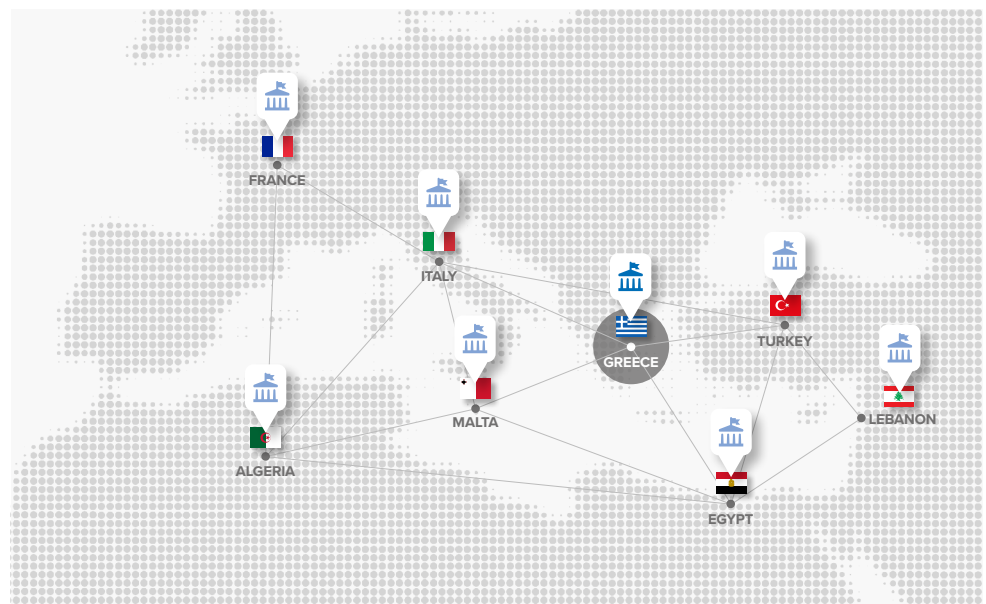
Safeguarding the livelihood of rural communities and the environment in the Mediterranean through Nature-based Solutions

Context

Experts on Climate and Environmental Change have alerted that, within a concise time horizon, the impacts on the environment, and in particular on agro-ecosystem landscapes, is set to worsen dramatically. Nature-Based Solutions (NbSs) have gained importance as solutions integrating societal challenges and nature conservation across different scales and geographies. NbSs can offer long-term transformative pathways towards the sustainability of rural Mediterranean landscapes. Many agro-ecological practices, which are at the basis of Mara-Mediterra, have already been proven as cost-effective solutions that can address environmental challenges while offering multiple socioeconomic benefits. Yet, the uptake of these same agro-ecological practices in rural Mediterranean areas has been far too limited. Thus, there is an urgent need to adapt and enhance these practices' scaling up and out, thereby increasing areas under sustainable soil and water management and ensuring the sustained livelihood of rural communities around the Mediterranean. In this context, Mara-Mediterra is deploying novel approaches to engage with farmers and decision-makers and seek investment opportunities to address the hitherto low uptake of NbSs to combat water and land degradation in agroecosystems.

Objective and contents

The ambition of Mara-Mediterra is to open up the NbSs innovation process to all active players so that new ideas can circulate more freely and eventually be transformed into tools, services and practices that effectively address critical environmental challenges of rural Mediterranean areas. The project's specific objectives are to promote participatory decision making, create new markets, and foster a more robust culture of green entrepreneurship and the rural economy. For this purpose, Mara-Mediterra adopts the concept of Living Labs as user-centred, open innovation ecosystems based on a systematic user co-creation approach in public-private-people partnerships, integrating research and innovation processes in real-life communities and settings. Five distinct hotspots around the Mediterranean impacted by pollution, salinization, desertification and wetland degradation have been identified.



Other in Consortium/ 7

**AMengagement ENvironment
HYDraulique (AMENHYD) - DZ**

**Egyptian Chinese University (ECU),
Research & Innovation Center - EG**

Tensor Consulting - FR

**Università degli Studi di Firenze
Dipartimento di Scienze e**

**Tecnologie Agrarie, Alimentari
Ambientali e Forestali (UNIFI) - IT**

**Lebanese University (UL), Faculty
of Engineering (FoE) & Azm center
for Research in biotechnology and
its Applications - LB**

**Integrated Resources Management
Company Ltd. (IRMCo) - MT**

**Dokuz Eylül Üniversitesi (DEU),
Engineering Faculty, Civil
Engineering Department, Division
of Hydraulics, Hydrology and
Water Resources - TR**

An array of already proven NbSs will be co-tested, taken up into action plans and ultimately integrated with new business models and policy improvement initiatives based on the value of water and land. Our value proposition is based on introducing an effective awareness and decision-making environment through tools of diagnostic assessment and decision support and on the holistic green business development by exploring investment approaches at the international, national, and local levels.

Expected impact and results

An open innovation ecosystem of 5 land and water degradation hotspots around the Mediterranean will serve as case studies. A hub of agri-ecological NbSs will serve as a thematic park for knowledge exchange, interaction, and support at its epicentre. First, the effectiveness of 9 agronomic and 4 eco-engineering solutions will be demonstrated to address the degradation challenges in the selected hotspots. Stakeholders and decision-makers in already identified 'mirror' hotspots will be invited to validate the degree of replicability of the same set of solutions. Over 150 farmers, local community representatives, and key stakeholders will experimentally trial the array of solutions in real-life settings. Participatory GIS will be used to draw and evaluate "bottom-up" action plans, covering an aggregate area of 2.300 square kilometres. At the same time, funding and investment opportunities will be explored at the international, national and local levels. By launching an advocacy campaign for policy improvement and recommendations in the form of policy briefs, we will address legal and institutional impediments to the uptake of our products and services. At the same time, setting up a thematic park of NbSs in Greece will bring a lasting legacy of our cross-border efforts, which we deem essential in the face of the global dimension of climate change.

Demo sites/case studies

5



Platforms/ Hubs

1

Partecipatori GIS



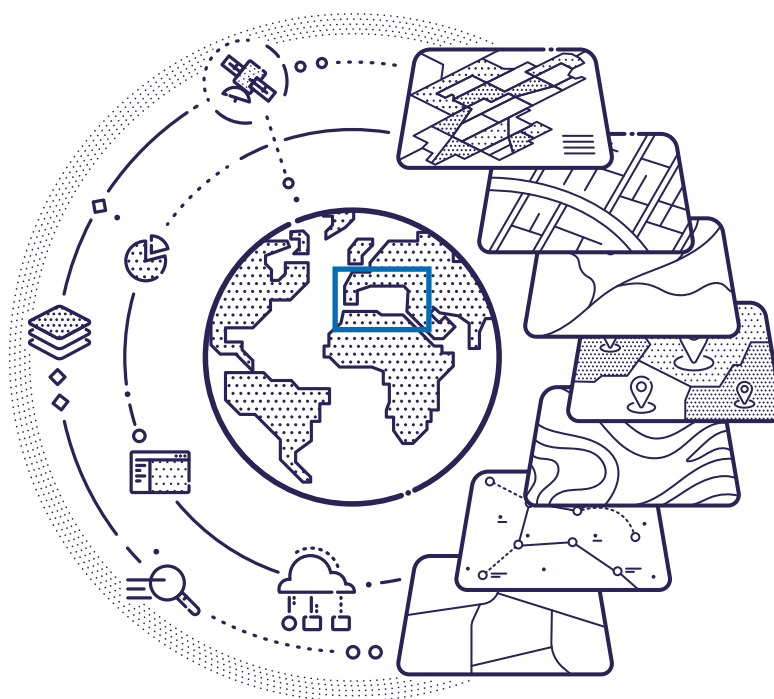
New products and solutions

9

Agronomic solutions

4

Eco-engineering solutions



Keywords

#agri-ecosystems

#agri-environmental management

#land degradation

#living labs

#nature-based solutions

#rural communities

#rural economy and sustainable development

#soil and water resources



Thematic Area

Water Management



Action and Topic

RIA - Sustainable soil and water management for combating land degradation and desertification and promoting ecosystem restoration



Budget

2.750.000 €



Duration

36 months



State and Coordinator Entity

GREECE

Hellenic Mediterranean University (HMU)

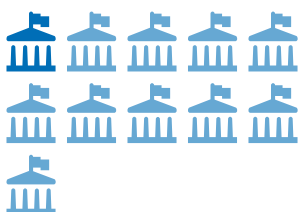


Scientific Coordinator:
MANIOS, Thrassyvoulos

Participating States/ 9



Research Units/ 11



Section 1

REACT4MED

Inclusive Outscaling of Agro-ecosystem REstoration ACTions for the MEDiterranean

Context

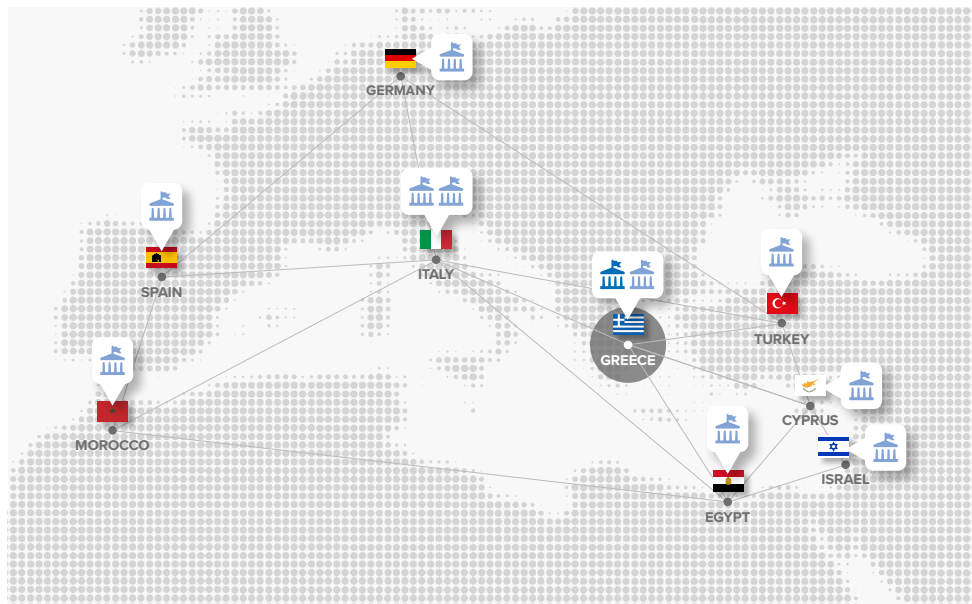
Land degradation and desertification are major threats for the present and future of Mediterranean arid and semiarid agro-ecosystems. Long-term anthropogenic pressure on forest and agricultural lands, combined with abiotic factors and frequent extreme events, create an uncertain and unstable living environment which can lead to poverty and force domestic and even cross-border migration. Together with land degradation, the accelerated dryland expansion occurring in the Mediterranean climate change hot spot threatens the biological systems and the natural resources that sustain agriculture and forests.

For addressing these human- and climate-induced threats e sustainably restore degraded land to eventually achieve Land Degradation Neutrality (SDG 15.3), the key is to make solutions not only effective from an environmental point of view, but also socially acceptable and economically viable. Remaining scientific knowledge gaps, coupled with socio-economic barriers and suboptimal policies, hinder affected communities in adopting - and stakeholders from investing in - good land management and restoration practices that will allow local ecosystems to continue supporting their livelihoods.

To reform the current approaches of land management to a climate-smart, sustainable, and integrated resource management, participatory assessment, exploration, and bottom-up implementation are due. To foster strategic decision making for water and land management, integrating spatial big data analysis, indicators, models, and visual analytics tools into multi-actor platforms where shared solutions can be easily identified, implemented, and monitored, a new generation of ICT tools need to be developed.

Objective and contents

REACT4MED aims to enhance Sustainable Land and Water Management to support increased agropastoral productivity, accelerate technological innovation and dissemination, reverse land degradation, and improve the livelihoods of Mediterranean communities.



Other in Consortium/ 10

Technical University of Crete (TUC) - GR

Osnabrück University (UOS) - DE

The Cyprus Institute (Cyl) - CY

National Research Centre (NRC) - EG

Universitat de València (UV) - ES

University of Haifa (UH) - IL

SoftWater srl - IT

Centro Internazionale di Alti Studi Agronomici Mediterranei (CIHEAM), Istituto Agronomico Mediterraneo di Bari - IT

Institut National de la Recherche Agronomique (INRA) - MO

Uluslararası Tarımsal Araştırma ve Eğitim Merkezi (UTAEM) - TR

Platforms/ Hubs

5

Land degradation Decision Support tools as open-source software



New products and solutions

8

cost-effective Sustainable Land and Water Management solutions



Keywords

#adaptation and mitigation

#climate change

#desertification

#ecosystem restoration

#governance

#land restoration

#living labs

#sustainable soil and water management



The specific objectives of REACT4MED towards this strategic goal are to:

1. Capitalize on the scientific and practical knowledge, and critically review Sustainable Land and Water Management practices and approaches.
2. Identify barriers to apply this volume of knowledge and experience in initiating or sustaining restoration actions and help overcome them at the local scale.
3. Propose a set of harmonized indicators, including technological, environmental, climate-related, and socio-cultural and economic aspects, that can facilitate broad level assessments.
4. Develop bottom-up and top-down methodologies and tools that support participatory and scientific decision-making in Sustainable Land and Water Management.
5. Initiate and support large scale restoration actions with measurable impact, as well as a substantial degree of environmental stewardship and societal improvement.
6. Enable and promote public and private investment opportunities by developing tools for the environmental and economic cost-effectiveness assessment of restoration potential.
7. Translate results and lessons learned from the local restoration actions to a policy roadmap for upscaling or/and outscaling Sustainable Land and Water Management.
8. Communicate and disseminate results to a wide range of audiences and stakeholders, and conduct targeted outreach activities to stimulate uptake of the good practices identified and innovations implemented.

Expected impact and results

REACT4MED will:

- Initiate and support coordinated, scientifically proven, restoration actions affecting at least 2,000 km² Mediterranean agro-ecosystems.
- Promote and successfully out-scale at least 8 cost-effective Sustainable Land and Water Management solutions, and oversee their implementation.
- Enhance community capacity with at least 32 capacity building events that will create the appropriate enabling environment for the restoration actions to be implemented.
- Further promote the implementation of proven and cost-effective restoration actions to stakeholders outside REACT4MED with at least 10 dissemination products.
- Develop and release a coherent set of at least 5 scientific Land degradation Decision Support tools as open-source software, addressing the tasks of harmonized land degradation assessment, identification of potentially suitable scale-up areas, and informing decision making with future climate and socio-economic scenarios.
- Actively seek and promote private and public investment opportunities that have the potential to enhance the adoption of Sustainable Land and Water Management practices and provide tools for at least 80 stakeholders to be involved in 8 relevant investments across the Mediterranean.

Shifting to sustainable land management and soil restoration practices will promote healthy and resilient agricultural systems, and ultimately, food and nutritional security. In addition, creation of new income sources and generation of rural entrepreneurship and services will help to reduce migration and increase the connection of younger generations with the land and its resources. Equipped with new assessment tools, financial agencies, with support from local institutions, REACT4MED will stimulate new investment, provide incentives that empower the future generations, and especially youth and females, to enter farming including, offer access to technology and capacity building, and encourage community recognition.

Thematic Area

Water Management



Action and Topic

RIA - Sustainable soil and water management for combating land degradation and desertification and promoting ecosystem restoration



Budget

2.835.714 €



Duration

36 months



State and Coordinator Entity

ITALY
Università degli Studi di Sassari, Desertification Research Center (NRD-UNISS)

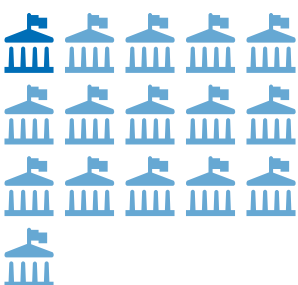


Scientific Coordinator:
ROGGERO, Pier Paolo

Participating States/ 8



Research Units/ 16



Section 1

SALAM-MED

Sustainable Approaches to LAnd and water Management in MEditerranean Drylands

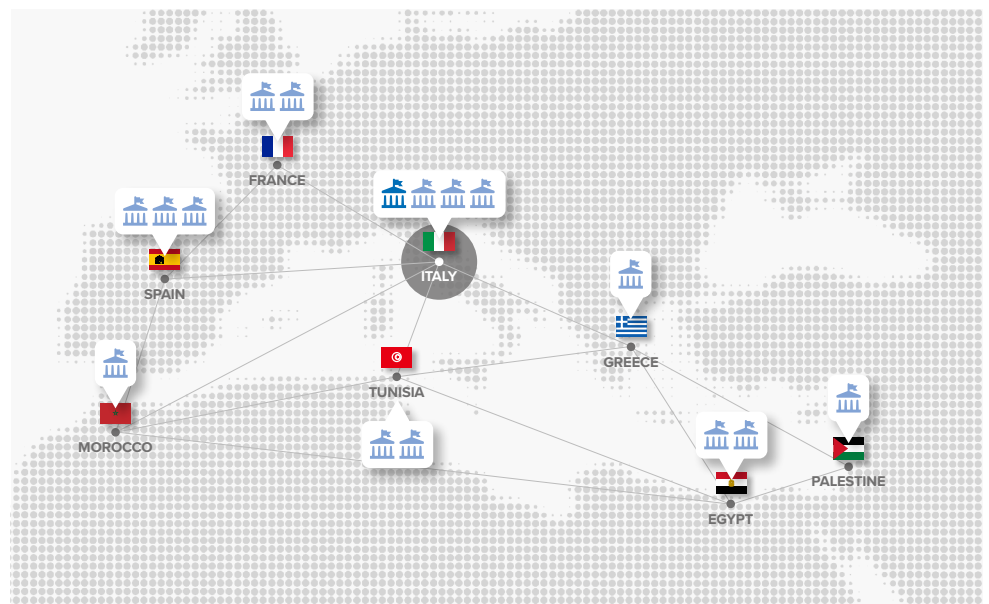
Context

Land degradation and desertification in dryland Mediterranean (MED) socio-ecological systems emerge from the structural coupling of ecological and socio-economic processes in areas where climatic pressures are combined with weak adaptive capacity. Transformational changes require a paradigm shift from a human-centred vs biophysical world dualism to a socio-ecological system perspective. The capacity to restore degraded land or enhance the resilience of endangered socio-ecological systems in the MED drylands requires an integrated approach, combining a top-down process based on new scientific knowledge and tools on critical water-related ecological processes, and a bottom-up process based on enhanced societal capacity, through new social learning spaces, generating opportunities, particularly for young people and women. The sustainability of rural activities in endangered drylands depends on the ability of local stakeholders to adopt systemic innovations, supported by innovative tools and services that lead to timely effective decisions, minimize external inputs and consider soil fertility and water conservation as the best option for encouraging long term investments and provide new business opportunities. The heterogeneity of environmental and social conditions leads to sharp regional differences in water and land use across the MED drylands, requiring tailored solutions to boost sustainable development and prevent or mediate environmental conflicts.

Objective and contents

SALAM-MED is designed to identify, test and validate tailored, “nature-based” practical solutions to enhance the resilience of endangered MED dryland socio-ecological systems or to restore degraded ecosystems in arid and hyper-arid land. New knowledge, integrated tools and processes will be co-developed with stakeholders through the Living Labs (LL) across “hotspots” located in Egypt, Greece, Italy, Morocco, Spain and Tunisia, encapsulating a wide range of societal, agricultural, forestry and climatological conditions.

The LL validated technologies will facilitate the efficient usage of ‘every last drop’ of water for civic, agricultural and ecosystem services and enhance the potential of



Other in Consortium/ 15

Università degli Studi di Firenze (UNIFI) - IT

Consiglio Nazionale delle Ricerche, Istituto per la Protezione Sostenibile delle Piante (IPSP-CNR) - IT

Primo Principio Società Cooperativa - IT

FAO Regional Office for the Near East and North Africa (FAO/RNE) - EG

Desert Research Center (DRC) - EG
Centre de Recerca en Economia i Desenvolupament Agroalimentari (CREDA) - ES

Abinsula Srl - ES

Universitat Politècnica de València (UPV) - ES

DesertNet International (DNI) - FR

Centre International de Hautes Etudes Agronomiques Méditerranéennes (CIHEAM) - FR
Academy of Athens (AoA) - GR

Cadi Ayyad University (UCA), Faculté des Sciences Semlalia - MO

WeWorld-GVC Onlus - PS (Non-PRIMA PS)

Institut des Régions Arides (IRA) - TN

Médnine Agro Tech (MAT) - TN

scaling-up at the policy-making level and scaling-out to other MED socio-ecological systems. All relevant stakeholders and end-users will be actively engaged to test the effectiveness of the emerging solutions.

The analytical framework of SALAM-MED is based on four pillars sustaining a systemic and transdisciplinary research practice:

P1. The living lab approach based on a social learning process of knowledge-sharing for the knowledge generation.

P2. Co-researching and improvement of new technologies for sustainable land and water management by bridging knowledge gaps on water-related land degradation processes

P3. Exploring, identifying and testing business opportunities based on an extended cost-benefit analysis of a range of context-sensitive management options.

P4. Disseminating SALAM-MED's outcomes to different audiences and scaling out of the solutions for land restoration and the enhancement of socio-ecosystem resilience in MED drylands.

Expected impact and results

SALAM-MED is designed to positively impact the following dimensions of the socio-ecological complexity of drylands:

- The social dimension promotes active stakeholders' engagement in the LL and participatory water and land resources governance.
- The economic dimension identifies new business opportunities with stakeholders, emerging from the extended cost-benefit analysis and the promotion of public and private investments on the latest solutions for sustainable land and water management.
- Gender dimension, as the project's gender-sensitive approach, will promote job opportunities for women and equal participation in the LL to address the gaps to achieve gender balance in dryland management.
- Environmental dimension, with the scaling out of the practical solutions tested in the LL for water harvesting and ecosystems adaptation to emerging anthropic, ecological and climate pressures.
- Political dimension, as the restoration of degraded ecosystems and improved land productivity, will remove the causes of unemployment and migration of climate refugees and potential environmental conflicts.
- Capacity and knowledge development dimensions, as the LL is designed to provide innovative tools and learning spaces to generate long-lasting learning processes to empower local stakeholders beyond the project duration. LL is designed with and for local stakeholders to take over the process.

Demo sites/case studies

6



Keywords

#living_labs

#land_and_water_management

#gender_balance

#participatory_governance

#engagement

#socio-ecological_systems





Action and Topic

IA - Increasing the environmental and socio-economic performance of small scale farming systems through improvements in organisational aspects and new value chain



Budget

2.749.438 €



Duration

36 months



State and Coordinator Entity

SPAIN

Fundación Instituto Internacional de Investigación en Inteligencia Artificial y Ciencias de la Computación, (AIR Institute)



Scientific Coordinator:
CORCHADO, Juan Manuel

Participating States/ 6



Research Units/ 12



FARMS4CLIMATE



Smart governance and operational models for agroecological carbon farming

Context

Rural economies and smallholder communities struggle to sustain production, as low incomes, inefficient practices and limited access to markets and information are widespread. To overcome these challenges, holistic farming models built around sustainable human activities within the supporting ecosystem are required. Alternative and theoretically beneficial organisational models are challenging to bring to life, as the drivers of agricultural transformation are multidimensional, interrelated, location-specific, and change over time.

Nonetheless, a well-wrought strategy to create, accelerate, sustain, and scale new agrosystems should at least include:

- identification of a market-driven “change element” most likely to kick-start rural economic growth;
- involvement of a frontline “change agent” that helps farmers modify their practices;
- a flexible plan that would allow bottom-up adaptation to emerging, attracting additional talent and investments;
- a multi-actor approachable to align stakeholders and value chains.

The FARMS4CLIMATE consortium makes carbon farming operational for smallholders by the ad hoc development of several digital enablers, including creating a ready-to-market C credit platform intelligent tools. The aim is to monitor, report and validate the various C pools at the farm level, a system to account and exchange C credits along the value chain and short distribution chains where the differential value propositions are based on virtuous C management.

Objective and contents

The project will be piloted in living laboratories in different parts of the Mediterranean (Italy, Egypt, Tunisia, and Spain).

Each programme will focus on a specific regenerative practice to create community-based organisations that can drive economic growth through carbon management embedded in agroecological principles and innovations.



Other in Consortium/ 11

Soluciones Agrícolas

Ecoinnovadoras SL (SAE) - ES

Asociación AIVeAI - ES

SEKEM Development Foundation
- EG

Heliopolis University (HU) - EG

IFOAM AgriBioMediterraneo,
(IFOAM-ABM) - GR

Università Cattolica del Sacro
Cuore (UCSC) - IT

Università degli Studi della
Basilicata (UNIBAS) - IT

Agreement srl - IT

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

Institut National de Recherches
en Génie Rural, Eaux et Forêt
(INRGREF) - TN

SQLI Services - TN

The consortium will provide the knowledge and tools necessary for the community-based organisations to autonomously determine their action plan, which will aim to improve the agricultural profitability of smallholder farmers by:

- providing a method to differentiate products and thus to obtain higher margins;
- generating multiple income streams;
- recognising the role of women in the economic cycle;
- digitally enabling the sharing of resources and knowledge;
- simplifying market access by pooling harvests and promoting short supply chains;
- pave the way for localised economies of scale to emerge.

FARMS4CLIMATE will improve resilience and environmental sustainability by:

- promoting the transition from high-input to biodiversity-based agricultural models;
- disseminating a toolbox for agroforestry and ecological management specific to Mediterranean smallholder farmers;
- improving the use of resources in agrosystems, with particular attention to water;
- preventing soil degradation through erosion and organic matter losses;
- equipping community organisations with higher purposes, such as those related to the urgent need to address climate issues while defending farmers' incomes, will facilitate stakeholder alignment and operational activation.

The success stories will help inspire the sustainable transformation, based on carbon farming, of agrosystems across the Mediterranean.

Expected impact and results

FARMS4CLIMATE performs product differentiation linked to digital innovation that facilitates market access, ensures local producers' access to distribution channels and markets, and provides the general population with healthy and sustainable products. All this with a focus on increasing farmers' incomes by including other potential sources of income linked to agriculture and ensuring transparency and a fair price structure along the value chain. FARMS4CLIMATE will make agriculture attractive to young people and address gender issues, as women represent a large proportion of the agricultural labour force, but their role is vastly undervalued.

How can this be done?

- By increasing incomes through diversification of agriculture and the introduction and promotion of intercropping and alley cropping;
- Adopting integrated farming systems based on circularity principles improves resource efficiency and reduces production costs.
- Increasing market linkages based on fair prices and benefit-sharing among all actors in agricultural products' value chain and transparency.
- Creating community organisations with shared values gives meaning to the management of agricultural landscapes.
- Improving the capacity of young farmers, facilitated by bottom-up adaptation approaches and Living Labs, as well as specific training to enable them to face the prevailing biophysical and economic challenges and to ensure farm profitability;
- Improving access to business financial services provided by private, public and NGO organisations.
- Improving sustainable food production systems with efficient natural resources and environmentally friendly processes with low GHG emissions.
- Reducing food losses along production and supply chains, including post-harvest losses and possible recovery of remaining waste.

Demo sites/case studies

4



Keywords

#carbon footprint traceability

#carbon offsetting

#living labs

#regenerative agriculture

#smallholders



Thematic Area

Farming Systems



Action and Topic

IA - Increasing the environmental and socio-economic performance of small scale farming systems through improvements in organisational aspects and new value chain



Budget

2.750.000 €



Duration

36 months



State and Coordinator Entity

MOROCCO

Institut National de la Recherche Agronomique (INRA)



Scientific Coordinator:
MRABET, Rachid

Participating States/ 7



Research Units/ 9



Section 1

MountainHER

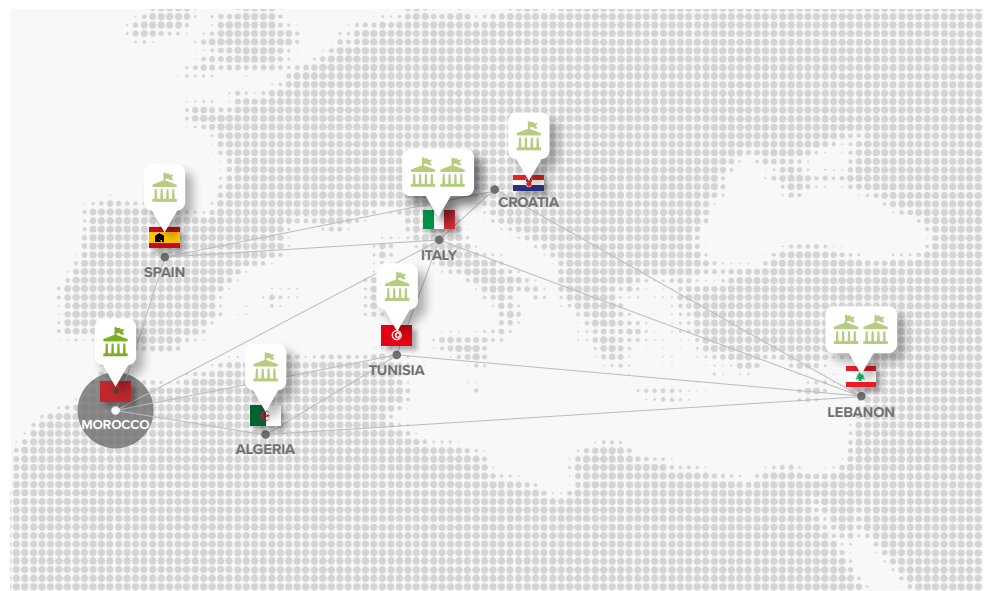
Empowering women associations as drivers for agro-ecological transformation to generate income for Mountain farming communities

Context

Rural communities in mountainous areas of the Mediterranean region are relatively isolated from markets and services and endure harsh climatic and social conditions. Farming practices have not evolved at the same pace as lowland agriculture, and soil erosion is a significant threat. The escalating effects of climate change further exacerbate the low productivity. Agricultural products from these zones are sold in distant urban areas, preventing the farmers from accessing their due profits. A substantial male out-migration often characterises these communities to urban centres, which has led to an increased feminisation of labour and agriculture. Yet these women face constraints in accessing knowledge, resources, and marketing opportunities with negative implications on local food security, community resilience and the economy more broadly. These gender biases continue to hinder the chances for success of women and youth in agriculture. The establishment of associations for the local production of traditional foods and malt products represent opportunities for employment and integration. The COVID-19 pandemic has shifted the mindset of many consumers, generating more robust demand for locally grown and traditional food products, which could represent an ideal market opportunity for mountain communities. The pandemic has also led to job losses in the city and the return migration of men to rural areas. Hence only interventions capable of restoring farm productivity, diversifying income opportunities, raising social inclusion and closing the gender gap can invert these trends.

Objective and contents

MountainHER aims at taking advantage of these developing marketing opportunities in an agroecological food system approach “from farm to fork” to empower rural women associations to become proper drivers for social and economic change. Implementing a holistic intervention in six pilot mountain communities shall be used to revise the continuum from farm-to-fork by promoting agroecological production solutions and income opportunities via short-value chains and circular economies. Farmers’ fields will be used as living labs in Morocco, Algeria, Tunisia, Lebanon, Croatia, and Italy. Participatory research approaches will be deployed to define the



Other in Consortium/ 8

Institut Technique des Grandes Cultures (ITGC) - DZ

Lokalna razvojna agencija PINS - HR

OXFAM International - ES

Birrificio Emiliano srl - IT

Open Fields srl - IT

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

Lebanese Agriculture Research Institute (LARI) - LB

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

best durum wheat and barley varieties derived from ancient grains adapted agroecological production. Identifying locally adapted varieties will foster the establishment of community-based seed enterprises. At the same time, novel fertilisation and crop management practices will promote circular economy opportunities for local businesses to produce non-synthetic organic fertilisers starting from farm waste. The governance of female associations will be revised to enable decent work and improve their roles as income generators for the community. The ultimate transformation of the harvests into traditional foods and malt products sold via digital marketplace approaches shall encourage entrepreneurship, raise rural incomes and ensure a more equitable distribution of profits.

Expected impact and results

MountainHER sets the ground-breaking objective of changing remote mountain communities' social and economic status through agroecological interventions and revision of governances of rural cooperatives using gender-transformative approaches. The targeted interventions along the value chain will re-shape the organisational models to ensure a fairer power balance among stakeholders. MountainHER utilises state-of-the-art scientific approaches and novel digital market drives in integration with retailers and consumers to promote the continuum from "seed-to-table truly". It is envisioned that by project end, the participating farmers will increase their profit margins by 50%, and new employment opportunities will be generated within the communities, ensuring stable jobs for more than 200 people. The one proposed are carbon-neutral practices that should reduce the net carbon cost by 30% while raising by 10% the productivity and further reducing by 10% the use of synthetic inputs. Because the promoted food products have a long shelf life, it is expected that our interventions will decrease by 10% the post-harvest losses. A total of 182 communication events have been planned with the scope of influencing policymakers and other communities to uptake and out-scale the project outcomes and strategies.

Keywords

#empowerment

#women_associations

#living_labs

#rural_communities

#agroecological_production

#short-value_chain

#circular_economy



Demo sites/case studies

6



Events and Activities

182

Communication events



Thematic Area
Farming Systems



Action and Topic

IA - Increasing the environmental and socio-economic performance of small scale farming systems through improvements in organisational aspects and new value chain



Budget

2.750.000 €



Duration

36 months



State and Coordinator Entity

GREECE

Hellenic Agricultural Organization – DEMETER, Agricultural Economics Research Institute (AGRERI)



HELLENIC AGRICULTURAL ORGANIZATION "DEMETER"

Scientific Coordinator:
RAGKOS, Athanasios

Participating States/ 12



Research Units/ 20



Section 1
PASTINNOVA

PASTINNOVA

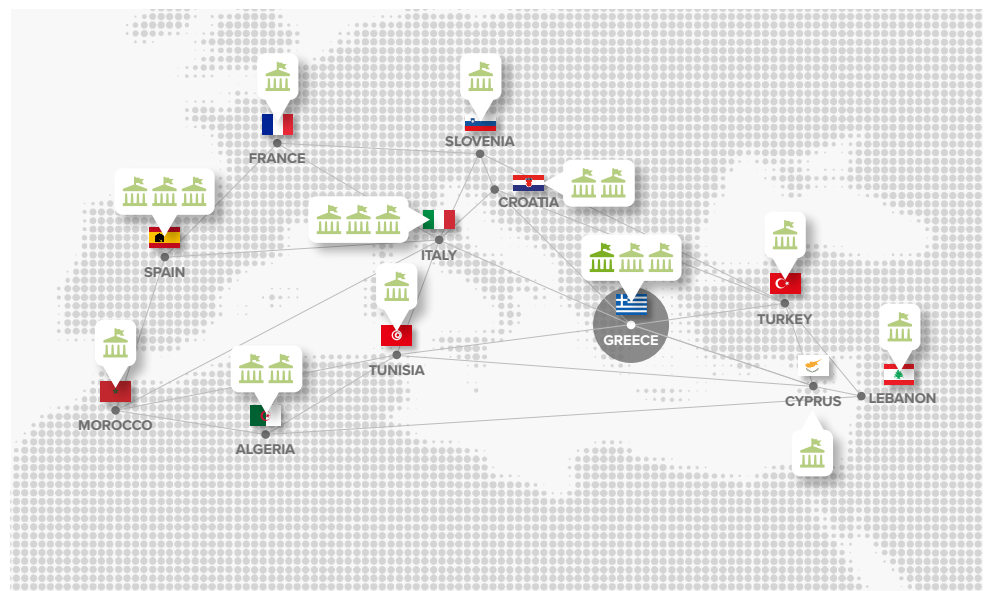
Innovative models for sustainable future of Mediterranean pastoral systems

Context

Human-nature interactions have co-developed pastoral agroecosystems, which have evolved to characterise rural societies, particularly fragile areas - i.e., mountain, dry-land, less-favoured and remote areas, including islands - that encompass ecological constraints (harsh territories; remoteness; climate change dynamics). However, these areas often face social challenges like lower incomes and dependence on subsidies, limited employment opportunities, high abandonment rates and demanding land access, poverty and limited access to essential services, and generational renewal problems. These challenges render them vulnerable to policy and market uncertainties. Pastoralists also lack effective governance or are involved in organisations that do not share their specific pursuits equally. Because of these challenges, pastoral smallholders are the 'weakest links' in value chains. They must compete with 'industrial' products and more powerful actors in supply chains under limited market access and low information about consumer preferences and new trends. Under these conditions, they have limited opportunities to co-create innovations that tackle their needs and are less inclined to adopt; likewise, available instruments and solutions rarely pertain to their social profiles and production practices. Innovations, business and organisational models are necessary to enhance pastoral farms' sustainability, and competitiveness strengthens small-scale networks in marginal areas and the wider Mediterranean agrarian and rural world.

Objective and contents

The project targets Mediterranean pastoral farms and their value chains (VCP), focusing on smallholders maintaining 'pastoral identities' by making sustainable use of local resources at risk of abandonment and providing examples of a circular economy for centuries and an alternative to dominant intensive livestock production systems. The key objective of PASTINNOVA is to re-enforce the sustainability, profitability and resilience of small pastoral farms by setting up innovative business and organisational models to valorise their full potential and promote their access to markets. In particular, the project examines pastoral systems which can provide a broad array of



Other in Consortium/ 19

Trofý.Lab - GR

Aristotle University of Thessaloniki (AUTH) - GR

Algerian National Agronomic Institute (INRAA) - DZ

Coopérative de Services d'élevage (COOPSSSEL) - DZ

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

University of Zagreb (UZ) - HR

Agency for Rural Development of Istria Ltd Pazin (AZRRI) - HR

Consejo Superior de Investigaciones Científicas (CSIC) (CSIC) - ES

International Centre for Advanced Mediterranean Agronomic Studies, Instituto Agronómico Mediterráneo de Zaragoza (CIHEAM Zaragoza) - ES

Red Española de Queserías de Campo y Artesanas (QueRed) - ES

Systemes d'élevage méditerranéens et tropicaux - Laboratoire de Recherche sur le Développement de l'Élevage (UR 045- SELMET LRDE, INRAE) - FR

Università Politecnica delle Marche (UNIVPM), Dipartimento di Scienze Agrarie, Alimentari ed Ambientali - IT

Consiglio Nazionale delle Ricerche, Istituto per il Sistema Produzione Animale in Ambiente Mediterraneo (CNR-ISPAAM) - IT

APPIA - Rete della Pastorizia Italiana - IT

Lebanese University (UL) - LB

Institut National de la Recherche Agronomique (INRA) - MO

KMETIJSKI ZAVOD BRIC, SOČA - SI

Institut des Régions Arides (IRA) - TN

Cukurova University Agricultural Faculty Department of Animal Science (CUNI) - TR

ecosystem services along with high-quality products in a variety of agroecological and socio-economic Mediterranean settings.

To address the weak positioning of pastoral smallholders in Value Chains of Pastoral products (including short and circular ones), PASTINNOVA proposes a holistic, interdisciplinary approach, which combines participatory methods, assessments and real-life applications, where four elements interact (1) Diagnosis (listing of an innovative project, practices and initiatives); (2) Testing of selected innovations under different contexts; (3) Small-scale pilot implementation, sustainability assessment; (4) Policy and market uptake.

Based on the 'Living Laboratories' (LLs), a shared network on "Pastoral actors and VCP" will be established to co-create innovative solutions for farmer organisations, farm management and value chains through the integration of needs, capacities and experiences of actors (e.g., farmers, entrepreneurs, manufacturers, retailers, policy-makers, researchers, consumers). Selected solutions will be tested and implemented in small-scale real-life applications and assessed for sustainability (economic, social, environmental). The focus will be on the inclusion of vulnerable groups (e.g., women, young farmers and migrant workers) and the environmental performances of pastoral agroecosystems and chains, promoting sustainable and profitable use of farm waste. Furthermore, the project will propose a supportive policy framework and necessary value chain and market arrangements for efficient access to markets.

Expected impact and results

PASTINNOVA brings together a partnership of 20 of the most critical pastoral Organisations – representing 12 countries - from various backgrounds (research, education, Cooperatives, policy, SMEs) and with different expertise (varying from socio-economic analysis and Information and Communication Technologies to animal husbandry and rangeland science). The project will deliver demand-driven smart and sustainable pastoral farms, agroecosystems and value chains, adapted to the socio-cultural characteristics of farmers with 'pastoral identities' and their territories, profitable under actual conditions and resilient to future challenges; in addition, it will upscale the role of pastoralism by pooling a wide variety of existing resources of project partners, their experience and networks, including the outputs of numerous pastoral-related projects. Among the key expected results of the project are (a) The establishment of four Regional LLs; (b) The delivery (co-design, testing, pilot implementation) of at least 12 innovations and business models for Mediterranean pastoralism (focusing on technology, organisation/management, value chain/market and Cooperatives/Associations/ Governance). The combined capitalisation of these projects, outputs and experience will be a decisive step towards more sustainable and resilient pastoralism. The critical impact of PASTINNOVA will relate to the fulfilment of the true potential of pastoral systems with relevant benefits for smallholder pastoralists. Co-creation within LLs is a crucial measure demonstrating the effectiveness of the project approach to ensure maximum impact.

Keywords

#pastoral_smallholders

#inclusion #living labs

#farm_management

#agroecological_settings

#short-value_chain

#circular_economy



Demo sites/case studies

4



New products and solutions

12

Innovations and business models for Mediterranean pastoralism



Thematic Area

Agri-food Value Chain



Action and Topic

IA - Increase adherence to the Mediterranean diet as a sustainable pattern including environmental, social and health aspects



Budget

2.606.875 €



Duration

36 months



State and Coordinator Entity

SPAIN

Grupo Edelvives



Scientific Coordinator:
SALAMERO, Maria

Participating States/ 5



Research Units/ 10



Section 1

DELICIOUS

UnDERstanding consumer food choices & promotion of healthy and sustainable Mediterranean diets and Lifestyles in Children through behavIOUral change actions

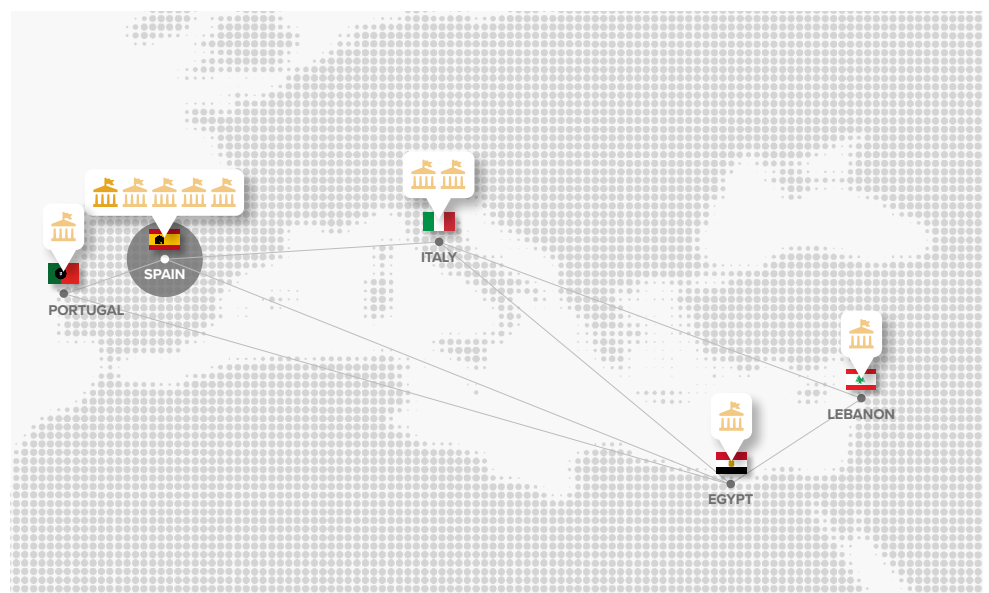
Context

Although the traditional Mediterranean (Med) lifestyle is considered one of the healthiest dietary patterns, the region is paradoxically one of the areas where overweight and obesity are most prevalent globally. Chronic diseases related to lifestyle are rising in Northern, Southern and Eastern Mediterranean areas. This is due to the decline in adherence to the Mediterranean Diet (MD) in the Med societies. DELICIOUS aims to reverse this decline by bringing its consumption back to Med societies starting from the demographic group who needs it the most: our children and adolescents. DELICIOUS will name and understand the socio-economic and cultural factors hindering MD adherence and supply innovative dietary shifts towards sustainable MD. Socio-cultural, technological, geopolitical, and educational factors play a vital role in MD adherence, which is the main scope of DELICIOUS.

Objective and contents

DELICIOUS aims to boost the attractiveness of a sustainable and healthy Med lifestyle (MD + physical activity) in Med societies by raising awareness of their beneficial impact on human and planet health. The specific goals pursued are:

- Identify, qualify, and quantify the factors influencing a decline in MD adherence in children & adolescents in the Med region, including those related to consumer needs and preferences, and consider local food choices determinants.
- Assess the sustainability of different MD recipes considering three perspectives: environmental (via Life Cycle Assessment, LCA), economic (via Life Cycle Costing, LCC) and social (via Social Life Cycle Assessment, S-LCA).
- Design culture-adapted physical activity intervention programs to prevent and reduce obesity in Med children and adolescents and promote an active lifestyle.
- Develop, produce, and confirm new food products and reformulate recipes according to the MD, targeting children and adolescents.
- Develop a digital platform (web/app) that provides weekly diet plans based on Med recipes with a nutritional balance and transparency of sustainability data.



Other in Consortium/ 9

Asociación de investigación de la industria del juguete, conexas y afines (AIJUA) - ES

Basque Culinary Center - ES

Contactica SL - ES

LCIbérica SL - ES

Assiut University (AUN) - EG

Provincia d'Italia dei Fratelli Maristi delle Scuole - IT

Università di Catania (UNICT) - IT

Collège Mariste Notre Dame de Lourdes de Jbail-Amchit - LB

Província Portuguesa Da Congregação Dos Irmãos Maristas - PT

- Implement educational actions in schools to promote a dietary shift in Mediterranean children and adolescents, increasing MD adherence.

Expected impact and results

- Identification of socio-economic and cultural barriers (including the food behaviour change) aiming to increase adherence to the Mediterranean diet.
- Identification and comparative analysis of local determinants of food choices (such as education, socio-economic, hedonistic, market dynamics) of different Med populations through harmonised and validated methods.
- Foster new business models and marketing of new food products and promoting eating habits consistent with the MD, which meet consumers' preferences and acceptability.
- Assessment, checking and reporting of the adherence to the Mediterranean Diet through the development of methodologies that enable the acquisition of data and proper indicators.
- A shift towards consumer-driven new product development that corresponds to the appreciations, preferences, (health) needs, and affordability means consumers in the Med countries and tourists as ambassadors of the MD.
- Improved nutrition and health thanks to a better diet.
- Consumers' empowerment (food information/ awareness/ behavioural change).
- Promote a healthier and more sustainable lifestyle, incorporating exercise routines for a more active lifestyle and boosting healthier & more sustainable food shopping habits.
- Reach a broader public to attain SHD dietary patterns further to promote a change in governance and societal models.

Platforms/ Hubs

1

Digital platform (web/app) that provides weekly diet plans



Keywords

#healthy_med_lifestyle

#Mediterranean_Diet

#children

#Life_Cycle_Assessment

#Life_Cycle_Costing

#Social_Life_Cycle_Assessment

#obesity

#education



Thematic Area

Agri-food Value Chain



Action and Topic

IA - Increase adherence to the Mediterranean diet as a sustainable pattern including environmental, social and health aspects



Budget

2.363.973 €



Duration

36 months



State and Coordinator Entity

ITALY

Fondazione Edmund Mach



Scientific Coordinator:
BONTEMPO, Luana

Participating States/ 5



Research Units/ 12



Section 1

PROMEDLIFE

PROMotion of MEDiterranean LIFEstyle and healthy diet

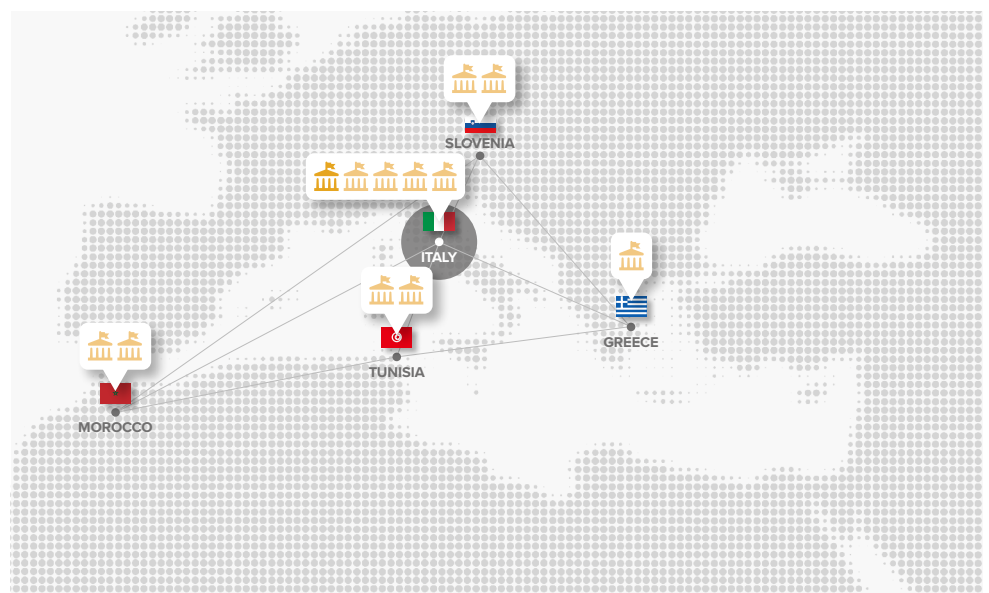
Context

The need to maintain the production of local foods characterized by a high nutritional index, update traditional food production methodologies by developing attractive tech-based approaches, promote healthy eating habits that meet consumers' preferences and acceptability, as well as reduce the complexity of supply chains (Farm to Fork) must be addressed to ensure food and nutrition security. This is especially true in Mediterranean countries undergoing dietary and nutritional changes that affect their inhabitants' health while creating many socio-economic and environmental challenges. These changes have happened despite the health benefits of consuming a Mediterranean diet demonstrated in numerous epidemiological studies, and because dietary interventions are effective, it is essential to identify and address perceived barriers to healthy eating. In PROMEDLIFE, we identified opportunities for improving the adherence to the Mediterranean diet, incorporating a tailored design beyond the state-of-the-art allowing the rapid transference of innovations to industry and local policy bodies. The PROMEDLIFE approach employs food nutritional quality to help drive consumer awareness, perceptions and the use of food high in nutrients while recognizing foods, the consumption of which should be limited. The educational activities will be tailored to the specific characteristics of each participating country. These practical actions will target the entire 'family system' deeply entrenched in the Mediterranean area and essential for the welfare function.

Objective and contents

PROMEDLIFE aims to reverse the decline in adherence to the Mediterranean diet pattern by adopting a multi-actor approach in four lines of intervention:

- 1) Analysis of socio-economic, cultural and personal factors driving consumers in adopting a healthy Mediterranean lifestyle involving children, adolescents and family caregivers in Greece, Italy, Morocco, Slovenia and Tunisia.
- 2) Promotion of tailored and country-specific educative actions using "learning through play and living labs approach" targeting primary and high school students and their families/carers in a series of initiatives using novel tools and strategies to



Other in Consortium/ 11

Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA) - IT

Hortus Novus Srl - IT

Università di Parma (UNIPR) - IT

Contento Trade Srl - IT

Ellinogermaniki Agogi (EA) - GR

Institut National de la Recherche Agronomique (INRA) - MO

Atlas Safran SA - MO

Jožef Stefan Institute (IJS) - SI

Mlekarna-Planika d.o.o. Kobarid - SI

University of Carthage (UCAR), National Institute of Applied Sciences and Technology - TN

Association Tunisienne des Sciences de la Nutrition (ATSN) - TN

address regional cultural specificities and apply validated educational techniques in different cultural environments.

3) Creation and acceptability test of new healthy snacks targeted at young and older adults, based on traditional Mediterranean premium ingredients produced optimizing traditional and innovative eco-friendly food processing technologies and tools to preserve the nutritional value. Strong high-throughput chemical characterization and bioassays from raw materials to the final products, to monitor their bioactivity and sensorial properties. New cultivation technologies and agronomical practices will be applied and tested.

4) Codification and valorization of local Mediterranean products through the development of food labelling using innovative tools to increase people's connection with their cultural and local heritage and improve their awareness of food healthy choices. The link with local Mediterranean sources will be exploited as a tool for valorizing the PROMEDLIFE novel Mediterranean food products.

Expected impact and results

PROMEDLIFE addresses the negative consequences of human health from consuming low-quality meals (fast-/junk-food) using a holistic approach based on the valorisation of traditional Mediterranean crops/varieties/recipes/products with a strong cultural connection to specific Northern and Southern areas. Although challenging but possible, PROMEDLIFE will change the snacking habits and create a dietary shift towards a Mediterranean lifestyle by offering healthy and bioactive-enriched food products. The project will also promote the sustainability of high-quality food along the food value chain due to cooperation between research organizations and businesses. In addition, it will promote innovative, short supply chains with the possibility of supplying raw materials from local areas and products with recognized traceability. Further, it will create conditions for the sustainable development of the cross-border territory, varieties, agricultural practices, and adaptation to climate change. Overall, revisiting the Mediterranean diet proposed in a more modern and appealing way through a transversal approach will guarantee the link between the innovativeness of PROMEDLIFE and the productive sector. PROMEDLIFE will aspire to understand the factors affecting consumers' healthy choices and turn to education to promote adherence to the Mediterranean lifestyle in the young generation and their families. It will also promote adherence to the Mediterranean diet taking advantage of its health benefits for young people and families by developing novel and attractive products. By doing this, PROMEDLIFE will conserve local biodiversity and exploit its uniqueness for both cultural and regional economic development while improving the value chain and market competitiveness of locally produced sustainable Mediterranean food products.

Keywords

#healty_med_lifestyle

#Mediterranean_Diet

#children

#family

#education

#cultural_environment

#living_labs



Thematic Area

Agri-food Value Chain



Action and Topic

IA - Increase adherence to the Mediterranean diet as a sustainable pattern including environmental, social and health aspects



Budget

2.799.000 €



Duration

36 months



State and Coordinator Entity

ITALY

ENCO Consulting Srl



Scientific Coordinator:
MINCIONE, Simona

Participating States/ 8



Research Units/ 18



Section 1

SWITCHtoHEALTHY



Switching Mediterranean consumers to Mediterranean sustainable healthy dietary patterns

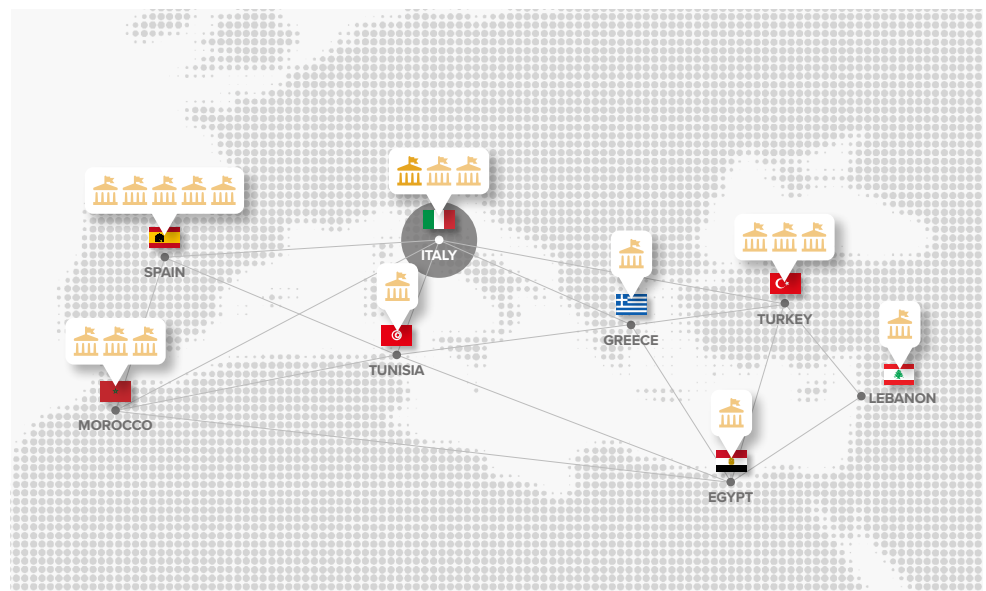
Context

Profound dietary changes occur across Mediterranean countries due to cultural and socio-economic-driven lifestyle changes, leading to the erosion of Mediterranean food cultures. The modernisation of the diet is particularly clear, implying modifying food preferences towards unhealthy foods and adherence to sedentary activities, leading to an imbalance between energy intake and expenditure. This has negative health consequences, like the continuously growing prevalence of excess weight and other dietary-related chronic diseases coexisting with undernutrition (nutrient deficiencies and stunting). The latest data show that two billion adults are overweight while 678 million are obese. These trends worsen among children and teens. The WHO COSI showed that Greece, Italy, and Spain had the highest rates of childhood obesity (approx. 20%). Overweight and obesity prevalence rates in Turkey, Morocco and Lebanon are 23%, 14% and 30%, respectively. Estimated weighted regional averages for stunting, wasting and underweight in the Eastern Mediterranean Region were about 28%, 9% and 18%, respectively.

Objective and contents

SWITCHtoHEALTHY project aims to generate a dietary behaviour change by demonstrating and reinforcing the role of the family in promoting a sustainable transition towards enhancing the adherence to the Mediterranean dietary pattern of the family members (adults, adolescents, and children). This will be done by making available to families a combination of hands-on educational material and digital tools and complementing the dietary and lifestyle recommendations with easy-to-eat healthier snacking products.

In this approach, while the parents will use digital interactive tools (SWITCHtoHEALTHY App) to prepare weekly healthier dietary plans for the main meals for them and their children, the educational material will be used to support their families in buying healthier habits and to educate children and adolescents. Finally, healthy and nutritious plant-based snacks will be introduced in the children's dietary plans to complement and substitute less healthy options in-between meals.



Other in Consortium/ 17

Università di Parma (UNIPR) - IT

Regione Campania - IT

Confederation of Egyptian
European Business Associations,
(CEEBA) - EG

Fundació EURECAT - ES

Centro Nacional de Tecnología y
Seguridad Alimentaria (CNTA) - ES

Centre de Recerca en Economia i
Desenvolupament Agroalimentari
UPC-IRTA (CREDA) - ES

Delafruit SLU (former Go Fruselva
SLU) - ES

Generalitat de Catalunya,
Departament d'Acció Climàtica,
Alimentació i Agenda Rural (DACC)
- ES

Centre for Research and
Technology Hellas (CERTH) - GR

Consumers Lebanon - LB

Université Ibn Tofail - Kénitra,
Unité Mixte de Recherche
en Nutrition et Alimentation
(CNESTEN-IUT) - MO

University of Mohammed Premier
(UMP) - MO

Soconarjiss Sarl - MO

Association Slow Food Tebourba
- TN

Bursa Uludağ Üniversitesi (BUÜ)
- TR

Kocahan Şekerleme - TR

İzmir Provincial Directorate of
Culture and Tourism - TR

Expected impact and results

SWITCHtoHEALTHY will result in increasing the adherence to MD by taking an intra-familial systemic approach taking the family context into account and assess mutual influence of children/adolescents-parents and their roles in healthy eating and lifestyle; developing innovative solutions (plant-based snacks) based on proximity of ingredients, sustainability and healthy consumption to support agri-food producers (especially SMEs) in finding new business opportunities; job creation opportunities and diversification in traditional Mediterranean food sector; supporting food companies in getting through the barriers to market uptake and achieving a sustainable competitive advantage by designing innovative consumer-oriented BMs; raising awareness of the healthy benefits derived from a high adherence to a MD, increasing knowledge on local Med products thus contributing to improve healthy food choices among families; synergising cross-sectorial policy coherence across agriculture, health, education, environment, trade, etc. from local to national and international level and discussing with all actors of society.

Keywords

#business_models

#co-creation

#consumers_empowerment

#digital_tools

#educational_materials

#family

#focus_groups

#gaming

#healthiness

#local_ingredients

#Mediterranean_Diet

#plant-based_food_products

#sustainability



Platforms/ Hubs

1

Digital platform (web/app)
that provides weekly diet plans



Thematic Area

Nexus



Action and Topic

IA - Leveraging knowledge on the Nexus management of Water-Energy-Food-Ecosystems resources in the Mediterranean region: from concepts to practical solutions



Budget

3.992.044 €



Duration

36 months



State and Coordinator Entity

SPAIN

BIOAZUL SL

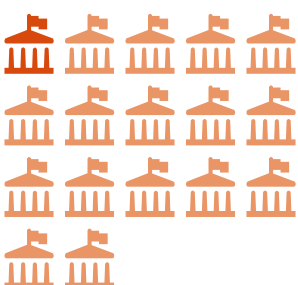


Scientific Coordinator:
LORENZO LOPEZ, Antonia Maria

Participating States/ 8



Research Units/ 17



Section 1

BONEX

Boosting Nexus Framework Implementation in the Mediterranean

Context

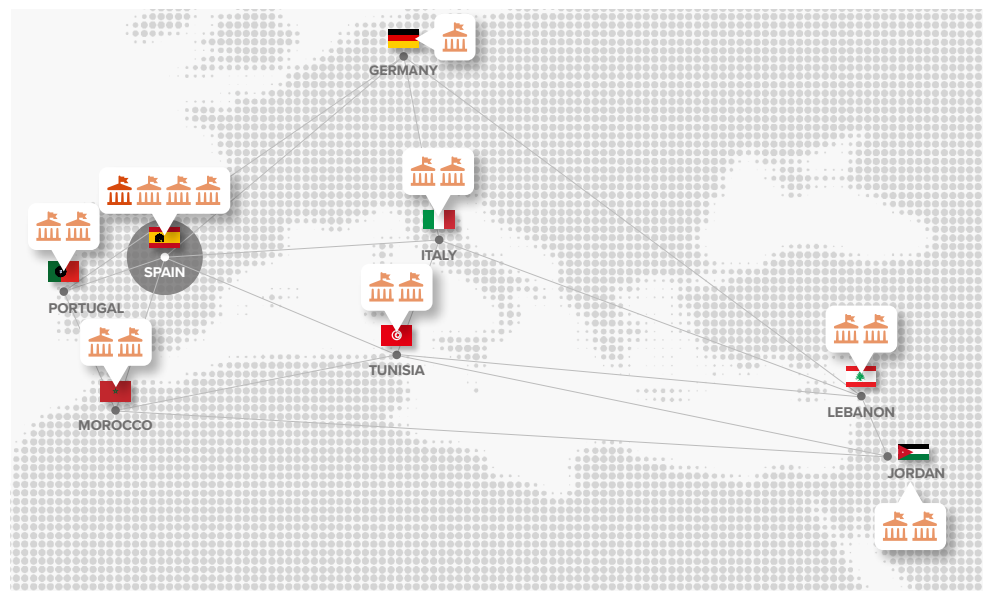
The Mediterranean Region faces growing challenges to ensure food and water supply as countries experience increasing demand and decreasing availability of natural resources. Interconnected impacts from climate change, population growth, urbanisation, and environmental deterioration further exacerbate the difficulty of meeting ecosystem and human needs. In this context, the nexus approach aims at managing and alleviating conflicts, trade-offs and leveraging synergies across sectors, moving towards an efficient, integrated use and management of the Water, Energy, Food and Ecosystems Nexus (WEFe Nexus) generating at the same time economical, environmental (including "GHG reduction"), and societal benefits.

Extensive literature focuses on the theoretical nexus concept, but tools to support its implementation in governance and practice are still in the early phases of development. BONEX objectives are to provide practical and adapted tools, examine concrete and context-adapted technological innovations, enhance policies and governance and facilitate WEFe Nexus practical implementation that balances the social, economic, and ecological trade-offs.

WEFe nexus assumes society is endorsing a paradigm change in food and energy production. According to the UN report on Water and Climate change (2020), the bulk of the GHG emissions related to water management originates in the energy used to power the systems and the processes involved in water and wastewater treatment. Therefore, increasing water use efficiency, reducing unnecessary water consumption and water loss, and using renewable energy sources as proposed by BONEX will translate into lower energy use and thus lower GHG emissions.

Objective and contents

BONEX aims to produce a novel, robust, transdisciplinary, and diagnostic WEFe Bridging Framework (WEFeF) to serve the production of context-specific Nexus Bridging Plans (NBPs) tailored to different innovative technologies and its combination and socio-economic contexts across the MedRegion. The WEFeF combines methods in a context-specific manner, mobilising transdisciplinary collaboration to go beyond



Other in Consortium/ 16

Universidad de Córdoba (UCO) - ES

FutureWater - ES

Universidad de Almeria (UAL) - ES

Universität Kassel (UKS) - DE

Consorzio della Bonifica Renana - IT

Alma Mater Studiorum Università di Bologna (UNIBO) - IT

German Jordanian University (GJU) - JO

International Union for the Conservation of Nature, Regional Office for West Asia (IUCN- ROWA) - JO

NovaEnergia SAL - LB

American University of Beirut (AUB) - LB

Office Régional de Mise en Valeur Agricole du Souss Massa (ORMVA-SM) - MO

Institut Agronomique et Vétérinaire Hassan II (IAV) - MO

Natural Business Intelligence (NBI) - PT

Universidade Nova de Lisboa, NOVA School of Science and Technology (FCT NOVA) - PT

SMART LOGGER Sarl - TN

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

disciplinary silos and integrate the system, practice, and transformation knowledge. The framework and innovative WEF Nexus solution approaches will be iteratively developed and tested in 7 carefully selected Demonstration Projects (DP). They cover diverse MedRegion contexts, challenges, and technologies – water reuse and water saving, desalination, Nature-based Solutions, agrovoltatics and solar irrigation- to ensure that results are truly replicable and that wide socio-ecological and cultural diversity of the MedRegion is considered. WEF and NBPs will be developed throughout multi-actor processes, with the close collaboration of all value chain relevant actors, such as researchers, farmers' organisations, businesses in the agri-food chain, public administration, technology providers, civil society organisations, and consumers. In addition, it will consider the creation of non-market values from the WEF Nexus.

BONEX explores and develops specific solutions promoting the linking of governance with practice to overcome barriers to WEF policies such as a) lack of coordination, cooperation and communication between sectors and levels; b) lack of a versatile methodology to quantify the interlinkages between WEF Nexus elements; c) lack of versatile and proven methodology to avoid perverse effects.

Expected impact and results

BONEX approach will contribute to managing conflicts, trade-offs and leverage synergies across sectors, moving towards an efficient, integrated use and management of the Nexus between Water, Energy, Food and Ecosystems (WEFe), breaking disciplinary silos that prevent cross-sectoral planning and integrated water, energy, ecosystems, and food production management.

The results of the WEF and the seven technologies validated in the demonstration projects push their market introduction to transition to a sustainable, fair and just economy. They aim at providing methodologies and tools for introducing and operationalising the Nexus approach in governance systems. Moreover, the BONEX approach contributes to building background for policy interventions, investment and financing identification and prioritisation. It will also contribute to the co-design and implementation of seven pilots with replication potential at local, national and global levels. Furthermore, they will help generate, disseminate and capitalise on the knowledge.

The main project results are:

- The WEF Bridging Framework (WEF) + BONEX online interactive decision-making tool to implement WEF;
- The Nexus Bridging Plans (NBPs) for seven demonstration projects (Tunisia, Spain, Italy, Lebanon, Jordan, Portugal and Morocco);
- Innovative technologies and services contributing to the WEF Nexus;
- Creation of a Community of Practice as a global network including public and stakeholders from target beyond DP countries to all MedRegion.

Demo sites/case studies

7

Demonstration projects Nexus Bridging Plans



Platforms/ Hubs

1

WEF Bridging Framework



Keywords

#context-specific

#governance

#community_of_practice

#policy

#Nature-Based_Solutions

#water_reuse

#water_saving

#desalination

#agrovoltatics

#solar_irrigation



Thematic Area

Nexus



Action and Topic

IA - Leveraging knowledge on the Nexus management of Water-Energy-Food-Ecosystems resources in the Mediterranean region: from concepts to practical solutions



Budget

3.891.543 €



Duration

36 months



State and Coordinator Entity

SPAIN

Universitat Politècnica de Catalunya (UPC)

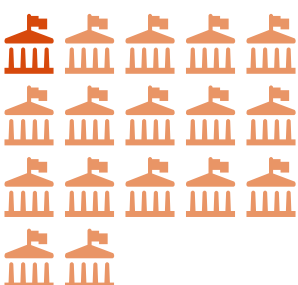


Scientific Coordinator:
MORATÓ FARRERAS, Jordi

Participating States/ 8



Research Units/ 17



Section 1

SURE_NEXUS

Ensure Fair NEXUS transition for climate change adaptation and sustainable development

Context

The project is embedded in the problem concerning the relatively low understanding of addressing the linkages involved in the NEXUS approach. This contrasts with the wide recognition of the systemic nature of water, energy and food security. The result is an urgent need for ways to take action. Meanwhile, there is still a lack of knowledge and resistance to changes that hinder the practical deployment of a cross-sectoral nexus approach.

This is the primary motivation for us to work on the topic. SureNexus will support transition initiatives by developing interconnected networks of grassroots community projects applying practices based on coupled nature-based systems and bioeconomy. Translates conceptual NEXUS into practical solutions, creating a set of alternative socio-ecological and technical methods (SETs) adapted to NEXUS conflicts on different key sectors for representative MED areas. The project is also based on NBS and bioeconomy practices as the main integrative tools for NEXUS implementation to maintain natural resources and production efficiency. For the broad deployment of the cross-sectorial NEXUS approach, SureNexus will encourage the co-design and co-creation of different SETs with all stakeholders since the start.

Objective and contents

SureNexus is meant to produce healthy and sufficient food, with fewer resources (water, soil, energy and nutrients) through regenerative and precision agriculture, including permaculture practices and with minimal impact on the environment through the development of interconnected networks of grassroots community projects and foster MED knowledge transfer and best practices, coupled with intersectoral cooperation.

Specific Objectives:

1. To demonstrate, validate and quantify the performance of alternative bioeconomy practices for NEXUS implementation, including use and reuse of waste by-products from agriculture, obtention of nutrients from regenerated wastewater, recycling of agriculture plastic waste, among other solutions.



Other in Consortium/ 16

Institut de Recerca i Tecnologia Agroalimentàries (IRTA) - ES

Centre de Recerca en Economia i Desenvolupament Agroalimentari (CREDA) - ES

Institut Català del Suro (ICSuro) - ES

Participatory Development Solutions (EIMahrousa PDS) - EG

UNESCO, Division of Water Sciences (SC/HYD) - FR

National Technical University of Athens (NTUA) - GR

Agricultural and Environmental Solutions (AGENSO) - GR

Tinos Eco Lodge - GR

Keren Kayemeth Lelsrael, Jewish National Fund (KKL-JNF) - IL

Università Politecnica delle Marche (UNIVPM) - IT

Planet Di Villa Alessandro & C. Sas - IT

REM TEC Srl - IT

Institut national de la recherche agronomique (INRA) - MO

Centre Technique de Plasturgie et de Caoutchouc (CTPC) - MO

Office National de l'Electricité et de l'Eau Potable (ONEE) - MO

Société Agricole Innovante dans le Sud (INNOVAGRISUD) - TN

2. To demonstrate, validate and quantify the performance of alternative nature-based solutions (NbS) for NEXUS implementation.

3. To investigate, demonstrate and validate key enabling factors for NEXUS implementation through a co-creation approach.

4. To develop a planning and management framework to translate conceptual NEXUS knowledge into practical solutions and then into specific policy-making processes, testing and validating the performance of NEXUS implementation across 4 Living labs.

5. To strengthen cross-fertilization on the NEXUS implementation in the Mediterranean region and the context of climate emergency and water scarcity through knowledge brokerage and capacity building and networking.

6. To communicate, disseminate and exploit the project results and outcomes to relevant stakeholders at various levels.

Expected impact and results

Extensive use of AI and machine learning will improve the identification of best practices and lessons drawn from empirical NEXUS work consolidating a system mapping, including specific technical and policy solutions adapted to the Mediterranean.

Economic impacts will be addressed by analysing financial valuation and mechanisms, blended financial investments, understanding the costs of inaction, quantification of losses and damages, (re)insurance and quantification of co-benefits, mainly through the use of NbS and bioeconomy solutions/practices.

Test, validate and quantify the performance of NEXUS implementation and framework across four Living Labs. All activities will facilitate coherence, coordination and management of practices/solutions that increase water and energy use efficiency in the face of multiple climate hazards and risks/vulnerabilities, specific context and multi-sector dynamics, such as urban sprawl, environmental degradation and socio-economic challenges.

Strengthen capacity building and training for consortium partners, stakeholders and end-users within the project pilots, and stakeholders outside the consortium, fostering partnership with other PRIMA projects, national, international and EU networks, and facilitating joint activities. The European Green Deal is directly applied through the Farm to Fork strategy.

Cross-fertilisation of appropriate engineering solutions, bioeconomy practices and enabling factors among demo sites will increase replication potential, which will be further enhanced by the tailored, oriented outputs (knowledge base, methodologies, tools and policy guidelines).

Living Labs

4

for testing and validating the performance of NEXUS implementation



Keywords

#bioeconomy

#Nature-Based_Solutions

#machine_learning

#renewable_energy

#SETs

#sustainable_tourism





PRIMA WEFE Nexus Award

HYDROUSA

Demonstration of water loops with innovative regenerative business models for the Mediterranean region

Award

10.000 €



State and Coordinator Entity

GREECE

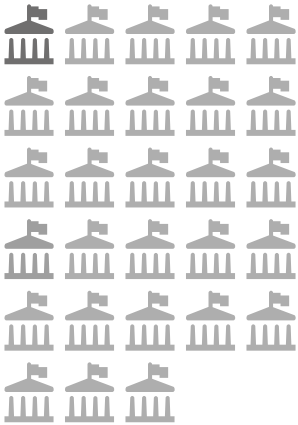
National Technical University of Athens (NTUA)

Scientific Coordinator:
MALAMIS, Simos

Participating States/ 10



Research Units/ 28



Context

Effectively addressing complex resource challenges requires moving from sectoral silos into a holistic Nexus systems approach. Interventions must leverage cross-sectoral, trans-disciplinary synergies and be contextualised to accommodate regional and local boundaries. Our Nexus journey began with the WEF Nexus Tool developed to address Qatar's national food self-sufficiency policy objective.

Objective and contents

The project's main objectives are to identify policy changes and the possible detrimental links to other sectors and resources. An updated Tool 2.0 was used in a 3-year inter-disciplinary investigation into resource challenges facing San Antonio, Texas, at Texas A&M University's Water-Energy-Food Nexus Initiative. Lessons learned and transferable outcomes were disseminated and used to inform other initiatives. Lebanon also faces resource limits that are interlinked with social, political, and economic crises and dictate the need for resource security. The challenge lies in assessing alternative water and energy resources and allocating land to achieve a food security level that provides locally produced nutritious food at a lower cost.

Expected impact and results

The studies developed during this journey helped inform decision-makers. Multiple iterations of the WEF Nexus Tool 2.0 were adapted and scaled to address these. The developed Nexus frameworks and tools include provisions for alternative water and energy, crops, acreage, links with the environment, and other factors. The definition and quantification of the linkages between resources within these frameworks allow for scalability and adaptability, as demonstrated by Qatar, Texas, Morocco, Turkey, and Lebanon studies. The WEF Nexus Tool 2.0, now part of the SDG Acceleration Tool Kit, is accessible online and can be used to assess water-energy scenarios for crops and land areas globally. In Morocco, the phosphate industry adapted the tool to assess trade-offs between the economics of the water footprint of phosphate production versus that of agriculture.

Other in Consortium/ 27

Municipality of Mykonos - GR

Agricultural and Environmental Solutions-
AGENSO - GR

Eco Lodge Tinos Parochi Ypiresion
Oikologikon Toyristikon Epiplomenon
Katoikion Tinos EU - GR

Impact Hub Labs - GR

NTELAROS OE - GR

Minarva Techniki Kataskey Astiki Kaiergoliptki
Anonimi Etairia - GR

Municipality of Western Lesvos - GR

Municipality of Tinos - GR

University of Aegan - GR

Water Utility of Lesvos- GR

RADTKE Manfred - DE

Alchemia- Nova GMBH - AT

Plenum Gesellschaft fuer Ganzheitlich
Nachhaltige Entwicklung GMBH - AT

Water Europe - BE

Memira Gensis LTD - CY

Heliopolis University - EG

Isis for food industries LTD - EG

Fundacio Institut Catala de Recerca
de l'Aigua - SP

Asociacion catalana para la innovacion y
la internacionalizacion del sector del Agua,
Catalan Water Partnership (CWP) - SP

AERIS Tecnologias Ambientales SL - SP

Unite technique du Semide GEIE - FR

Universita Politecnica delle Marche - IT

IRIDRA SRL - IT

Planet di villa Ale SSandro and C SAS - IT

A.S.A. Azienda Servizi Ambientalispa - IT

Brunel University London - GB-NIR

SATISTICA Limited - GB-NIR



Award

10.000 €



State and Coordinator Entity

LEBANON

**American University of Beirut
(AUB)**

Scientific Coordinator:
MOHTAR, Rabi

Participating States/ 1



Research Units/ 1



Context

We want to solve the water supply issue, the wastewater problem, the biodiversity and nutrient loss, the availability of jobs (mainly in the high touristic season), and the flush of difficulties that infrastructure has to deal with at the peak of the touristic season, resulting in the unsustainable water demand. The existing utilisation of non-conventional water resources at ELT and the upgrades through HYDROUSA, like rainwater for low purity water demand (toilet flushing, irrigation, washing machine, etc.), cistern storage in winter to reduce stress on aquifer during the touristic season, the low water consumption devices (e.g. ultralow flush toilets, air injected tabs or localised irrigation), address the provision site thoroughly.

Objective and contents

The main objective of HYDROUSA is to offer a set of solutions for these problems that are easily adaptable and replicable to other possible circumstances around the world. This overall aim will be achieved by accomplishing the following project-specific objectives:

1. demonstrate that circular nature-based technologies work for supplying freshwater from non-conventional water sources and for wastewater treatment and nutrient recovery, creating further environmental and societal benefits.
3. show that the applied technologies are feasible within existing (legal) constraints and create the economic return, creating jobs and boosting the economy.
4. make sure that the community and stakeholders are engaged in all parts of the value chain from the very beginning.
5. prove that skilled workmanship combined with modern ICT solutions creates resilient, attractive, long-lasting systems.
6. establish the water-energy-food-employment nexus and work with accurate cost accounting for circular economy assessment.
7. replicate this concept to as many other places as possible with additional funding and spread the good news.

Expected impact and results

1. Significant reduction of water and energy consumption at regional scale by closing the cycles of material, water, energy, using alternative water sources and supporting transition towards smart water services.
2. Interconnectivity between the water system and other economic and social sectors. Increased public involvement in water management. Increased citizen satisfaction with water services.
3. Replication of new business models in other areas and replicating models for synergies between appropriate funding instruments at regional, national or European levels.
4. Closing the infrastructure and investment gap in the water service sector.
5. Creation of new markets in the short and medium term.
6. Providing evidence-based knowledge regarding the enabling framework conditions that facilitate a broader transition to a circular economy in the EU.
7. Implementing Sustainable Development Goals, particularly 12 'Ensure sustainable consumption and production patterns and ensure availability and sustainable management of water and sanitation for all.



Section 2 /S2

Project sheets follow the order by Thematic Area
(Water management; Agricultural systems; Agri-food value chain)

Thematic Area

Water Management



Action and Topic

RIA - Alleviating Mediterranean water scarcity through adaptive water governance



Budget

1.000.909 €



Duration

36 months



State and Coordinator Entity

GERMANY

**Technische Universität Dresden
(TU Dresden)**

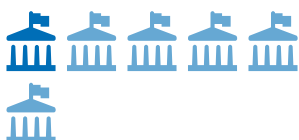


Scientific Coordinator:
STEFAN, Catalin

Participating States/ 5



Research Units/ 6



Section 2

AGREEMAR

Adaptive agreements on benefits sharing for managed aquifer recharge in the Mediterranean region

Context

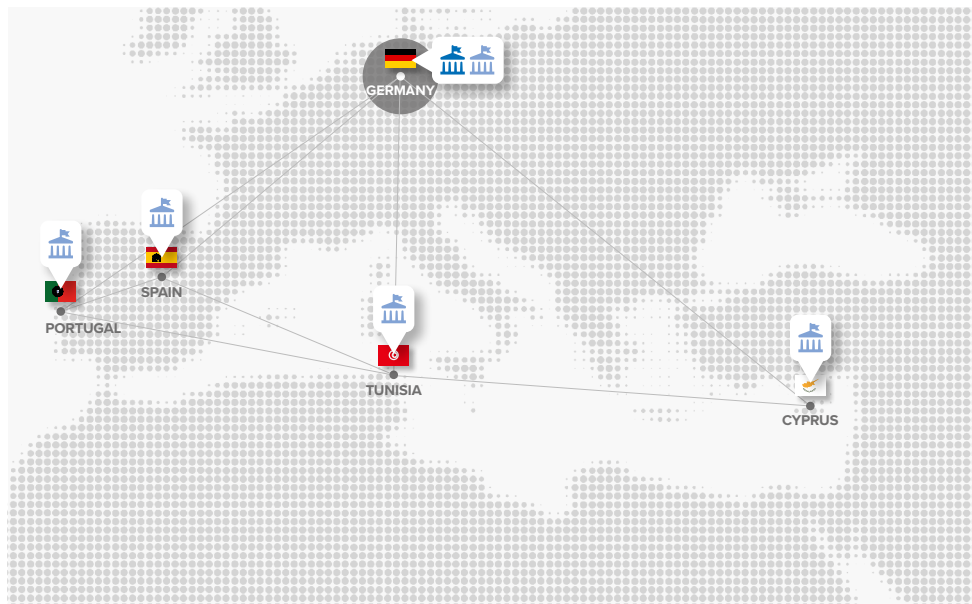
The countries in the Mediterranean basin have many features in common, including an arid and semi-arid climate, economic activities focusing on agriculture and tourism, and a solid financial and social value of water. Water resources availability is often characterised by uneven Spatio-temporal distribution heavily affected by agricultural intensification, necessary to sustain the rapid population growth and extensive and seasonal tourism in coastal areas. Aquifers play an essential role in providing several services to human activities, including storage and production of clean water (for drinking water supply, irrigation, etc.), flood mitigation, saltwater intrusion control and support to aquatic ecosystems. The Mediterranean region's low precipitation, high temperatures, and evaporation rates cause reduced surface water storage and quality (e.g., algae bloom and eutrophication) and thus increased pressure on aquifers for groundwater abstraction. In many places (especially in northern Mediterranean countries), aquifers are being over-exploited, i.e., the annual abstraction rate exceeds the recharge rate, in which case utilisation rate falls below the sustainability threshold. In coastal areas, this leads to seawater intrusion. Consequently, coastal communities increasingly suffer from insufficient supply of drinking water and decreasing quality of agricultural lands due to progressive salinisation of soils. This trend is expected to worsen due to climate change impacts.

Objective and contents

AGREEMAR proposes an improved and integrated management of water resources centred on optimising water storage in the subsurface to increase water security in the Mediterranean region. The project will develop an integrated, participative and coordinated methodology to assess and map the feasibility of nature-based groundwater solutions such as Managed Aquifer Recharge (MAR) for climate change adaptation.

The project methodology includes several components:

1. development and demonstration of a combined mapping methodology that integrates the demand for aquifer-dependent services, conventional and non-conventional water sources, and intrinsic site suitability for MAR application;



Other in Consortium/ 5

Adelphi Research gemeinnützige GmbH - DE

Cyprus University of Technology (CUT), ERATOSTHENES Centre of Excellence - CY

Universitat Politècnica de València (UPV) - ES

Laboratório Nacional de Engenharia Civil (LNEC) - PT

Institut National Agronomique de Tunisie (INAT) - TN

2. validation of the feasibility maps through numerical models at watershed and local scale to assess the improvements in reliability, vulnerability and resilience provided by the inclusion of MAR schemes in water management schemes;
3. development of a general participatory governance framework at the regional level and implementation of co-created location-specific agreements for MAR benefits sharing, supported by scientific evidence and endorsed by cross-sectoral stakeholder groups;
4. participative multi-actor approach for fostering the engagement of stakeholders from different societal sectors and actor groups in all stages of project development.

Expected impact and results

The applicability of the AGREEMAR governance framework will be demonstrated at national (island), regional and local scale on four case study areas from Tunisia, Cyprus, Portugal, and Spain. The selected case studies will validate the proposed methodology and enable its integration into a larger context at the level of the entire Mediterranean basin. In the long term, a boost in MAR implementation will contribute to protecting and improving the services dependent on aquifers by maintaining or increasing the volume of water extracted for different uses, positive associated impact on other services and support to aquatic ecosystems. By developing, validating, and introducing an integrated MAR governance approach, AGREEMAR increases its acceptability and effectively implements MAR as a sustainable and integrated water resources management solution throughout the Mediterranean region. By selecting areas from EU and non-EU countries on both shores of the Mediterranean basin, AGREEMAR will foster intercultural and multidisciplinary collaboration and transfer between countries. The developed solutions are expected to close the gaps in the hydrological cycle and fulfil optimal water provisions for food security, domestic services and preservation of natural ecosystems in the Mediterranean region.

Demo sites/case studies

4



Platforms/ Hubs

1

Managed Aquifer Recharge



Keywords

#aquifer_governance

#groundwater

#Managed_Aquifer_Recharge

#modelling

#stakeholders_engagement



Thematic Area

Water Management



Action and Topic

RIA - Alleviating Mediterranean water scarcity through adaptive water governance



Budget

1.300.140 €



Duration

36 months



State and Coordinator Entity

MOROCCO

Mohammed VI Polytechnic University (UM6P)



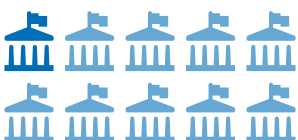
**MOHAMMED VI
POLYTECHNIC
UNIVERSITY**

Scientific Coordinator:
BROUZIYNE, Youssef

Participating States/ 7



Research Units/ 10



Section 2

AGREEMed



Innovative Aquifers Governance for Resilient Water Management and Sustainable Ecosystems in Stressed Mediterranean Agricultural Areas

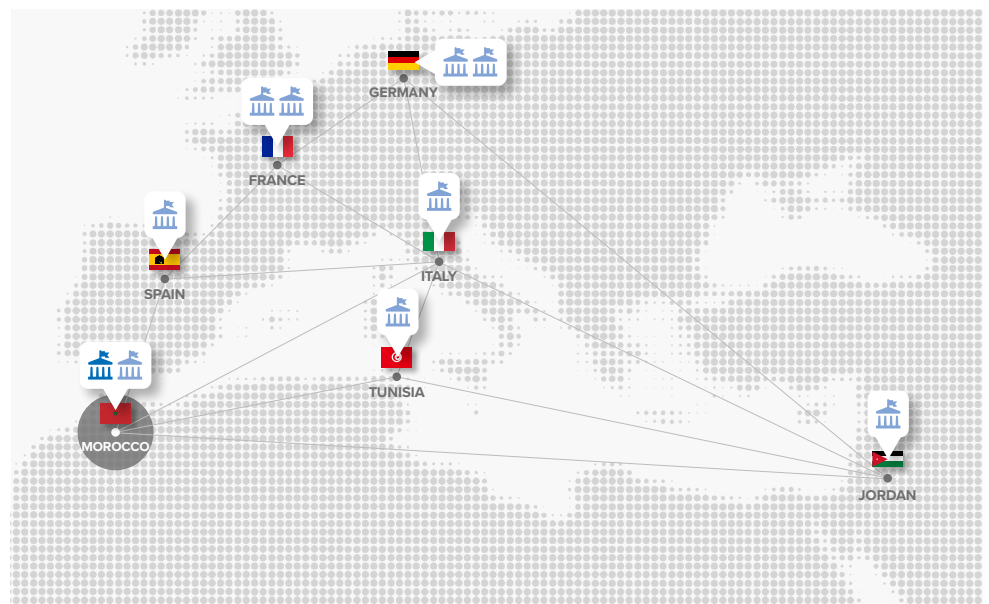
Context

Water resources management plans are usually justified by the presence of risks to mitigate or opportunities to secure more benefits. In the MENA region, especially in the southern part of the Mediterranean region, and according to the World Bank's "Beyond Scarcity" report, the lack of preparedness to manage the water crisis is the greatest threat to the region. Aquifers are a critical part of the water cycle, the ecosystems, and the socio-economic systems, especially in the southern shore of the Mediterranean, where water resources are limited and unevenly distributed in space and time. Some countries receive 10% of the local total annual average rainfall. In such a complex region, where aquifers are influenced by population growth, climate change, and environmental changes, it is increasingly important to enhance, manage and sustain services derived from aquifers and the groundwater. The conceptual framework of AGREEMed is inspired by the assumption that resilient water management, preservation of ecosystems, and sustainable agricultural development in water-stressed Mediterranean basins is possible if the area's specific portfolio of solutions and practices is designed and implemented a participatory approach.

Objective and contents

The main objective of the AGREEMed project is "to improve the capacities of water actors in developing integrated aquifer management plans and demonstrating such development in strategic pilot watersheds in the Mediterranean region: Souss-Massa in Morocco, Hammamet in Tunisia, and Jordan Valley in Jordan". Specifically, AGREEMed looks to: deliver scientific knowledge about the quantity and quality status of groundwater and dependent ecosystems, evaluate non-conventional water technologies, promote innovative water treatment and brine management technologies, leverage Nature-Based Solutions (NBS), foster institutional water management practices (Aquifer Agreement), promote. Data-based models added values and introduced the collective intelligence concept in water resources management.

In each pilot area, "Stakeholders Bords" will be created and include various actors in the water value chain. This coalition will stand for an instrument of dialogue and



Other in Consortium/ 9

Université Ibn Zohr (UIZ) - MO

Technische Universität Berlin (TUB) - DE

DELTA Umwelt-Technik GmbH - DE

OBREAL Global - ES

Euro-Mediterranean Information System on know-how in the Water sector (SEMIDE-EMWIS) - FR

Institut Agronomique et Méditerranéen de Montpellier, (CIHEAM - IAMM) - FR

IRIDRA Srl - IT

German Jordanian University (GJU) - JO

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

inclusive governance and be involved across the project activities. Aquifer's administration plans specific to each pilot area will be built, combining non-conventional water technologies, disruptive Big-Data based models, NBS, and institutional practices according to findings of the exploratory research. Exploratory investigations and evaluations of groundwater associated ecosystems and current non-conventional water technologies will guide the following activities. Socio-economic and environmental assessments will be performed to secure the best footprints of the suggested solutions. Dedicated efforts will be made in upscaling and dissemination for a more extensive outreach of the project outcomes within the Mediterranean region.

Expected impact and results

The strategic ambitions of AGREEMed are falling within the scope of the water thematic call as it addresses the vital role of aquifers and their management in the Mediterranean. The multidisciplinary and multiapproach of AGREEMed will be supporting the research activities in responding to the expectations of the selected topic about addressing the problem of water scarcity through innovation, integrating ecosystems and people, and reducing gaps between plans and implementation. To that end, AGREEMed's value proposition in contributing to groundwater and dependent ecosystems sustainability is alleviated by an extensive portfolio of solutions and practices (technological, institutional, and scientific) where specificities of the pilot area, inclusiveness, and ecosystems are key pillars. Diverse innovations (products, business models, approaches, and organisational models) are expected within the framework of AGREEMed.

Demo sites/case studies

3



Keywords

#aquifer_governance

#groundwater

#Nature_Based_Solutions

#modelling

#non-conventional_water technologies

#brine

disruptive_big-data_based_models



Thematic Area

Water Management



Action and Topic

RIA - Alleviating Mediterranean water scarcity through adaptive water governance



Budget

1.049.850 €



Duration

36 months



State and Coordinator Entity

ITALY

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



UNIVERSITÀ
DEGLI STUDI
FIRENZE

Scientific Coordinator:
BRESCI, Elena

Participating States/ 7



Research Units/ 8



Section 2

AG-WaMED

Advancing non conventional water management for innovative climate-resilient water governance in the Mediterranean Area

Context

The AG-WaMED project aims at unveiling Non-Conventional Water (NCW) future potential to reinforce climate change adaptation in the Mediterranean, by piloting comprehensive and inclusive technological solutions to support multiple stakeholders addressing water scarcity issues.

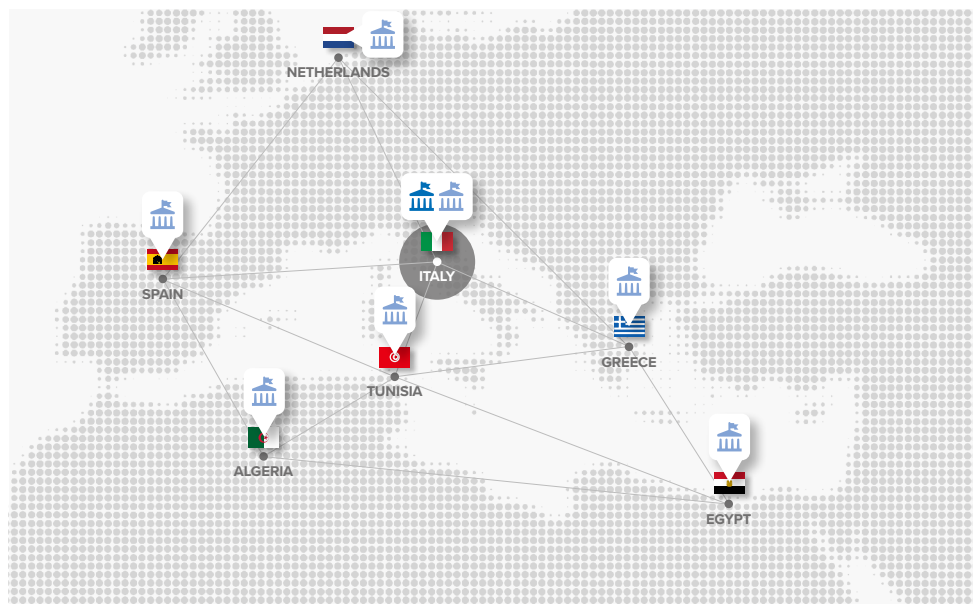
Objective and contents

To achieve this aim, the AG-WaMED project has the following goals within the 3-year duration of the project:

- Foster participatory and equitable water governance models for Mediterranean catchments which are also socially sustainable and cost-effective, developing innovative procedures for multi-actor stakeholders involvement in selected demo site;
- Innovate water resources and crop production systems modelling procedures and Decision Support Systems (DSS) by including NCW as a method for increasing water availability also considering climate change scenarios;
- Cover the implementation gap between European, national and international rules and societal and institutional compliance through the definition of integrated watershed management plans in the demo sites and at regional scale;
- To exploit and out-scale AG-WaMED approach through communication, dissemination and exploitation, including production of local-, national-, and Mediterranean-scale policies for better land and water governance, water allocation and stakeholders involvement, and including training activities.

Expected impact and results

In accordance with the expected impacts and priorities of the call, the project will follow the approach fostered by the “European R&I partnership on agroecology living labs and research infrastructures” creating Living Labs where all the relevant stakeholders will evaluate existing NCW solutions (i.e. Managed Aquifer Recharge, Flood



Other in Consortium/ 7

Politecnico di Milano (POLIMI)
Dipartimento di Ingegneria Civile e Ambientale - IT

Université Larbi Tebessi de Tébessa - DZ

Alexandria University (ALEXU) - EG

Universidad Politécnica de Madrid (UPM) - ES

Hellenic Agricultural Organization - Demeter, Agricultural Economics Research Institute (AGRERI) - GR

Vrije Universiteit Amsterdam (VU) - NL (Non-PRIMA PS)

Institut des Régions Arides - Médenine (IRA) - TN

spreading structures, Wastewater reuse and Desalination) and will codesign future scenario development through a dedicated software platform (including hydrological modelling, water and crop allocation modelling and socio-economic analysis). The full process will inform new water allocation models and will produce an innovative framework for improving water governance and reducing conflicts in water-stressed contexts of the Mediterranean.

Platforms/ Hubs

1

Decision Support Systems (DSS) by including NCW



Keywords

#water_governance

#decision_support_systems

#modelling

#non-conventional_water technologies

#living_labs

socio-economic_analysis



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.066.341 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli studi di Torino (UNITO), Dipartimento di Scienze Agrarie, Forestali e Alimentari (DISAFA)



**UNIVERSITÀ
DEGLI STUDI
DI TORINO**

Scientific Coordinator:
GASCO, Laura

Participating States/ 6



Research Units/ 6



Section 2

ADVAGROMED

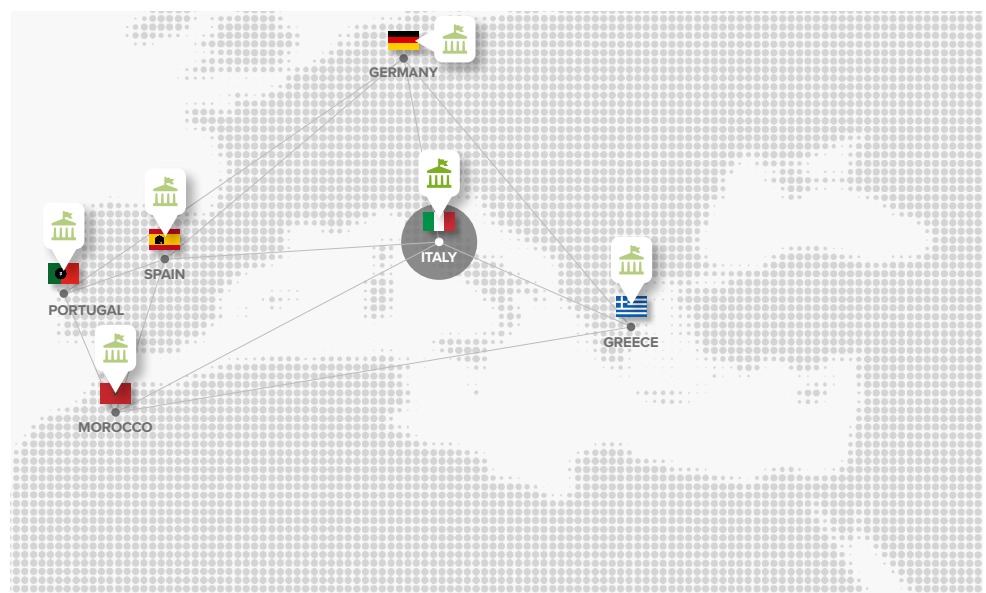
ADVanced AGROecological approaches based on the integration of insect farming with local field practices in MEDiterranean countries

Context

The intensification of current agricultural production systems is one of the primary drivers of biodiversity loss. Currently, biodiversity loss is accelerating globally, with agriculture and animal production being primary causal agents. The main components of agricultural intensification that have been identified to affect biodiversity negatively are the loss of natural habitats by conversion to agricultural land, the large field and farm size, and the extensive inputs of chemical fertilizers and pesticides. The increasing demand for agricultural land over the past 50 years to cover the nutrient needs of a continuously growing population has led to considerable natural habitats destruction with direct negative impacts on biodiversity. The large size of agricultural farms is also related to decreased habitat heterogeneity at the farm level. Finally, the extensive use of plant protection products and the widespread contamination of ecosystems with pesticides and synthetic fertilizers are also responsible for the deterioration of biodiversity in agricultural farming systems. Therefore, urgent systemic changes in the current farming practices are needed to address this issue. Integrating agroecological practices with current agricultural farming systems could offer a sustainable means to conserve and enhance the endangered farming biodiversity and increase ecosystems services.

Objective and contents

ADVAGROMED aims to develop a “new”, innovative, holistic agricultural production system based on agroecological principles and circular economy practices. ADVAGROMED introduces sustainable farming practices to increase the resilience of the agro livelihood systems. Using a multi-actor approach, ADVAGROMED applies the Circular Economy / zero waste principle developing a sustainable and innovative farming system in the Mediterranean Area. ADVAGROMED uses by-products of local agricultural productions for rearing insects (*Hermetia illucens* and *Tenebrio Molitor*), which deliver different products: 1) insect frass to be used as fertilizer to improve farm soil quality, enhance plant health and soil microbial biodiversity, and deliver an antimicrobial effect (decreasing the use of inorganic fertilizers and pesticides), and 2) live larvae to feed local poultry breeds ensuring good animal performances, health



Other in Consortium/ 5

Deutsches Institut für
Lebensmitteltechnik e.V. (DIL) - DE
Servicio Regional de Investigación
y Desarrollo Agroalimentario
(SERIDA) - ES
University of Thessaly (UTH) - GR
Sultan Moulay Slimane University
Beni-Mellal (USMS) - MO
Ingredient Odyssey SA (IO) - PT

and product quality, decreasing the use of imported feeds. Biodiversity is promoted at various levels, i.e. at the farm level, by using the genetic variability of local crops and varieties/animal breeds, but also at a regional level by minimizing the negative impact of synthetic pesticides on the microfauna through the exploitation of insect frass as biopesticide and plant immune modulator. This innovative farming system aims to be adopted by small farms, generating additional income for farmers across the Mediterranean.

Expected impact and results

ADVAGROMED research activities:

- help the Mediterranean agricultural production systems to make better use and exploit locally available resources, such as the agricultural side-streams, for the local production of feedstuff rich in nutrients (insect) to decrease the dependency on imported ones;
- improve economic and social resilience of Mediterranean smallholder farming systems to climate change through the valorisation of agricultural by-products, the production of new products to enhance the quality of soil or use as poultry feed. ADVAGROMED offers local farmers an alternative farming system with small failure risks to generate entrepreneurship, employment, and income;
- contribute to the zero-waste farming systems;
- decrease the use of chemical inputs and develop alternative solutions: insect frass is used as sustainable bio fertiliser, biopesticide and plant immune stimulant, offering a sustainable solution for fertilisation;
- increase the stability and resilience of Mediterranean smallholder farming systems by properly exploiting locally available organic side-streams and their up-cycling and bioconversion to nutrients (insect biorefinery);
- engage youth and empower women using a participatory approach. ADVAGROMED equips skilled youth/women to increase their employability to access meaningful and sustainable employment and self-employment through entrepreneurship;
- encourage consumption of food produced using more sustainable practices.

Keywords

#circular_economy

#zero_waste

#by-products

#rearing_insects

#Hermetia_illucens

#Tenebrio_Molitor

#insect_frass_as_fertilizer

#live_larvae_as_poultry_feed

#agroecological_principles

#empowerment

#women

#youth



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

920.165 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi della Basilicata (UNIBAS), Dipartimento delle Culture Europee e del Mediterraneo (DICEM)



UNIVERSITA' DEGLI STUDI DELLA BASILICATA

Scientific Coordinator:
PERNIOLA, Michele

Participating States/ 4



Research Units/ 8



Section 2

AgrEcoMed

New AGRoecological approach for soil fertility and biodiversity restoration to improve ECONomic and social resilience of MEDiterranean farming systems

Context

The European Green Deal represents a challenge that engages the whole scientific community. It aims to support agricultural production and the economy through an ecological approach (ecological transition). The Farm to Fork strategy (EC, 2020), an essential component of the European Green Deal, aims to increase the sustainability of the European agri-food system through environmental and social goals to be achieved by 2030. In addition, it focuses on promoting sustainable food consumption, intensifying the fight against food waste, making more significant investments in research and innovation, and promoting the transition to sustainable agri-food chains.

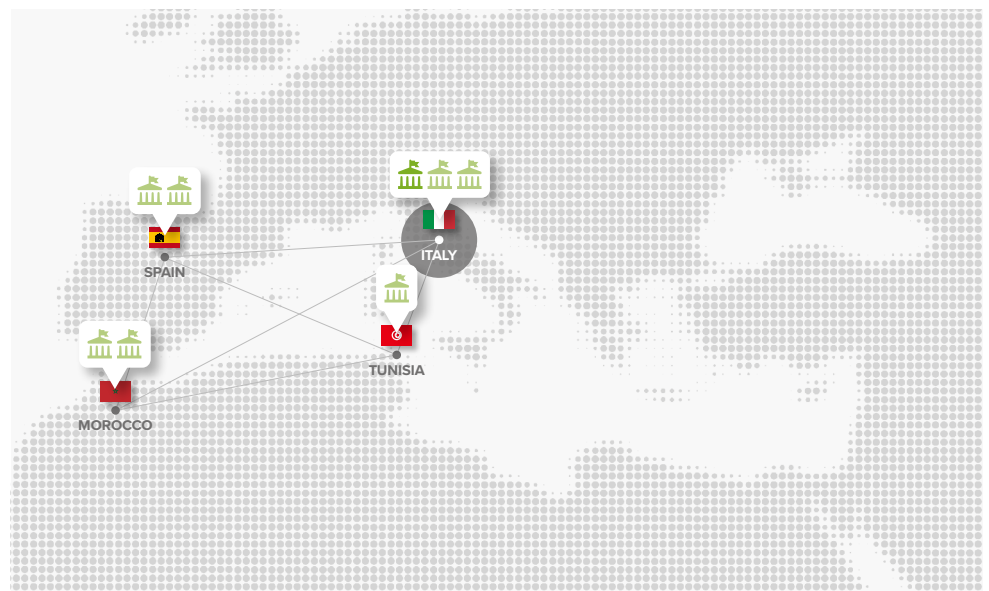
The agroecological approach has a solid territorial connotation beyond the ecological and agronomic aspects and includes the social, economic and cultural dimensions and the agri-food system policy. Indeed, the proposal on the standard agricultural policy (CAP) for the period 2021-27 gives prominent importance to increasing the sustainability of the agricultural sector through an agroecological transition, which, together with the economic and social development of rural areas and the competitiveness of farms, should contribute to achieving the environmental and climate objectives of the European Union and the Mediterranean area.

Objective and contents

The main objective of the AgrEcoMed project is to fill the research gaps for implementing a biodiversity-based strategy for primary crops as cereal farming systems through an Agroecological approach adapted to environments in Mediterranean countries, efficient use of natural resources, reduction of pollution, circular economy. Such a goal will be achieved through innovative approaches to support the sustainable production of staple foods in the present and future climate changes.

The objective will be achieved through:

1. Sustainable agricultural practices and restoration of soil fertility;
2. Increase and valorise the natural biodiversity of ancient grains and reintroduce local wheat or old varieties, better adapted to climate change in Mediterranean conditions;



Other in Consortium/ 7

Università degli Studi di Bari
Aldo Moro (UNIBA) - IT

Consiglio per la ricerca
in agricoltura e l'analisi
dell'economia agraria (CREA) - IT

Universidad de Córdoba (UCO) -
ES

Universitat Politècnica de Valencia
(UPV) - ES

Sultan Moulay Slimane University
Beni-Mellal (USMS) - MO

École nationale d'agriculture de
Meknès (ENAM) - MO

Centre of Biotechnology of Sfax
(CBS) - TN

3. Farming and screening of alternative species (medicinal plants);
4. Management of crop residues and processing and valorisation of farming crop residues;
5. The valorisation of crop residues and by-products of the agricultural chain through bioconversion by the Diptera (*Hermetia illucens*);
6. Addressing the economic potentiality and viability of agroecological transition;
7. Valuation of agroecological farming systems' environmental and economic assessment (LCA) concerning the conventional one;
8. Fostering women empowerment and youth employment.

The project aims to up-scale field practices based on agroecological practices to increase ecosystem services and biodiversity, adapt the small farming systems to climate change, and increase farmers' income.

Expected impact and results

The expected impacts concern the environmental, social and economic benefits for farmers and local communities and the improvement of resilience to climate changes in the Mediterranean regions. In detail, the expected impact will be on:

- A more sustainable agriculture and food production system with more efficient use of natural resources and better resilience to climate change, adaptation and mitigation.
- Improved economic and social resilience of Mediterranean smallholder farming systems to climate change.
- Contribution to the zero waste farming systems and new bioconversion of cropping residues in a frame of the circular economy.
- Decreasing the use of chemical inputs and developing alternative solutions (new bio-based products, techniques, and policies).
- Increasing income of the farmers from biodiversity use.
- Fostering the empowerment of youth and women.
- Greater presence of qualified farmers in the agriculture sector and the Mediterranean area.

It is expected that the AgrEcoMed project will be able to: 1. facilitate the adoption of innovation; 2. optimise the use of resources through the development of more effective and efficient management systems; 3. improve marketing systems, with the definition of innovative business models; 4. defining new skills that can constitute, especially for young people and women, and employment and permanence opportunity in the most disadvantaged regional internal areas.

Keywords

#crop_residues

#by-products

#circular_economy

#rearing_insects

#bioconversion

#agroecological_principles

#empowerment

#women

#youth

#life_cycle_assessment



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

577.800 €



Duration

36 months



State and Coordinator Entity

ITALY

Università di Camerino (UNICAM), Scuola di Scienze del Farmaco e dei Prodotti della Salute



UNIVERSITÀ
DI CAMERINO

Scientific Coordinator:
VITTORI, Sauro

Participating States/ 3



Research Units/ 4



Section 2

Agri-fiSh

**Circular economy application: from the field to the net.
Sustainable and innovative feeds from agricultural wastes for a resilient and high-quality aquaculture**

Context

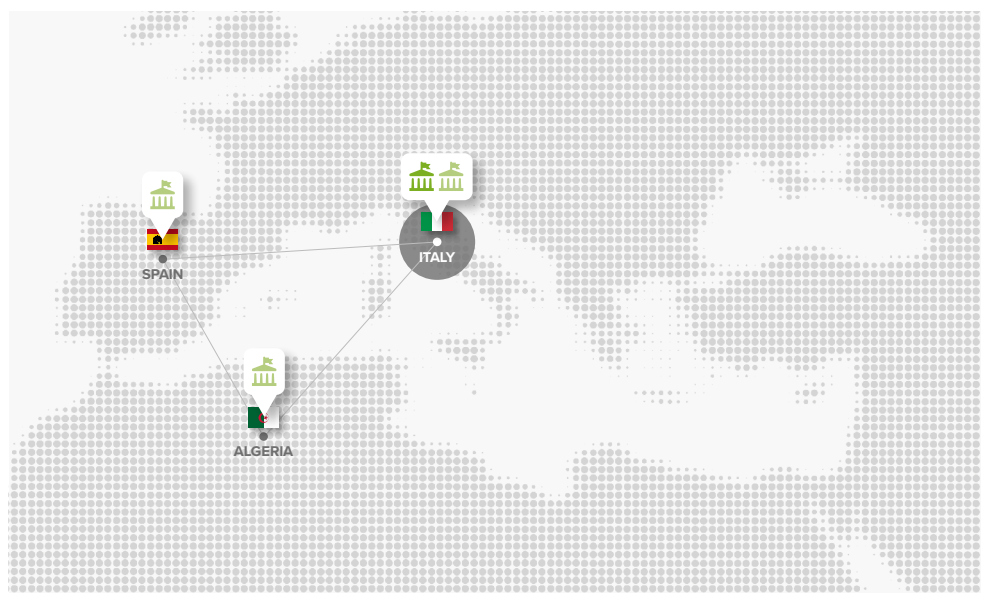
The Agri-fiSh project proposes the adoption of an innovative farming system, which directly links agriculture with aquaculture productions through circular economy principles, to respond to the environmental and socio-economic challenges face by climate change in the Mediterranean region.

The project focuses on the innovative use of the waste products of the agriculture sectors as a resource for aquaculture. The wastes analyzed within the project will derive from organic and climate-smart agriculture and will be used for the testing of innovative feeds for freshwater aquaculture in Algeria, Italy and Spain. The nutraceutical potential of defined wastes, such as grape seeds and pomace, cereals and legumes, will be assessed together with the potential for the use of natural antimicrobial substances to be added to the feed. To date wastes produced by wine, processing are currently only used for livestock feed and have demonstrated a high-quality potential due to a significant presence in lipid, protein, carbohydrate, and other nutraceutical biocompounds.

Objective and contents

The project inscribes in the Call 2 - Thematic Area 2- Farming systems - Topic 2.2.1. and proposes an innovative model with a mixed farming system, which focuses on the valorisation of the local dimension of the farming and production systems. It will serve for better management of natural resources throughout the development of a virtuous system, which will help in reducing discards and pollutants, and develop better and efficient use of resources and freshwaters, while limiting the use of antibiotics and pesticides along the entire process.

The overall aim of the project will be to contribute to the national and European strategies in mitigating and adapting to climate change and is in line with the Green Deal. It will reduce the environmental footprint of the aquaculture sector, create new social and economic potential at the local levels, and enhance the competitiveness of the sector. Agriculture and aquaculture will be directly linked, enhancing their mutual potentials in a circular process, and strengthening the sustainability of the local communities.



Other in Consortium/ 3

Consiglio Nazionale delle Ricerche,
Istituto per le Risorse Biologiche
e le Biotecnologie Marine (CNR-
IRBIM) - IT

Ibn Khaldoun University of Tiaret
- DZ

Universitat de València (UV) - ES

The project will contribute to cooperation, knowledge sharing and capacity building enhancement among different supply chains, such as winery and agriculture, milling, feed production, and aquaculture, which will mutually benefit from the support of the research community.

Expected impact and results

The project will upscale the valorization of such agricultural wastes to the creation of sustainable feeds for aquaculture. In addition to the wastes, the feeds will be composed also of the percentage of medicinal plants and lactic acid bacteria (LAB) from goat whey discards, with the scope to reduce the use of antibiotics for disease control in aquaculture and strength the immune system of fish. The nutraceutical potential of such wastes, in combination with other bio components (e.g. whey, cereals, medical herbs), will foster animal and human health with consequent benefits for the environment and society. In fact, the nutritional potential of the wastes is significant and such concentration of substances has shown to be useful for human health also with indirect consumption.

The Agri-fiSh project will contribute to the transition to a more resilient agro-system through an innovative and sustainable farming system, which promotes efficient use of biological and natural resources with an increase in productivity, with consequent benefits for the local economies. At the environmental level, the project is conceived to be resilient by preventing form pollutant discards; limiting the use of animal feeds and promoting instead vegetal components for aquaculture feeds; limiting the costs of agricultural discards; and promoting sustainable agriculture.

Keywords

#aquaculture

#agricultural_wastes

#circular_economy

#nutraceutical_potential

#innovative_animal_feeds

#instead_vegetal_components



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.582.799 €



Duration

36 months



State and Coordinator Entity

ITALY

Consiglio Nazionale delle Ricerche, Istituto per la Protezione Sostenibile delle Piante (IPSP-CNR)



Istituto per la Protezione Sostenibile delle Piante
Consiglio Nazionale delle Ricerche

Scientific Coordinator:
GUERRIERI, Emilio

Participating States/ 8



Research Units/ 15



Section 2

ASTER



Agroecology-inspired Strategies and Tools to Enhance Resilience and ecosystem services in tomato crop

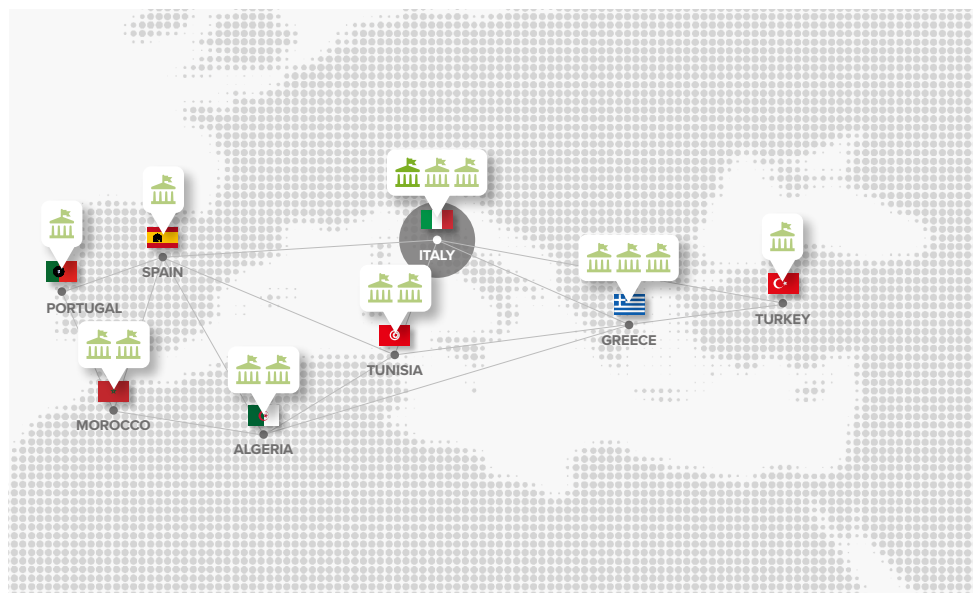
Context

Tomato is a crucial crop worldwide, particularly in the Mediterranean Basin. Its market value in the EU represents about seven billion euros. Italy, Spain, Greece, and Portugal contribute over 90% to EU production. Turkey is the fourth largest tomato producer of the world tomato production. In the north of Africa, tomato is the main crop in Morocco and Tunisia whilst constantly expanding in Algeria. Tomato can be grown in an open field or protected conditions, and short or long production periods can be possible due to the large availability of commercial varieties. Regardless of the type of cultivation or the duration of the cycle, increasing quantities of external inputs (pesticides, fertilisers, herbicides) are required to cope with: i) nutrition issues linked to the deployment of the soil; ii) resident and invasive species made more aggressive by the climatic change and the development of resistance to pesticide; iii) water limitation which is more critical in arid and semi-arid climates of the Mediterranean area due to climatic change. An emerging issue is the decline of pollinators, whose role in enhancing tomato production has been widely recorded. In small farm systems, ecosystem services, such as plant nutrition, pollination and naturally occurring biocontrol, are much needed since they all improve yield and quality while limiting the external inputs. The agroecological approach, whose main pillars are the conservation (protection), the enhancement and exploitation of functional biodiversity, the sustainable protection from biotic and abiotic stresses, and the production chain's circularity, offers efficient solutions that progressively reduce the external inputs and the management costs.

Objective and contents

ASTER aims to build up a management model for small tomato producers of the Mediterranean Basin based on the application of main agroecology principles such as:

- the protection (conservation) and the enhancement of functional biodiversity both above and belowground, to increase and exploit the ecosystem services (protection, nutrition, pollination) in alternative to the use of external synthetic inputs;



Other in Consortium/ 14

Università del Piemonte Orientale
Amedeo Avogadro (UNIUPO) - IT

Università di Catania (UNICT) - IT

Badji Mokhtar - Annaba University
(UBMA) - DZ

University M'Hamed Bougara of
Boumerdes (UMBB) - DZ

Institut Valencià d'Investigacions
Agràries (IVIA) - ES

Democritus University of Thrace
(DUTH) - GR

Aristotle University of Thessaloniki
(AUTH) - GR

Antonis Vezyroglou & SIA EE - GR

École Nationale d'Agriculture de
Meknes (ENAM) - MO

Université Sidi Mohamed Ben
Abdellah (USMBA) - MO

Universidade de Lisboa, Instituto
Superior de Agronomia (ISA-PT) -
PT

Institut Supérieur Agronomique
Chott Mériem (ISA-CM) - TN

Institut National Agronomique de
Tunisie (INAT) - TN

Isparta Uygulamalı Bilimler
Üniversitesi (ISUBU) - TR

- the sustainable control of main pests and pathogens to reduce the environmental impact of plant protection practices;
- the circularity of the production chain to approach the “zero waste” objective. The model will improve the resilience of this entire crop in the economy of all Mediterranean Basin countries where it can be grown in an open field or protected systems, during the whole annual season, particularly in small farms.

Four specific objectives (SO) and relative ways to realise them have been identified:

- SO1 (WP1, WP6) Develop a two-way exchange of information between academic groups and stakeholders through an interactive platform;
- SO2 (WP2, WP3, WP4) Design field interventions to protect, enhance and exploit the functional biodiversity and plant defences for improving ecosystem services, resilience and sustainability;
- SO3 (WP5) Validate protocols for maximising ecosystems services and stability by considering their environmental, economic and social sustainability;
- SO4 (WP1, WP6) To ensure effective coordination, communication dissemination and formation.

Expected impact and results

ASTER promotes specific tools (root symbionts, biobased tools) and strategies improving the use of resources (water, nutrients), the adaptation to climate change (e.g., drought, invasive species) and the environmental conditions for rural populations. Conservation, increase, and exploitation of functional biodiversity will foster the tomato crop system's sustainability and resilience in the top world productive countries, all located in the Mediterranean Basin. ASTER targets small farmers by promoting a management model based on crop diversification that guarantees an enhanced resilience in response to social, economic, and environmental stresses, particularly those linked to climatic change. The ASTER model generates extra income by reducing external inputs and specific companion plants (as replaced by ecosystem services). The support received by a large certification company (Agroqualità s.p.a., Italy) shows how the ASTER model is considered reliable and feasible. ASTER promotes the use of symbionts, antagonists, bio-based tools, and strategies to dramatically reduce the dependence on chemical inputs (pesticides, fertilisers, herbicides). ASTER devoted a specific WP to dissemination and formation that involves from the beginning the stakeholders (P8 and nineteen supporters including leading farmers associations and one certification agency) via the interactive platform (SIP) to widely publicise its results via web, social channels, videos and on-site meetings, didactic farms.

Platforms/ Hubs

1

Interactive platform (SIP)



Keywords

#tomato_crop

#agroecological_principles

#ecosystem_services

#reduce_chemical_inputs

#zero_waste

#circular_economy



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

833.736 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi di Pavia (UNIPV), Dipartimento di Biologia e Biotecnologie



**UNIVERSITÀ
DI PAVIA**

Scientific Coordinator:
BALESTRAZZI, Alma

Participating States/ 8



Research Units/ 11



Section 2

BENEFIT-Med

Boosting technologies of orphan legumes towards resilient farming systems in the Greater Mediterranean Region: from bench to open field

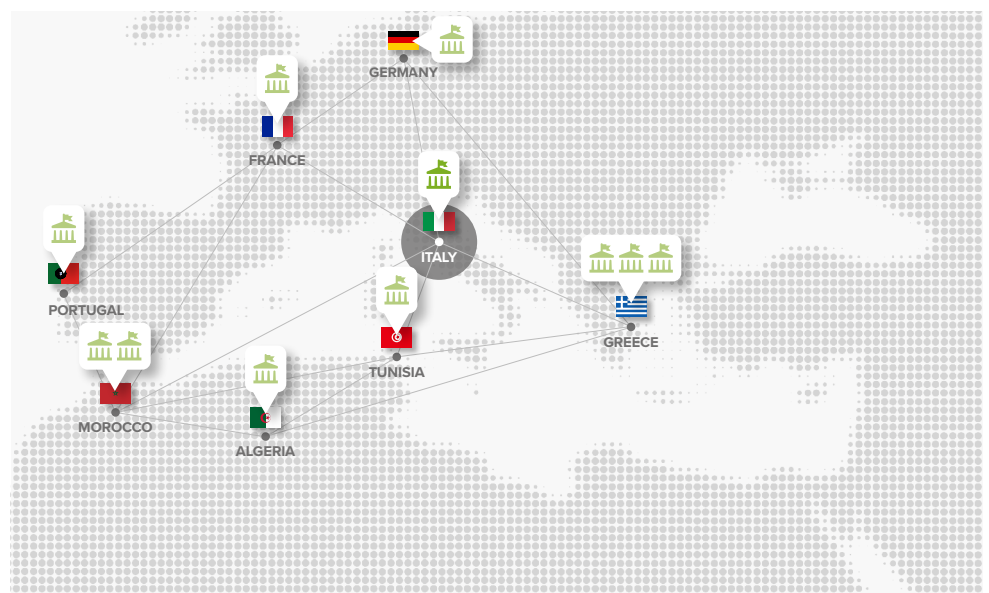
Context

The current Climate Change scenario predicts that global warming will dramatically impact the Mediterranean Basin, posing added threats to the sustainability of current farming systems. Pulses provide balanced nutrition combined with high resilience to drought, soil acidity and salinity, and heat, adding value to rotation systems and intercropping and supporting sustainable agricultural practices. In this Context, orphan legumes are a biodiversity niche adapted to extreme soil and climate conditions, tailored to face changing environments. There is limited information about orphan legumes' characteristics, use, integration into farming systems, and sustainable treatments to enhance their climate resilience and productivity further. The value of orphan legumes as climate-ready crops could be significantly enhanced by improving seed quality through dedicated priming techniques.

Based on these premises, the BENEFIT-Med project focused on improved seed germination as a starting point to valorise orphan legumes and promote local socio-economic development in North Africa and the Mediterranean area. Enhanced germination capacity defines high-quality seeds as a proxy of successful crop yields, and a well-structured seed system is required to boost the production and use of orphan crops.

Objective and contents

BENEFIT-Med aims to develop innovative technology for sustainable crop production, relying on highly resilient legume accessions and 'on-farm' seed biopriming with bacteria inoculants to enhance seed vigour and seedling performance under pressure adverse climatic conditions. The availability of primed seeds of Mediterranean orphan legumes will improve food production at the local level and buffer economic/social/ environmental shocks, supplying higher incomes to smallholder farmers, particularly women. In this Context, open-field trials will be set up to assess the impact of priming on agronomic performance and yield stability of the target accessions while climate change and variability on existing and new farming systems will be quantified.



Other in Consortium/ 10

Université Ferhat Abbas Sétif
(UFAS1) - DZ

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

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

Agricultural University of Athens
(AUA) - GR

Benaki Phytopathological Institute
(BPI) - GR

AGROLAND SA - GR

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

Université Hassan II de Casablanca
(UH2C) - MO

Associação BLC3, Campus de
Tecnologia e Inovação - PT

Université de Sfax - TN

Local legumes will also be valorised as components of a resilient and sustainable food system whose relevance has been dramatically shown by the COVID-19 pandemic. A database will be set up to integrate the available data on orphan legumes with knowledge gathered by BENEFIT-Med. A multi-stakeholder platform will be set up to promote the new farming system at multiple levels (participatory model), focusing on specific training/ability building activities. The farmers' socio-economic benefits from the BENEFIT-Med model implementation will be shown through LCA/LCC analyses, highlighting profitability, resilience, and environmental sustainability.

Expected impact and results

The anticipated effects of BENEFIT-Med will include:

- Increased food/feed availability by minimising the risk of crop failure and yield losses due to inappropriate farming models, despite climate worsening.
- Adoption of environmentally, socio-economically sustainable agroecosystems with proven evidence of increased yield stability and quality compared to current farming systems under challenging environments.
- Increased efficiency of using natural resources; the orphan legumes addressed by BENEFIT-Med show inherent tolerance to water deficit, a trait that will be further enhanced by seed priming with beneficial bacteria; the incorporation of drought-resilient crops into farming systems will increase the efficient use of water.
- Increased soil fertility. Legumes fix atmospheric nitrogen, reducing the cost of fertiliser inputs; legume seeds primed with beneficial microorganisms are expected to improve soil fertility when universally used in farming systems.
- Yield stability and quality compared to standard farming systems under challenging environmental conditions; stability of agricultural outputs in the long-term and across different spatial environments is crucial to define the success of a new farming system.
- Increased income and satisfaction by the farmers.
- Promote the circular bioeconomy approaches to achieve local populations' sustainable growth and economic resilience.

Platforms/ Hubs

1

Multi-stakeholder platform



Keywords

#orphan_legumes

#priming_techniques

#Life_Cycle_Assessment

#Life_Cycle_Costing

#circular_economy

#women



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.085.571 €



Duration

36 months



State and Coordinator Entity

ITALY

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



A.D. 1308
unipg
UNIVERSITÀ DEGLI STUDI
DI PERUGIA

Scientific Coordinator:
PROIETTI, Primo

Participating States/ 6



Research Units/ 11



Section 2

BIOMEnext

Modelling integrated biodiversity-based next-generation Mediterranean farming systems

Context

Mediterranean fruit groves will be affected by climate change due to decreasing water availability, rainfall, irrigation resources and progressive salinization, and extreme climate events, leading to reducing suitable crop areas, lowering yields and obtaining poor-quality food products.

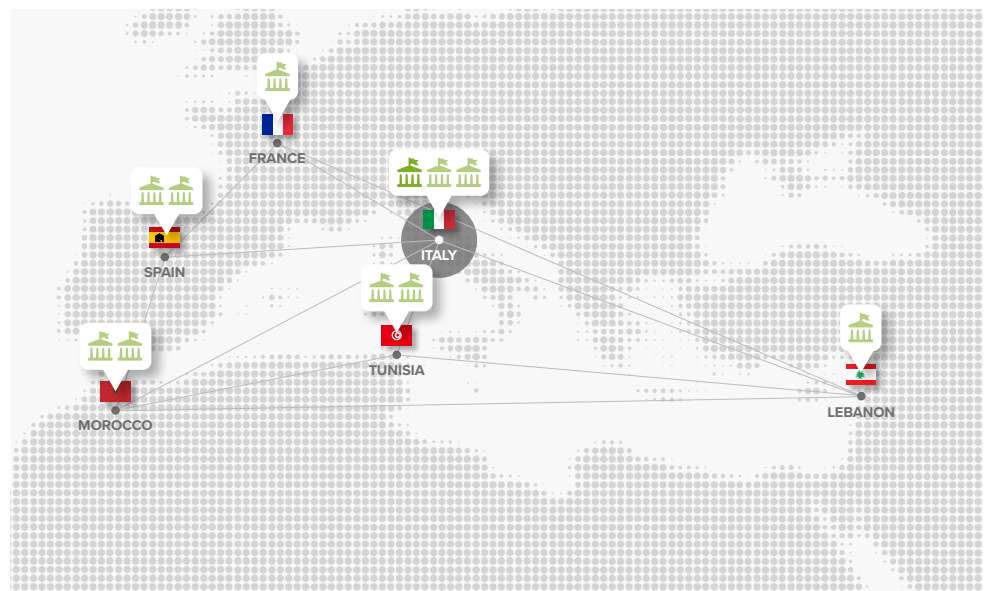
To support fruit production in the Mediterranean in a context of resource reduction, extreme climatic events and loss of biodiversity. It is urgently needed to develop alternative and innovative approaches to valorize the genetic and environmental resources available at the field level based on a holistic approach. Olive, the most typical fruit crop of the Mediterranean basin, could represent a model system for studying new cultivation strategies and testing their application to improve plant production and reduce pollution, resource consumption and genetic erosion.

We aim to demonstrate that it will be possible to sustain plant production and guarantee farmer incomes by exploiting biodiversity, adapting farming systems to face climate change and increasing ecosystem services.

Objective and contents

The BIOMEnext overall objective is to implement innovative, composite and eco-friendly farming systems to enhance the resilience of Mediterranean fruit farming to climate change, a significant challenge for agriculture.

The project aims to design an olive grove that combines, in a holistic logic, the valorization of traditional genotypes showing the best resilience traits, the development of new microorganism consortia, able to increase biotic and environmental stress tolerance and the introduction of new practices and remodel the traditional ones, to reduce external inputs and negative discharges to the environment. The proposed new olive growing models will aim to maintain high quantitative and qualitative production levels, even in limiting environmental contexts, in a logic of increased sustainability. These models will be evaluated under a circular economy and an LCA approach for socio-economic and ecological impact. The models developed in the project can be replicated, with appropriate adaptations, to other Mediterranean fruit species.



Other in Consortium/ 10

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

Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile (ENEA) - IT

Consejo Superior de Investigaciones Científicas, Estación Experimental del Zaidín (EEZ-CSIC) - ES

Universidad de Salamanca, Departamento de Microbiología y Genética - ES

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

Lebanese University, Faculty of Agronomy (UL) - LB

Mohammed VI Polytechnic University (UM6P) - MO

Université Cadi Ayyad (UCA) - MO

Institut National Agronomique de Tunisie (INAT) - TN

Institut des Régions Arides (IRA) - TN

Accordingly, the BIOMEnext specific objectives include:

- valorize local unconventional varieties and wild olives from extreme environments and develop new stress-tolerant and eco-friendly hybrids;
- identify microbial consortia able to enhance abiotic stress tolerance and improve plant nutrition at the whole field level;
- develop new efficient farming systems and remodel traditional agricultural practices, able to reduce water and chemical inputs, limit emissions and enhance CO₂ sequestration;
- assess environmental and socio-economic impacts of newly developed crop systems.

Expected impact and results

A wide range of technologies will provide small farmers with tools to face the new challenges brought about by ongoing climate change and the excessive use of energy-intensive technologies;

Reconversion of agriculture enhancing local natural resources, more resilient to adverse abiotic conditions;

Software applications, indicators and diagnostic tools to optimize the composting process and the irrigation water management, to enhance the circular economy and simplify the olive cultivar recognition;

New formulations of microorganisms and microbial inoculants specifically selected from extreme environments, or previously selected for other crops, to improve the productive and vegetative performance of trees and increase their resilience to environmental stresses;

The reintroduction of autochthonous weeds into cultivation and the association with cover crops, particularly adapted to particular environmental conditions, not competing with fruit trees during the crucial phenological phases (e.g. flowering, fruit development), making it possible to improve soil conservation, reducing mechanical interventions and decreasing the use of chemicals;

Impact evaluation on different agro-systems, genotypes, plant/microbes and plant/plant associations, in terms of Carbon Footprint, Water Footprint, Life Cycle Cost and Life Cycle Assessment, allowing to define which factors most affect environmental sustainability, to guide choices towards most environment-friendly practices and reduce farming wastes;

Investigation on farmers' attitudes and motivations, allowing to selection the most effective farming models;

Estimation of environmental sustainability of farming systems, contributing to increasing the social concern about food consumer's attitudes and driving consumers towards environmentally sustainable products, respectful of biodiversity conservation, environment protection and well-being and livelihoods of producers.

Keywords

#olive_grove

#traditional_genotypes

#holistic_logic

#microbial_consortia

#remodel_traditional_practices

#Life_Cycle_Assessment

#Carbon_Footprint

#Water_Footprint

#Life_Cycle_Cost

#circular_economy



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.016.686 €



Duration

36 months



State and Coordinator Entity

SPAIN

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



Scientific Coordinator:
PEDRERO, Francisco

Participating States/ 6



Research Units/ 8



Section 2

CICLICA

Smart agriCulture optimization to CLimate Change Adaptation

Context

The Mediterranean is among the most sensitive areas on the planet and constitutes one of the most exposed to drought risk. Climate change, and the disproportionate exploitation of natural resources, will cause an even more substantial decrease in the availability of water, energy, and food, as well as an imbalance of the ecosystem, thus affecting to a greater extent the resilience of food systems and, therefore in life quality of the population.

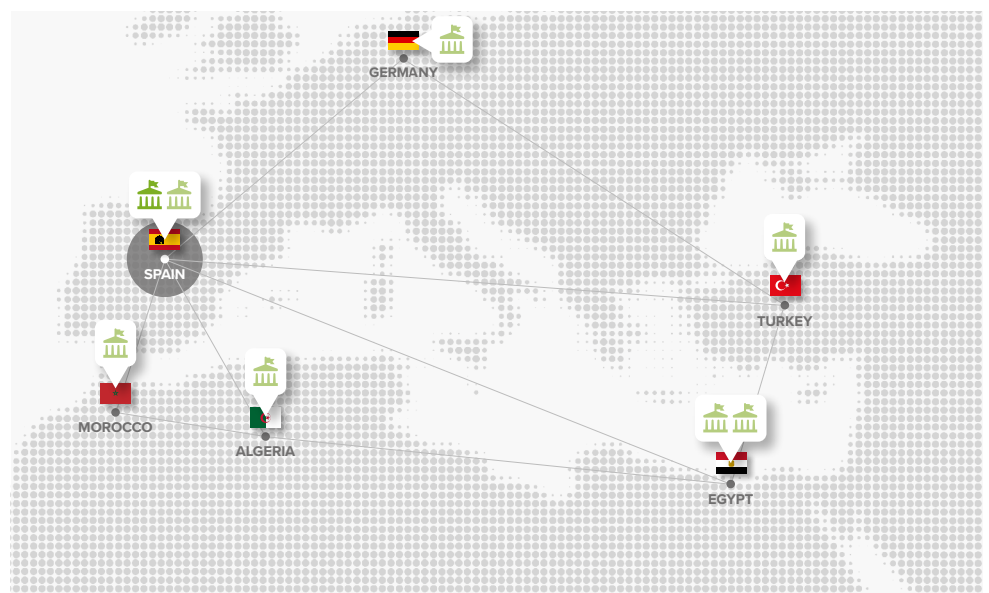
CICLICA is a Research and Innovation project which is focused on two tracks. First, the combination of advanced water-saving technologies that have already been validated in laboratories to provide a smart system for water management solutions. A second track where the implementation of different biotechnology and agro solution for irrigation/fertigation modelling improve agronomic management and genetic adapting of alternative crops.

Increasing crop tolerance to climate change and reducing water resources and high temperatures will present the challenge of the CICLICA project. These objectives will be achieved by mobilising all the actors concerned (decision-makers, farmers, NGOs, technology partners and researchers). They will successfully change agricultural practices towards modernising means of cultivation (humidity sensors), saving water for irrigation and improving soil quality by developing novel eco-friendly superabsorbent polymers (SAPs) and reusing-conventional water resources.

Objective and contents

The project will focus on developing and investigating integrated on-farm practices to face two types of abiotic stresses, water, and salinity stresses, within applying those practices under two business models of farming systems; (i) the standard farming system, producing traditional Mediterranean crops such as olive, citrus, tomatoes, (ii) alternative crops farming systems, include the introduction of new crops to improve the capacity of the farming system to face abiotic stresses.

The goal of the project is to promote the farming systems in the Mediterranean region based on agrological principles, to face the growing pressures from natural resources



Other in Consortium/ 7

Sistema Azud SA - ES

Université Djilali Bounaama
Khemis Miliana (UDBKM) - DZ

Technische Universität München
(TUM) - DE

Agricultural Engineering Research
Institute (AENRI) - EG

Modern Machinery - EG

Université Cadi Ayyad (UCA) - MO

Akdeniz Üniversitesi - TR

degradation and climate change, through (1) introducing integrated on-farm practices aiming to mitigate the impacts of abiotic stresses overcrop health and productivity, (2) boost the sustainable balance between agricultural productivity and ecosystem services, considering the application of low-quality water for irrigation, managing water quantity and quality during irrigation using superabsorbent polymer, crop-water productivity, soil health, and environmental footprint.

Expected impact and results

CICLICA will impact various agricultural, ecological, social and economic sectors:

- leading to an improvement of innovative sustainable food production systems in saline environments;
- tackling the impacts of climate change and challenging soil issues (i.e. salinisation) through the optimisation in the use of non-conventional water resources;
- defining the actual irrigation requirements in the short and medium-term and adapting technology to more cost-effective small-farming systems.

The overall approach of this proposal is to increase biodiversity and ecosystem services by applying advanced farming practices and biotechnology techniques in alternative crops. The new perspective comes from the assumption that the new sustainable agro-ecosystems technologies will enhance technology development, societal engagement and transfer knowledge in a form that best fits the needs of end-users and the associated supply chain. The expected impacts will be easily monitored along with the cropping systems, using LCA methodology helping to improve environmental footprints and the economic and social resilience of Mediterranean smallholder farming, compared to traditional farming systems.

CICLICA proposes an alternative farming system where traditional add-value crops change from “wild” to “domestic”, with sustainable practices and technologies adopted. With the motto “back to the past with current knowledge”, CICLICA will develop an integrated farming system combining water-saving strategies, biotechnology techniques and genetic regulation.

Keywords

#olive

#citrus

#tomatoes

#alternative_crops

#agrological_principles

#integrated_on-farm_practices

#low-quality_water_for_irrigation

#LCA_methodology

#non-conventional_water_resources

#superabsorbent_polymer



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.332.706 €



Duration

36 months



State and Coordinator Entity

ITALY

**Alma Mater Studiorum
Università di Bologna,
Dipartimento di Scienze e
Tecnologie Agro-Alimentari
(UNIBO-DISTAL)**



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

Scientific Coordinator:
MORANDI, Brunella

Participating States/ 5



Research Units/ 8



Section 2

DREAM



Diversified orchards for REsilient and sustAinable Mediterranean farming systems

Context

The current climate change scenario foresees several risks such as the increased frequency of extreme weather events, abiotic stressors, reduced biodiversity, soil quality loss, and pollination deficit. Modern orchards are generally highly intensive systems, primarily relying on considerable chemical inputs and low plant diversity, resulting in reduced natural habitats, progressive loss of biodiversity, wild pollinator decline and consequent pollination deficit. These conditions make modern orchard systems much more vulnerable to climate change and market fluctuations than annual crops due to their perennial behaviour and long life span, which expose them to higher risks.

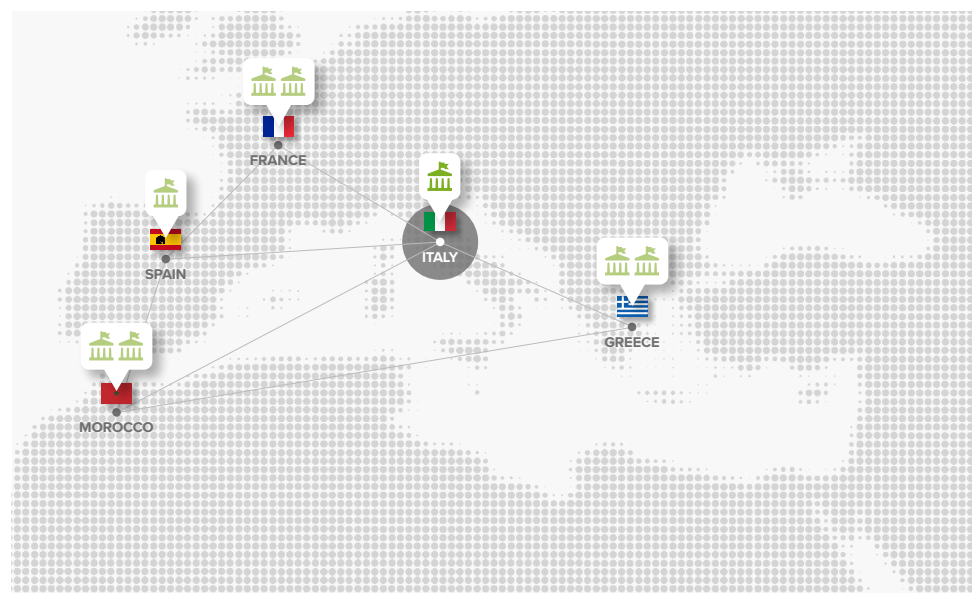
This scenario leads to high economic instability for all farmers, but especially for smallholders, jeopardizing Mediterranean fruit production's current and future sustainability. Therefore, it is essential to introduce new alternative approaches to improve the resilience of fruit farms to climate change-related risks while maintaining their economic, environmental and social values within the Mediterranean basin.

Objective and contents

DREAM aims at providing Mediterranean fruit growers with an alternative new cultivation approach for high quality and diversified fruit production to improve resilience, functional biodiversity as well as environmental and economic sustainability of small farming systems

The DREAM agroecosystem will be characterized by the following basic principles which go beyond conventional agricultural systems: i) a multi-variety orchard with different, scalar fruit varieties and exploiting a range of genetic resistance to biotic and abiotic stressors; ii) consociation with a cover crop mixture, able to prolong blooming, increase soil nutrients and water status, attract natural enemies and repelling phytophagous insects by attracting natural enemies; iii) adoption of Regulated Deficit Irrigation strategies, aimed at increasing the system water use efficiency, as well as improving fruit quality.

The new agroecosystem will be co-designed with the help of local living labs to adapt it to local environmental, economic and social conditions in three fruit-producing



Other in Consortium/ 7

Instituto Murciano de Investigación y Desarrollo Agrario y Medioambiental (IMIDA) - ES

Groupe de Recherche en Agriculture Biologique (GRAB) - FR

Institut Jean-Pierre Bourgin (IJPB) - FR

AgroApps PC - GR

Agricultural Cooperative of Pella - GR

Institut National de la Recherche Agronomique (INRA) - MO

Université Moulay Ismaïl (UMI) - MO

areas: Italy and Morocco for apple and Spain for pear, thus reflecting the local fruit economy. The new agroecosystem will be tested in each site regarding physiological and productive efficiency, biodiversity level, farm economic stability, and ecosystem services. The agroecosystem will be managed using the “Integrated Pest and Pollinator Management paradigm” (IPPM), a new approach that aims to enhance Integrated Pest Management (IPM) compatibility with crop pollination management.

Expected impact and results

DREAM responds to the challenge of developing a novel cultivation approach to adapt the small farming systems to climate change, increase farmers’ incomes as well as their ecosystem services and biodiversity. This new approach, particularly suited to small farm holdings, will enhance functional biodiversity and the beneficial synergies among the different species (i.e. trees, herbaceous crops, pollinating insects, soil microbiome). It will promote using a low level of inputs such as water, fertilizers and chemicals, reducing the environmental pollution. Thanks to the natural resistances of the fruit genotypes and their scalar vegetative cycle, it will allow a diversified production and higher resilience to extreme weather events such as frost, hailstorms, and heatwaves biotic stressors. The project will follow a multi-actor approach as growers, fruit cooperatives and consultants, and consumers, with particular attention to women and youth, will be involved in living labs to actively contribute to the adaptation and possible adoption of the DREAM agroecosystem in the different sites. Studies on consumer acceptance and alternative marketing strategies for the derived niche products will also be conducted to guarantee higher revenues for the growers and improved economic stability at the farm level.

New products and solutions

1

Integrated Pest Pollinator Management (IPPM)



Keywords

#multi-variety_orchard

#scalar_fruit_varieties

#trees

#consociation

#crop_mixture

#herbaceous_crops

#pollinating_insects

#soil_microbiome

#living_labs

#Integrated_Pest_Pollinator_Management_paradigm



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.479.069 €



Duration

36 months



State and Coordinator Entity

ITALY

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



**UNIVERSITÀ
DEGLI STUDI
DI PALERMO**

Scientific Coordinator:
CUSUMANO, Antonino

Participating States/ 7



Research Units/ 10



Section 2

ECOBOOST

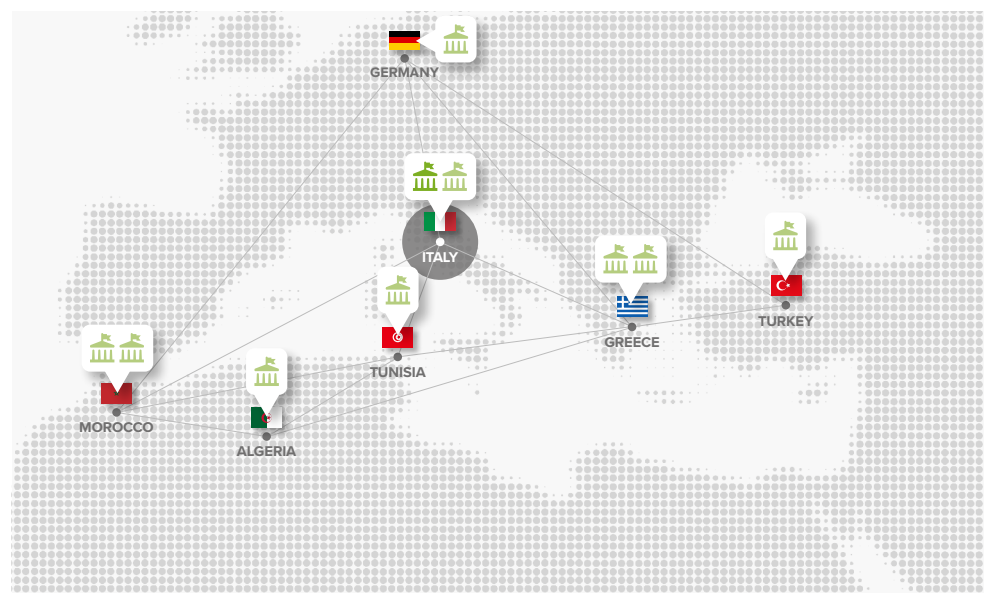
Boosting functional biodiversity to maximize ecosystem services for Mediterranean crop production

Context

Crops are currently managed with unsustainable practices that cause the loss of biodiversity. In particular, pest management in the Mediterranean region still largely relies on chemical pesticides that negatively affect beneficial insects, disturb healthy microbial communities in the soil, threaten agroecosystem stability and food security. Novel strategies alternative to chemical control are required to combat biotic and abiotic stresses in the most efficient and environmental-friendly manner. Implementing agroecological practices that boost functional biodiversity and maximise ecosystem services is an eco-friendly and promising alternative to pesticide use in agriculture. Yet, agroecological practices, in addition, to being respectful of the environment, need also to preserve farmers' income. It is becoming increasingly evident that functional biodiversity has to be promoted in multiple ways. For example, biodiversity at the crop level (crop biodiversity) holds great potential for Mediterranean agriculture: by rediscovering local varieties that cope well with abiotic and biotic stresses, external energetic inputs can be minimised. Another critical component of biodiversity is represented by beneficial arthropods that deliver the ecosystem services of pollination and pest control (aboveground biodiversity). Finally, an essential source of biodiversity is hidden in the soil of the farms (belowground biodiversity) since soil constitutes the main reservoir of microorganisms and provide several functions to support agriculture.

Objective and contents

ECOBOOST with developing and validating novel agroecological practices that boost functional biodiversity and maximise ecosystem services in solanaceous crops while minimising the negative environmental impacts of agriculture. This goal will be achieved following a holistic approach that will provide Mediterranean farmers with the knowledge and tools needed to implement agroecological practices and promote biodiversity at different levels: a) aboveground, with the use of wild flowering plants in non-managed habitats to promote beneficial insects; b) belowground, with the use of biostimulants for seed coating and soil inoculation with selected critical microbes to



Other in Consortium/ 9

**Università degli Studi
Mediterranea di Reggio Calabria
(UNIRC) - IT**

**Université Frères Mentouri
Constantine 1 (UFMC1) - DZ**

**Universität Göttingen (UGOE) - DE
Democritus University of Thrace
(DUTH) - GR**

**Benaki Phytopathological Institute
(BPI) - GR**

**Université Mohammed V de Rabat
(MVU) - MO**

**Institut National de la Recherche
Agronomique (INRA) - MO**

**Université de Sousse, Institut
Supérieur Agronomique Chott
Mériem (ISA-CM) - TN**

**Isparta Uygulamalı Bilimler
Üniversitesi (ISUBU) - TR**

promote soil and crop health; c) at crop biodiversity level with the exploitation of germplasm of solanaceous crops, by screening local varieties/breeds which are adapted to biotic and abiotic stresses that occur under Mediterranean conditions.

To reach ECOBOOST objectives, a combination of laboratory and small experimental assays will identify the most promising wild Mediterranean plants, microbial stimulants and local varieties of solanaceous crops. Then pilot demonstration trials targeting end-users (farmers, SMEs) directly will validate the effect of the previously identified candidates as tools to improve the resilience of small-scale Mediterranean farms. In addition, ECOBOOST will increase public awareness of agroecological practices and carry out environmental and socio-economic analyses to assess the impact of their implementation in agriculture and the determinants of the acceptance by end-users.

Expected impact and results

ECOBOOST will produce new knowledge, tools and services to promote functional biodiversity and maximise ecosystem services for crop production.

ECOBOOST's new knowledge may be summarised as:

- how to manage complex interactions that occur at the farm scale among trophic levels (microbe-crop-pest-beneficial organisms);
- increased understanding of the genetic bases of crops programmed for a fast response against pest attack.

ECOBOOST's new tools may be summarised as:

- identification of tomato/eggplant/pepper local varieties (landraces) that are resistant to salt, nitrogen-limiting stresses and pests;
- effective soil microbes that boost plant growth and defences;
- wild Mediterranean plants that attract natural enemies and pollinators.

ECOBOOST's new services may be summarised as:

- online platform to inform stakeholders about the results of the project about the proposed innovative tools, its long term beneficial effects on health and agricultural productivity;
- mediterranean network of scientists and stakeholders working on innovative methods/tools to sustainably control in tomato, eggplant and pepper;
- online platform to inform farmers about the risks associated with pesticide use, the alternative eco-friendly solutions to pesticides and the risk farmers might face in the future about climate change and extreme climate events.

It is expected that implementing the proposed agroecological practices will increase the stability of the agroecosystems and, therefore, reduce the costs that farmers incur to control pests, thus increasing farmers' income and zero-pollution ambition in the Mediterranean countries.

Keywords

#agroecological_practices **#boost_functional_biodiversity**

#maximise_ecosystem_services **#solanaceous_crops**

#tomato **#eggplant** **#pepper** **#wild_flowering_plants**

#beneficial_insects **#pollinators**

#biostimulants_for_seed_coating **#soil_inoculation**



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

644.135 €



Duration

36 months



State and Coordinator Entity

TUNISIA

Université de Sousse, Institut Supérieur Agronomique Chott Mériem (ISA-CM)



Scientific Coordinator:
MAJDOUB, Linda

Participating States/ 6



Research Units/ 7



Section 2

HaloSheep

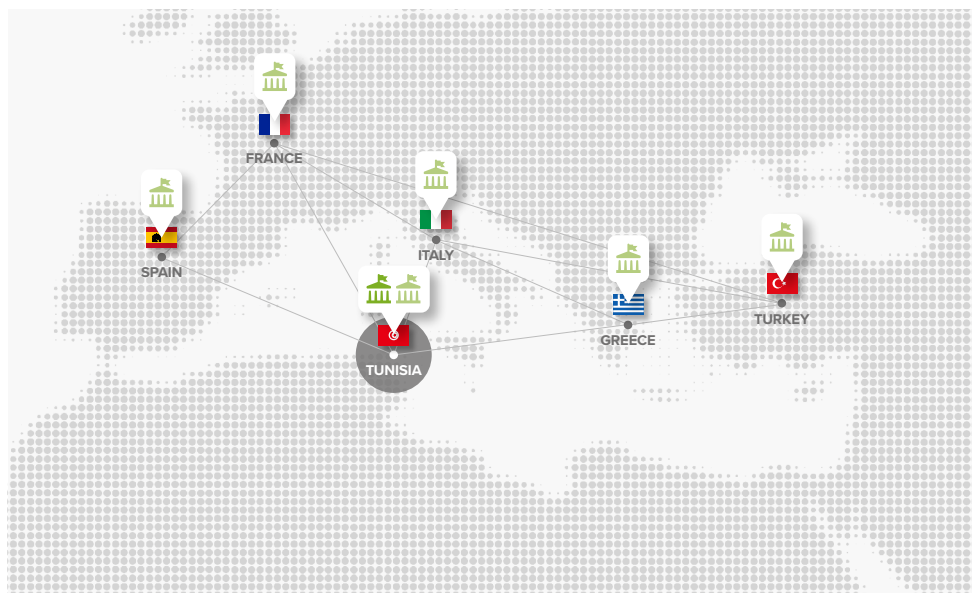
Agroecological sheep/goat production system based on the valorisation of halophytes of saline area in the méditerranéen basin

Context

Coastal regions in the Mediterranean are affected by aridity, water, soil salinization, and rising sea levels. Worldwide, saline wetlands extend to the detriment of arable lands and natural vegetation. This fact increases human food and economic vulnerability. The saline lands are characterized by the expansion and invasion of adapted halophile communities. Sheep and goat populations near sea areas are adapted to the Mediterranean climate. They are raised in high salinity, dry and high-temperature environments, consuming a wide range of halophytes. Some of these halophytes accumulate many antioxidants and minerals that could benefit reproductive performance, immune system, health and product quality. However, others can be toxic for animals and/or invasive. With climate change, invasive species is a real danger to flora diversity and balance of ecosystems. Grazing may reduce the spread of some invasive species, but it can endanger even more flora diversity. Sustainable valorisation of saline areas rich in halophytes can be a way to ensure incomes from small ruminant activities and can contribute to improving life quality in these saline areas. The agro-ecological sheep/goat production system could take the place of the traditional system and assure sustainability and promote ecotourism in the long term.

Objective and contents

HaloSheep aims to characterize and describe small ruminant production systems based on halophytes and propose agroecological practices and innovations to improve socio-economic and environmental sustainability. The project is based on a multidisciplinary approach considering the soil-plant-atmosphere continuum, plant-animal-human food chain, and socio-environmental constraints. Six Mediterranean countries (Tunisia, Greece, Turkey, Italy, France, Spain) are involved, and three (Kerkennah in Tunisia, Crete in Greece and lake of Burdur and Yarıklı in Turkey) are concerned by the prototype study. A prospecting survey will be carried out to study the existing production systems their durability and assess the importance of the small ruminant breeding activity. Genetic small ruminant diversity will be evaluated to identify alleles that could adapt to harsh conditions. The local feed resources will be characterized



Other in Consortium/ 7

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

Universidad de León (ULE) - ES

Unité Mixte de Recherche sur les
Herbivores, Centre INRA Rhône-
Alpes-Auvergne (INRAE UMRH)
- FR

Ellinikos Georgikos Organismos,
Veterinary Research Institute
(ELGO-DIMITRA-VRI) - GR

Fondazione Centro Ricerche
Produzioni Animali (CRPA) - IT

Burdur Mehmet Akif Ersoy
Üniversitesi (MAKÜ) - TR

for their chemical composition and nutritional values. The interactions between the different components of the system will be evaluated. Flora diversity and their evolution with climate change will be analysed, and feeding behaviour will be monitored to identify the most palatable halophyte species. Effects of halophytes on welfare and animal health will be performed using innovative precision tools to assess risk factors. Meat and milk quality will be evaluated for labelling possibilities. HaloSheep best practices for a more sustainable feeding system and welfare and health management under stressed conditions will be proposed. Impacts on farmer income and socio-economic and environmental sustainability will be assessed.

Expected impact and results

HaloSheep project will impact in the short and long terms; it will increase knowledge concerning the genetic diversity of local breeds, their adaptation capacity to salinity, higher temperature and their phenotypic traits and provide a longer-term impact as a basis for the sustainable development of the small ruminant system. It will improve knowledge about extremophile flora, represented by halophytes and their possible adaptation to Climate change. The project is expected to help local communities to develop farms based on local breeds in order not only to increase production by terms of yields but also by terms of better-quality products and better biodiversity and environment management. HaloSheep will encourage the consumption of milk and meat produced according to agroecological and sustainable practices. HaloSheep will propose a sustainable feeding system based on an optimal valorisation of spontaneous halophytes and local feeds. Best welfare and health management practices will be offered to reduce chemical inputs and natural compounds from halophytes. The sustainability and viability of the farms could be achieved with parallel amelioration of farmers 'income.

Demo sites/case studies

3



Keywords

#sheep

#goat

#palatable_halophyte_species

#animal_health

#local_feeds

#adaptation_to_salinity

#milk

#meat



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

527.460 €



Duration

36 months



State and Coordinator Entity

TURKEY

Meta Meta Anatolia Ltd. Şti



Scientific Coordinator:
ESIN, Sukru

Participating States/ 4



Research Units/ 5



Section 2

MED4PEST

Novel Ecologically-Based ROdent management DEvelopment in Mediterranean countries

Context

Rodents cause substantial reductions to food production, water supplies, and the economy. They display a wide range of alimentary preferences, including grains, fruits and vegetables, thus making them major agricultural pests. Rodents may eat and spoil food quantities that could feed 280 million people per year globally. In the Mediterranean region, rats attack trees and other crops when they can't find water, e.g., Carob trees, for they are deep-rooted and 'pump' water from very deep.

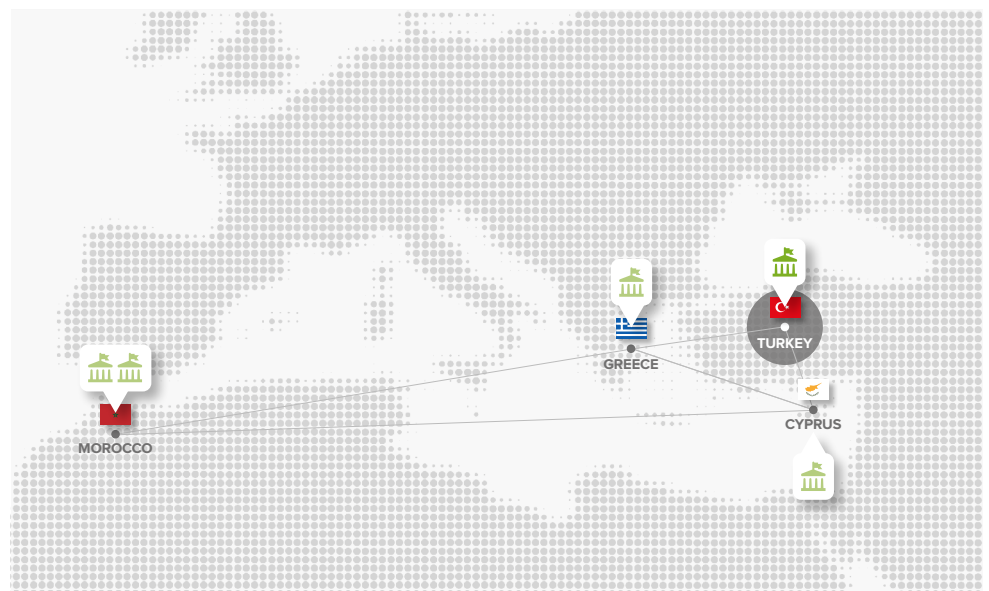
We tackle these challenges by introducing novel ecologically-based Rodent Management (EBRM). It stands out from conventional rodent control techniques, including synthetic rodenticides, biological and ecological. It relies on robust scientific knowledge about pest rodent eco-ethology and accordingly tailored modifications of the habitats to decrease rodent density to enduring levels and avoid re-infestations. It combines biological, ecological and physical methods through a Community of Practice (CoP) approach since the organisation is as important as the technology for effective rodent management.

Objective and contents

The overall objective of this project is to develop proven, effective Ecologically Based Rodent Management (EBRM) methods and products, which are readily integrated into local pest /invasive rodent management systems in Mediterranean countries. We aim to contribute to the shift from synthetic pest control to biological and ecological pest management, ultimately leading to eco-sustainable farming systems, higher quality and quantity crop production and optimisation of input use for ecosystem health.

The specific objectives include:

- 1: Improve knowledge and understanding of rodent behaviour and the magnitude of damage caused in representative agroecological systems in the Mediterranean region.
- 2: Novel plant-based bio-rodenticide (BR) development and testing in lab and field.
- 3: Improved EBRM approach, methods and application in the Mediterranean region.



Other in Consortium/ 4

CYENS Centre of Excellence Ltd - CY

Hellenic Mediterranean University (HMU) - GR

Université Mohammed V de Rabat (MVU) - MO

National Institute of Agricultural Research, Regional Center For Kenitra Agronomic Research - MO

Keywords

#plant-based_bio-rodenticide

#monitor_rodent_behaviour

#living labs

#zero-waste

#youth

#women



New products and solutions

1

Ecologically Based Rodent Management (EBRM)



Platforms/ Hubs

1

Community of Practice platform



4: Open sharing of new fields of application for novel technologies, knowledge, products and services supporting eco-friendly rodent management.

To reach MED4PEST objectives, we will develop and adopt a thorough research design based on a trans-disciplinary effort by partners and stakeholders. The focus is on innovation and action research, establishing proven products and methods through lab and field-pilot testing.

Expected impact and results

Our methodology involves a feasibility study based on experimental design. We will do this through the following workstream: In WP2 we will gather new data and fill crucial data and knowledge gaps, through which new patterns may emerge and strategies can be substantiated based on impact monitoring with reference to baseline proxies. WP3 is at the core of the innovations where we deploy novel tech solutions to monitor rodent behaviour in the entire spectrum of project experiments and living labs. Transnational testing will result in much more robust results. WP4 and 5 focus on innovative product/method development and co-creating EBRM methods at scale in 'living labs' will tailor it to the local context based on social, economic and environmental factors. Furthermore, researching botanicals (and combinations) will lead to prototype substances and/or bio-rodenticides that can effectively manage pest species. This is coupled with market analyses and working with local youth and women entrepreneurs to provide local EBRM products and services. WP6 will develop a rich knowledge sharing approach with the Community of Practice, through a digital platform, that will emphasise 'popular' outputs, such as games, comics, and video-sharing, amongst others. This is also part of the upscaling strategy, where we involve local stakeholders from the agricultural, government and private sectors in shifting towards eco-friendly pest management solutions.

The expected impact are:

- 1: more sustainable agriculture and food production system with more efficient use of natural resources and better climate change resilience, adaptation and mitigation;
- 2: Decreasing the use of chemical inputs and developing alternative solutions (new bio-based products, new techniques and policies);
- 3: contribution to the zero-waste farming system;
- 4: increasing income of the farmers from biodiversity use, improved farming techniques and improved certification of products;
- 5: Improved economic and social resilience of Mediterranean smallholder farming systems to climate change; a.o. through engaged youth and empowered women;
- 6: Preventing the emergence of pest species through improved knowledge and monitoring systems;
- 7: Improved knowledge of and access to eco-friendly rodent management products, services, and technologies.



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

620.150 €



Duration

36 months



State and Coordinator Entity

TURKEY

Erciyes Üniversitesi (ERÜ)



Scientific Coordinator:
UZUN, Aydin

Participating States/ 4



Research Units/ 5



Section 2

MEDPOME-STONE

Valorizing some pome and stone fruit germplasm variability to ensure resilience to climate change in the Mediterranean area

Context

Global warming is seriously challenging the agricultural sector worldwide, making the correct and efficient use of natural resources (e.g. soil, water and biodiversity) a fundamental aspect to consider to mitigate the economic loss linked to such climatic changes (Pandey, 2020). It is essential to develop new strategies in agriculture against global climate change, which has started to affect the Mediterranean region negatively. The overarching goal of MEDPOME-STONE is to explore some pome and stone fruits biodiversity and select genotypes with enhanced resilience to climate change to promote long-term breeding and more sustainable production in new biodiversity-based crop systems. The project proposes to use state-of-the-art methods to obtain the most detailed characterisation of wild pear and almond genetic diversity in the Mediterranean area, identifying variants associated with desired rootstock traits to climate change resilience. By involving local farmers and stakeholders through a multi-actor approach, MEDPOME-STONE will valorise local knowledge and maximise the socioeconomic impact of its outcomes.

Objective and contents

Climatic scenario predicted for Mediterranean areas poses specific challenges for agricultural production. The vulnerability of farm sectors to modifying agro-climatic conditions depends on both the expected regional climate change and the sectors' ability to adapt. Fruit tree crops are particularly exposed to environmental change for their perennial status. The quality and quantity of fruit production are strongly affected by Genotype x Environment interactions. The overarching goal of MEDPOME-STONE is to explore wild pear and almond biodiversity and select genotypes with enhanced resilience to climate change to promote long-term breeding and more sustainable production in new biodiversity-based crop systems.

The project proposes to obtain the most detailed characterisation of some wild pear and almond genetic diversity in the Mediterranean area, identifying variants associated with desired rootstocks traits to climate change resilience.



Other in Consortium/ 4

Centro de Investigación y
Tecnología Agroalimentaria de
Aragón (CITA) - ES

Università di Catania (UNICT) - IT

École nationale d'agriculture de
Meknès (ENAM) - MO

Université Sultan Moulay Slimane
(USMS) - MO

To achieve the overarching goal, the MEDPOME-STONE consortium will work on three different scientific objectives: a) to valorise genetic diversity in local collections from Turkey, Italy, and Spain to reduce genetic erosion in wild pear and almond; b) the selection of plants adapted to increased drought conditions; c) the identification of molecular markers linked to drought tolerance. These three objectives will lead to (i) more precise knowledge of the genetic diversity within accessions in the Mediterranean region; (ii) a more sustainable production promoting new biodiversity-based crop systems; (iii) novel breeding tools for marker-assisted selection (MAS) of varieties showing improved adaptation to drought characteristics.

A significant strength of MEDPOME-STONE is the availability of extensive germplasm collections, some in multiple locations, covering a range of Mediterranean cultivation environments. The project partnership includes geneticists, breeders, and physiologists, that possess complementary expertise and will share knowledge and define priority areas for research and breeding activities through the engagement of stakeholders and end-users.

Expected impact and results

MEDPOME-STONE will act at multiple levels to provide a better understanding of how the related fruit crops adapt to ever-changing environmental constraints and why certain varieties are tolerant to drought stress in the Mediterranean area: i) by identifying the genes, pathways and allelic variants controlling key plant functional traits and ii) integrating multi-omics approaches for dissecting plant responses to different environments and management practices and increasing knowledge about mechanisms of adaptation to abiotic stresses. MEDPOME-STONE will produce knowledge, tools and methods to support the development and profiling of new fruit varieties that are tolerant to drought stress, productive in Mediterranean climate conditions (especially water scarcity and increasing temperatures) and efficient in using limited resources (water/soil fertility), considering the users' needs and the legislative constraints.

MEDPOME-STONE objectives have several impacts in line with PRIMA and Horizon 2020 goals. Considering the environmental aspects, the atlas of local crops and the design of innovative farming systems based on agroforestry will impact biodiversity conservation and ecosystem services.

The benefits that such agrosystems will provide to local farmers represent an example of the social impacts of this project. The use of wild pear and almond in mixed agrosystems will improve water conservation, restoration of degraded soils and improvement of soil fertility and ecosystem services. The project will also have economic impacts, helping to increase efficient pome and stone fruit production at reduced costs. The efficiency of climate-ready rootstocks will be even more significant in marginal areas with degraded soils, thus improving the profitability of investments in agro-food industries and access to high-quality products. The interest shown in the project by different associations and private companies ensures that the project's advances will benefit the local economy.

Finally, the project also has significant repercussions on scientific knowledge allowing the identification of genes or molecular markers linked to drought adaptability and other traits of interest that will be exploited for long-term breeding programs both in pome and stone fruits and possibly in different fields of cultivated species.

Keywords

#Fruit_tree_crops

#wild_pear

#almond

#valorise_genetic_diversity

#breeding

#marker-assisted_selection

#pome_stone_fruits



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.747.173 €



Duration

36 months



State and Coordinator Entity

GERMANY

Universität Hohenheim



UNIVERSITY OF HOHENHEIM

Scientific Coordinator:
SCHMOECKEL, Sandra

Participating States/ 6



Research Units/ 9



Section 2

Quinoa4Med

Quinoa as a climate-smart crop diversification option for higher income generation from marginal lands in the Mediterranean

Context

Quinoa is a pseudo-cereal, initially cultivated in the Andean region. It has gained attention throughout the Mediterranean because it yields well even on marginal soils and is tolerant to drought, soil salinity and other abiotic stresses. Moreover, it is considered among the world's healthiest foods. Its grains contain a balanced composition of minerals, vitamins, dietary fibre, fats, and high-quality, gluten-free proteins with a balanced amino acid profile. Our vision considers the whole system by enabling successful and widespread agroecological quinoa farming and marketing its products.

Q4M brings together scientific partners and societal stakeholders from five Mediterranean countries (Tunisia, Algeria, Morocco, Spain and France) in collaboration with quinoa and breeding experts from Germany. Together, the consortium will advance climate-resilient quinoa germplasm and upscale quinoa cultivation and valorisation in an integrated approach. Guided by National priorities and reinforced by a multi-stakeholder network, we will demonstrate the power and benefits of agroecological quinoa farming at twelve distinct multi-agroecosystem demo sites. We will use various crop combinations under varying agronomic regimes facing diverse climate and soil conditions.

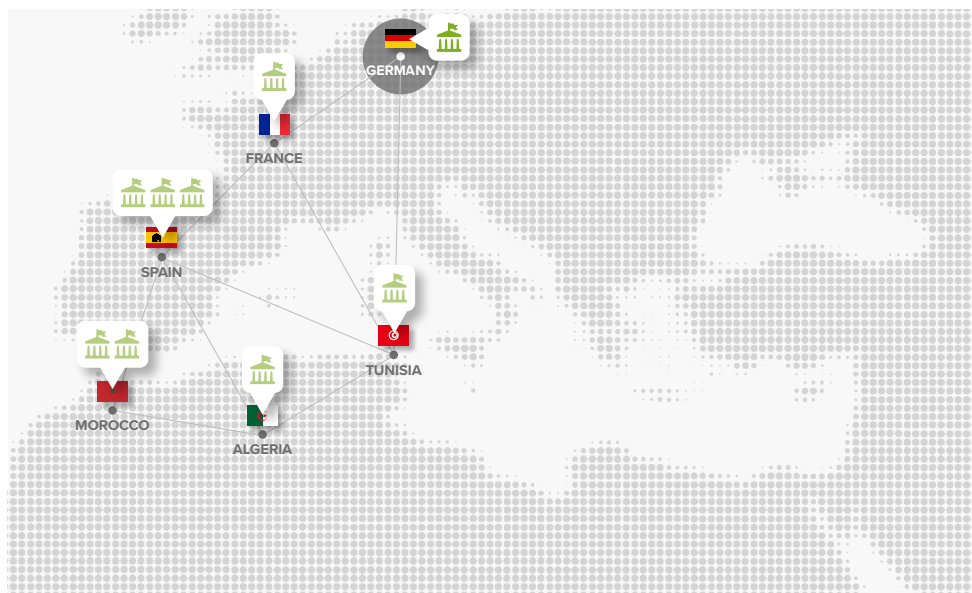
Objective and contents

Main objectives:

1. Breed/establish multi-purpose quinoa varieties better adapted to saline, marginal Mediterranean soils, resilient to climate change, reducing post-harvest processing, and enriching crop diversity for sustainable agricultural management.
2. Establish zero-waste valorisation chains/nets for quinoa delivering affordable gluten-free food products and other non-foods.
3. Provide guidance, support and a networking platform for stakeholders.

Q4M's work program has its core Living Labs at 12 demo sites, which receive input and feedback to scientific Work Packages (WP).

WP1 will develop a climate-resilient quinoa crop with key traits for cultivation and processing (saponin content, nutritional composition). Selected quinoa accessions



Other in Consortium/ 8

Université Kasdi Merbah,
Département des Sciences
Biologiques, Laboratoire
Bioressources Sahariennes
(UKMO) - DZ

Universidad Politécnica de Madrid,
Centre for Plant Biotechnology
and Genomics (UPM) - ES

ALGOSUR - Algodonera del Sur
SA - ES

Moreno Ruiz Hermanos SL - ES
Savoirs, Environnement
et Sociétés, Centre de
coopération internationale en
recherche agronomique pour
le développement (UMR SENS -
CIRAD) - FR

Institut Agronomique et
Vétérinaire Hassan II (IAV), Dept.
of Production, Protection and
Biotechnology - MO

Université Mohammed Premier
Oujda (UMP), Faculté des Sciences
- MO

Centre de Biotechnologie de Borj
Cédria (CBBC) - TN

are tested in various agroecological farming settings. Carbon sequestration in the soil through crop rotations, intercropping, cover crops/green manure, biochar and compost use will be addressed (WP2). Key traits such as germination, nutritional characteristics, reduced saponins, and other desired traits will be assessed and resulting products developed in local value chains/nets (WP3). The adoption of the quinoa farming system is to benefit smallholder farmers, increase income and empower women and the youth, advancing social innovation (WP4). The success of Living Labs, sustainability and cost-benefit relation will be evaluated (WP5). WP6 will disseminate results using tailored communication and intensive networking.

Expected impact and results

Based on 'lessons learned from critical stakeholders and previous projects, and teaming up with complementary initiatives, we will select and stably integrate best-adapted multi-purpose quinoa lines in multiple farming environments and valorisation chains. Together with societal and company partners, we strive to invigorate local value chains/ nets and a stable market for quinoa producers.

Noteworthy for smallholders' food and income security, Q4M will introduce novel quinoa breeding lines to diversify current cropping systems to stabilise overall harvests, recover and/or enrich soils, and in general, improve year-round crop production. Q4M will also establish the groundwork and connect partners for subsequent projects, follow-up on adapting small farming systems to climate change and improve health and livelihoods. Moreover, Q4M takes up priorities of UN Agenda 2030 (SDGs), EU policies and National Strategies or Action Plans of Maghreb countries, and thus will have a positive impact on future agricultural policies.



Keywords

#quinoa #zero-waste #living_labs #crop_rotations
#intercropping #over_crops #green_manure #biochar
#empowerment #women #youth



Demo sites/living labs

12



Platforms/ Hubs

1

networking platform for
stakeholders



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

606.804 €



Duration

36 months



State and Coordinator Entity

GERMANY

Technische Universität
Hamburg (TUHH)

TUHH

Technische Universität Hamburg-Harburg

Scientific Coordinator:
KALTSCHMITT, Martin

Participating States/ 4



Research Units/ 5



Section 2

ReMe-diation

Resilient Mediterranean with a holistic approach to sustainable agriculture: Addressing challenges of water, soil, energy and biodiversity

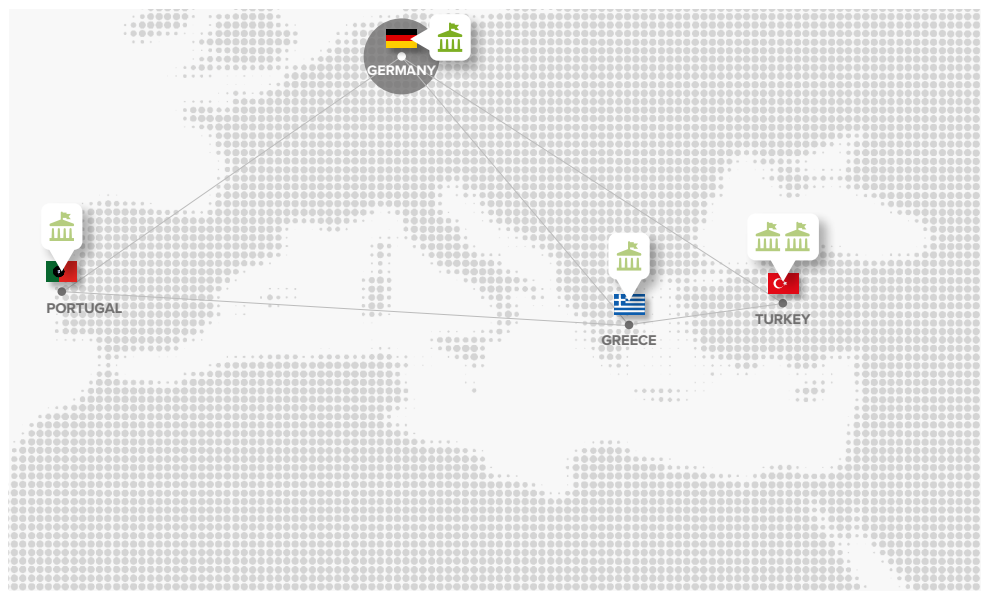
Context

Olive oil is the critical element of the Mediterranean diet whose health benefits are widely documented. The increased demand for olive oil and the desire to increase profitability has led to an intensification of olive cultivation.

Unsustainable agriculture practices in olive cultivation have amplified concerns about soil, groundwater contamination, water resource degradation and loss of biodiversity. Based on these grounds, the project's overarching goal is to introduce sustainable agriculture practices that could provide socio-economic (by presenting new products) and environmental benefits (by increasing biodiversity and conserving soil and water) through different methods of zero-pollution ambition and resource recover.

Objective and contents

The specific goals are to implement an intercropping system in an olive grove by introducing local leguminous crops (that can adapt to climate change); produce bio-char from the residual biomass resulting from the maintenance of olive and cork trees to amend soil; test and apply the nature-based solution of constructed wetlands for treating the wastewater from cork and olive oil industry; recover/produce high value-added by-products from agricultural and industrial residues and the reed biomass grown in the constructed wetlands; produce renewable energy via anaerobic digestion of lignocellulosic agricultural/industrial residues and reed grown in the constructed wetlands; identify optimum energy conversion routes (electric power, heat, cooling) of the biogas production under Mediterranean Context in the countryside; analyse anaerobic digestion residues (from biogas) as biofertiliser and identify possible routes for the production of bio-based chemicals via valorisation of lignin in the anaerobic residues; evaluate the project results with regards to economic, ecological and social parameters.



Other in Consortium/ 4

Technical University of Crete (TUC)
- GR

Universidade da Beira Interior
(UBI) - PT

Akdeniz Üniversitesi (AKU) - TR

Ankara Üniversitesi - TR

Expected impact and results

The project will contribute to the following expected impacts:

- implementing an intercropping system with minimal tillage in an olive grove by introducing local leguminous crops will provide a more sustainable olive production with more efficient use of soil. This will improve soil properties, provide an additional income and protect farmers against financial losses due to climate change. The wastewater of the olive oil and cork industry will be utilised in constructed wetlands, which will provide clean water for legume production and increase the region's biodiversity;
- anaerobic fermentation of different organic waste streams will contribute to a sustainable provision of energy/electricity and improve waste management in the Mediterranean area. Hence, it will enhance the economic and social resilience in the region;
- biochar and bio fertilisers will provide a more sustainable agricultural practice by enhancing the soil quality, fertility, and crop production and reducing the waste in the farming systems. It will also decrease the need for chemicals and provide financial benefits to farmers.

Keywords

#intercropping_system

#bio-char

#olive_tree

#cork_tree

#by-products

#treating_wastewater

#agricultural_industrial_residue

#biogas

#biofertiliser



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.340.320 €



Duration

36 months



State and Coordinator Entity

ITALY

Università degli Studi della Basilicata (UNIBAS), Dipartimento di Scienze (DiS)



UNIVERSITA' DEGLI STUDI DELLA BASILICATA

Scientific Coordinator:
BRIENZA, Monica

Participating States/ 8



Research Units/ 12



Section 2

SAFE

Sustainable water reuse practices improving safety in agriculture, food and environment

Context

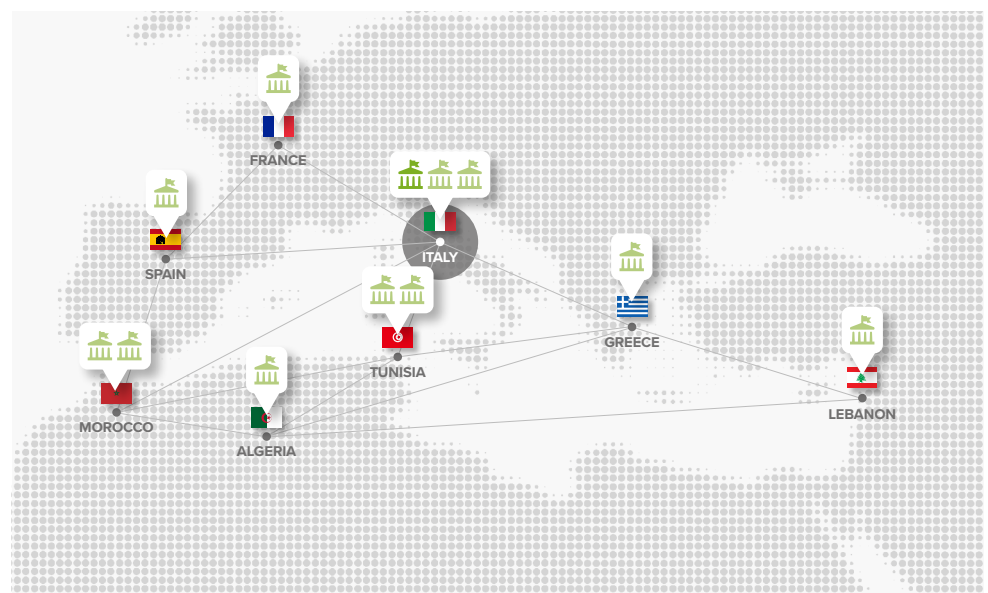
Smallholder farmers are globally the main producers of food. In Mediterranean countries, smallholders provide from 60 to 80 per cent of the food. Due to the increase of the world population, these farmers are under growing pressure to enhance their productivity and ensure food security and safety, especially for rural poor regions. Among numerous stressors that make farming increasingly difficult (e.g., climate change, land degradation, post-harvest losses), water scarcity is one of the significant challenges. Water reuse for agricultural field irrigation may be feasible to mitigate water scarcity. However, direct reuse may risk introducing organic micro-pollutants, excessive content of nutrients, and/or increased soil salinity. Thus, agricultural crop production, quality of produce, and soil quality can suffer the consequences of inadequate reuse practices. Improving the quality of reused irrigation water will improve food safety and security, preserve the biodiversity and microorganisms in the soil, and increase the crop yield of small farmers. There is an urgent need to help farmers increase yields through good quality wastewater effluent recycling for irrigation, soil and pest management, access to a better quality of salinity resistance plants, and improved agricultural practices (i.e. irrigation, fertiliser use, grafting).

Objective and contents

SAFE will optimise the proposed water reuse strategies, ensuring their safety for the environment and human health. The developed engineering strategies will increase sustainability, decrease water stress, and fulfil farm necessities. These strategies will boost the local economy of agricultural regions.

Main specific objectives are:

- Development, test, and validate novel low cost and low energy urban decentralised wastewater treatments to enhance renewable water supply.
- Evaluation of wastewater treatments impact on plants/crops performance using modern -omics tools.
- Study the impacts on local biodiversity and its co-benefits.



Other in Consortium/ 11

Consiglio Nazionale delle Ricerche,
Istituto Ricerca sulle Acque (IRSA -
CNR) - IT

Sapienza Università di Roma - IT

Université Djillali Liabes (UDL) - DZ

Institut Català de Recerca de
l'Aigua (ICRA) - ES

Université de Montpellier (UM) - FR

Hellenic Agricultural Organization,
Institute of Plant Breeding and
Genetic Resources (ELGO-DIMITRA
IPBGR) - GR

Lebanese Development Network
(LDN) - LB

Institut Agronomique et
Vétérinaire Hassan-II - MO

Université Ibn Tofail de Kénitra
(UIT Kénitra) - MO

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

Faculté des Sciences de Sfax (FSS)
- TN

- Promotion of environment respectful practices like pest management by biofertilisers such as *Trichoderma* sp., including knowledge transfer for their practical implementation.
- Safety evaluation related to the proposed approaches, including monitoring emerging pollutants, in water, soil, and produced crops.
- Development of general management models to simulate local and decentralised agroecological practices in several scenarios.
- Optimisation of the implemented approach in techno-economic analysis, environmental impact, and local feasibility.
- Local promotion of the proposed solutions regarding farmers' acceptability and valorisation of their economic value.

Expected impact and results

SAFE will tackle innovation capacities, increase the state of knowledge, and develop innovative solutions for the sustainable management of agro-food systems. Benefits will result from integrated water provision in the Mediterranean area. SAFE provides a more sustainable agricultural production system with more efficient use of natural resources and better climate change resilience. The innovations developed by SAFE (for low-cost wastewater treatments and respectful practices) increase crop performance and water quality and improve the economic and social resilience of Mediterranean smallholder farming systems to climate change. Quantity and quality of available water will be more consistent compared to surface water achieving reduced production costs (-10%), sustained agricultural production (+15%) and an associated increase in employment opportunities (+20%).

Furthermore, these strategic practices will reduce cultivation costs (-10%), overall water consumption (-35%), and treatment needs for pumping & importing water, building dams, seawater desalination (-15%). Mediterranean smallholders adopting innovations developed in SAFE will increase their incomes by 40%, achieved by a combination of higher yields and reduced production costs for water, nutrients, fertiliser and pesticides while ensuring food security and certification of products. SAFE will encourage the consumption of food produced using more sustainable practices and contribute to the zero-waste farming systems' target.

Keywords

#water_reuse_practices

#biofertilisers

#Trichoderma

#agroecological_practices

#zero-waste



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

964.600 €



Duration

36 months



State and Coordinator Entity

ITALY

Università Politecnica delle Marche (UNIVPM), Dipartimento di Scienze Agrarie, Alimentari, ed Ambientali (D3A)



UNIVERSITÀ
POLITECNICA
DELLE MARCHE

Scientific Coordinator:
AQUILANTI, Lucia

Participating States/ 5



Research Units/ 8



Section 2

SEA FENNEL4MED

Innovative sustainable organic sea fennel (*Crithmum maritimum* L.) - based cropping systems to boost agrobiodiversity, profitability, circularity, and resilience to climate changes in Mediterranean small farms

Context

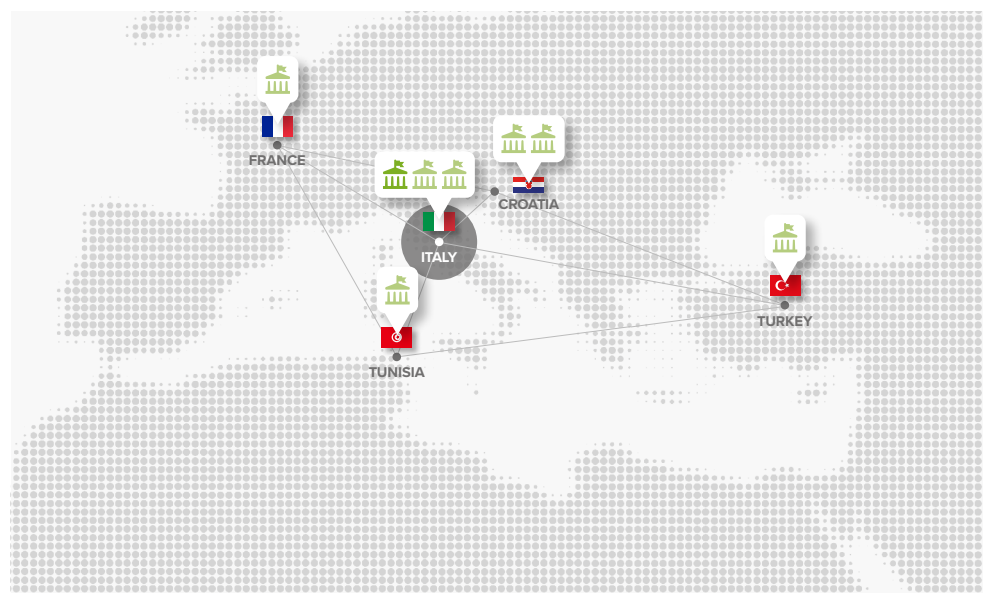
The project objective deals with the introduction of Mediterranean sea fennel (*C. maritimum* L.) germplasm well adapted to climate change and Mediterranean conditions (water shortage, low soil fertility, high salinity) for the development of new sustainable organic cropping systems, able to increase the resilience of the agro livelihood system based on agroecological principles, that contribute to the zero-pollution ambition, and to cope with limited resources and environmental constraints, with the final objectives of enhancing food production stability over time as well as increasing farmers' incomes.

Objective and contents

Specific objectives of the project are:

- selection of sea fennel ecotypes, well adapted to the Mediterranean climate;
- introduction of sustainable farming systems for the production of organic sea fennel crops in the Mediterranean;
- development of new/improved high-value products from the organic sea fennel crops;
- valorization of sea fennel by-products for the production of functional food ingredients/nutraceuticals/soil amendments;
- demonstration of socio-economic benefits, environmental impacts and sustainability of the proposed innovations;
- dissemination of sustainable halophyte-based cropping solutions and products in the Mediterranean.

These objectives will be reached thanks to a strong synergy between 9 Partners from 6 Mediterranean countries, including Public Universities and Research Institutes, a Research Foundation, a farm producing sea fennel crops and sea fennel-based foods. Different test sites across the Mediterranean will be used for the selection of sea fennel ecotypes with the highest nutritional/biological potential.



Other in Consortium/ 7

Consiglio per la Ricerca
in Agricoltura e l'analisi
dell'economia Agraria, Centro
di Ricerca Alimenti e Nutrizione
(CREA-AN) - IT

RINCI Srl - IT

University of Split (Sveučilište u
Splitu - UNIST) - HR

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

Université de Bretagne
Occidentale (UBO) - FR

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

Ege Üniversitesi - TR

New products and solutions

3

new foods and food ingredients/
nutraceuticals/soil amendments



Expected impact and results

Selected ecotypes will be assayed in the demo and open fields. After multiple analyses, the new organic crops and their by-products will be exploited for the formulation of new foods and food ingredients/nutraceuticals/soil amendments, respectively. The socio-economic and environmental impacts of the proposed innovations will be evaluated.

The project addresses all the specific challenges of this thematic area by:

I. introducing more sustainable agriculture and food production systems with more efficient use of a natural resource (sea fennel) with a high climate change resilience/adaptation, high economic potential;

II. improving economic and social resilience of Mediterranean smallholder farming systems to climate change;

III. contributing to the zero waste farming systems target;

IV. decreasing use of chemical inputs;

V. increasing income of the farmers from biodiversity use, improved farming techniques and organic certification;

VI. promoting youth engagement and women empowering;

VII. encouraging consumption of food produced using more sustainable practices.

Keywords

#sea_fennel

#new_products

#by_products

#zero_waste

#halophyte-based_solutions

#youth

#women

#empowerment



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.566.293 €



Duration

36 months



State and Coordinator Entity

ITALY

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



**UNIVERSITÀ
CATTOLICA
del Sacro Cuore**

Scientific Coordinator:
PUGLISI, Edoardo

Participating States/ 8



Research Units/ 10



Section 2

SIRAM



Sustainable innovations for Regenerative Agriculture in the Mediterranean area

Context

SIRAM will supply a comprehensive integration and implementation of sustainable solutions for regenerative agriculture across different Mediterranean areas, addressing at the same time issues of low incomes at the smallholder farm level. A multidisciplinary team involving agronomists, microbiologists, soil scientists, plant pathologists, nematologists, agricultural chemists, economists, and experts in dissemination will tackle issues related to soil degradation, over-use of chemical inputs, climate change, desertification, environmental risks, and low incomes at smallholder farms level.

SIRAM will help to cope with the main challenges that the agricultural sector is facing in the 21st century: i) securing viable food production in the face of escalating food demands (expected to double by 2050); ii) ensuring sustainable management of natural resources and climate action to avoid the progressive deterioration of soil and water resources and the loss of biodiversity; iii) decreasing residue concentrations in vegetables and iv) contributing to a balanced territorial development of the EU's rural areas and their communities.

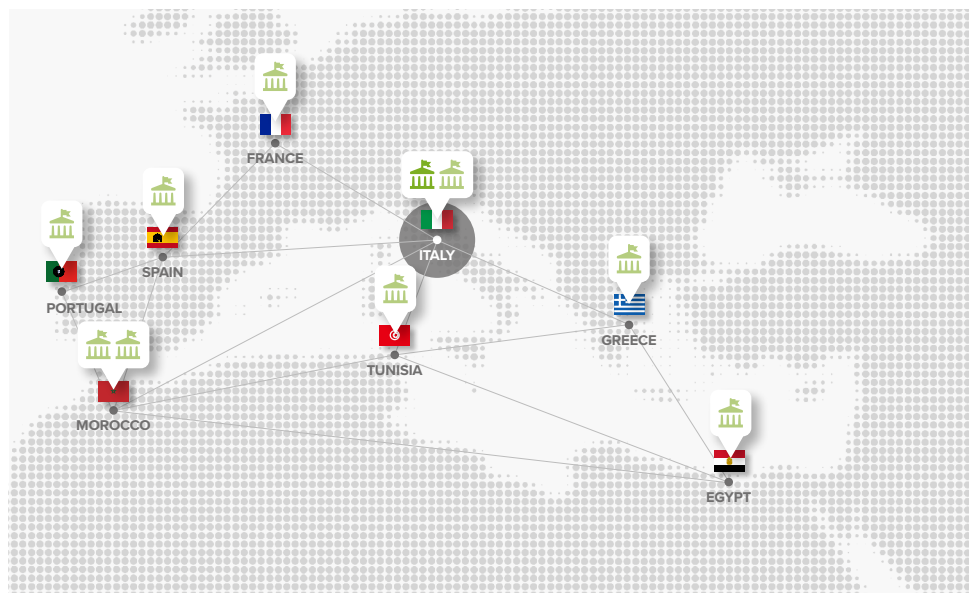
These issues will be tackled by a multidisciplinary approach based on four main pillars: (i) beneficial microorganisms for plant growth and pest control; (ii) crop varieties with resistance towards abiotic and biotic stresses; (iii) agronomical practices to safeguard soil quality and fertility; and (iv) bioeconomy approaches to recycle and valorise waste biomasses that restore soil organic matter and have biostimulant properties.

Objective and contents

The broad objective of SIRAM is to develop intelligent, sustainable, and resilient agricultural systems and economies, which agree with UN Sustainable Development Goals (SDGs) and EU Green Deal towards 2030 and beyond. The broader objective of SIRAM will be enriched by main specific objectives (SO):

SO1 Development of tailored approaches to address climate change, desertification, pollution, and low-income issues under different smallholder farming systems in the Mediterranean area

SO2 Reduction of chemical inputs, restoration, and regeneration of soil health



Other in Consortium/ 9

OpenTea srl - IT

Agricultural Research Center (ARC) - EG

Institut de Recerca i Tecnologia Agroalimentàries (IRTA) - ES

Université Bourgogne Franche-Comté (UBFC) - FR

EVOTROPIA Ecological Finance Architectures P.C. - GR

École nationale d'agriculture de Meknès (ENAM) - MO

Université Sidi Mohamed Ben Abdellah (USMBA) - MO

Universidade de Coimbra (UC) - PT

Centre Régional des Recherches Agricoles Sidi Bouzid (CRRRA) - TN

through an integrated approach based on beneficial microorganisms, organic fertilisers, biostimulants, organic waste biomasses, resistant local crops and agronomical practices including no-tillage and cover crops

SO3 Improvement of structural and functional biodiversity of bacteria, fungi, and plants under the principles of regenerative agriculture

SO4 Understanding of the mechanisms through which certain microorganisms induce systematic plant resistances to biotic and abiotic stress

SO5 Understanding and exploitation of mechanisms through which plants can select beneficial microorganisms in the rhizosphere

SO6 Investigating the use of non-microbial biostimulants from biomasses as a sustainable tool to improve agricultural production in the framework of regenerative agriculture

SO7 Socio-economic evaluation and economic sustainability of the tested methodologies

SO8 Dissemination and exploitation of the tested methodologies, including upscaling to EU level, taking into account possible technical, socio-economic, and political barriers.

SO9 Improvement in knowledge, skills and competencies of young scientists, professionals, and other interested parties through a dedicated training programme.

Expected impact and results

The results of the SIRAM activities will benefit NGOs, producer associations and farmers' networks from the various Mediterranean countries. The address will be to restore and enhance agro- and functional diversity. Such new practices will improve the sustainability and resilience of the farming systems as support to plant growth and resilience/tolerance to pests.

SIRAM will help fill some knowledge gaps on the mechanisms by which biostimulants explicate their inhibitory effects on pathogen/parasite growth. Outcomes will be helpful to improve plant response to stresses (biotic and abiotic) and develop high quality and efficient pilot products that can be available for scale production and delivery on the market by spin-offs and SMEs.

SIRAM will contact industrial partners to translate the obtained research findings into practice. Tools will be given to farmers by partners companies operating in biological control and other inputs that will have contributed to their integrated control management strategies in market garden crops.

The project will be an asset for a training program for young scientists/Training sessions on biological control of soil-borne pathogens, including telluric fungi, bacteria and nematodes, on molecular tools to study plant micro-biome interaction (development of markers, genes expression, and bioinformatics)/BCASs yearly Meetings/ International symposia. Scientific publications from the SIRAM team will affect the general knowledge on regenerative agriculture, soil quality, biocontrol of pests and plant immune systems.

Keywords

#regenerative_agriculture

#microorganisms

#organic_fertilisers

#biostimulants

#organic_waste_biomasses

#resistant_local_crops

agronomical_practices



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.374.049 €



Duration

36 months



State and Coordinator Entity

SPAIN

Universidad de León (ULE)



**universidad
de león**

Scientific Coordinator:
RUBIO COQUE, Juan José

Participating States/ 7



Research Units/ 10



Section 2

SUSTEMICROP

Development of eco-sustainable systemic technologies and strategies in key Mediterranean crops systems, contributing to small farming socio-economic resilience

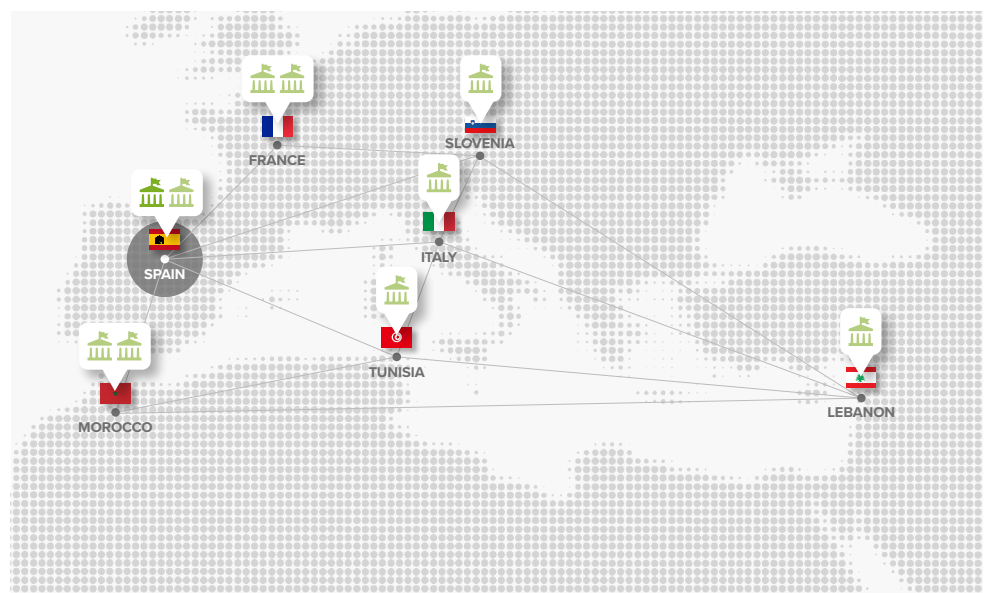
Context

In the past decades, the Mediterranean region has experienced unsustainable agricultural practices, low productivity, biodiversity loss and climate change that altogether represent an enormous challenge for small farming systems. The EC launched the European Green Deal has been designed to deal with climate and environmental-related challenges to build a sustainable response. Among several topics, agricultural activities have been addressed. This includes measures (included in the European Farm to Fork Strategy) linked with the use of Plant Protection Products (PPP) and fertilisers of synthetic origin, given their negative effect on air and water pollution, soil degradation, food safety, and human health. However, accomplishing all the established measures has become a challenge, especially for small farmers, with lesser economic resources and limited training skills. There is an urgent need to effectively address some of these threats and achieve sustainable agroecological practices to improve small farmers' resilience and adaptation to climate change.

Objective and contents

SUSTEMICROP aims to increase the resilience of Mediterranean cropping systems and the competitiveness of small farmers in a climate change-affected environment through the development of innovative, affordable, and systemic solutions with positive economic, environmental, and societal impacts. SUSTEMICROP will deliver a package of sustainable strategies, products, and tools that, when applied individually or adopted as a whole under integrated management, will allow small farmers to increase their competitiveness, adopt innovations and achieve overall sustainability. The following specific purposes will be addressed:

- design and validation of innovative solutions to address pests, pathogens, and adaptation to climate change in 3 Mediterranean crops (date palm, hops and grapevine), by valorising, selecting, and testing different natural resources: BCAs, bio fertilisers based on BCA-enriched compost, biopesticides based on natural compounds, and detection of resistant varieties and breeding traits against the effects of climate change and diseases;



Other in Consortium/ 9

Agrogenia Biotech SL - ES

Institut Francais de la Vigne et du Vin (IFV) - FR

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

Horta Srl - IT

Lebanese University (UL) - LB

Université Mohammed VI Polytechnique (UM6P) - MO

Université Mohammed Premier Oujda (UMP) - MO

Slovenian Institute of Hop Research and Brewing (SHIRB) - SI

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

- design a Sustainable Innovation Framework to evaluate SUSTEMICROP practices/ innovations applied in the selected crops, with economic, social, and environmental indicators;
- design new crop management strategies in Integrated Crop management or Integrated Pest Management systems by using the obtained solutions and evaluating their replicability, utility, and usability;
- understand the factors influencing the adoption of innovative systemic solutions by smallholders, aligned with legislation, the Sustainable Development Goals, and the Farm to Fork strategy;
- maximise the outreach and beneficial influence of the project results to reach the target users and other interested stakeholders through a communication and exploitation plan.

Expected impact and results

SUSTEMICROP should allow generating following results and impact on the management of small-scale farms:

- production of novel bio fertilisers based on compost (obtained from crop residues currently discarded or burned) and enriched with beneficial microorganisms to control fungal pathogens or increase crop productivity;
- promote the continual use of bio fertilisers among farmers to obtain “suppressive soils”. That will allow shifting the equilibrium conditions of the soil towards conditions that progressively decrease the pathogen incidence in an eco-friendly way;
- design novel Biopesticides based on essential oils, plant extracts, and priming molecules to control fungal pathogens to reduce the use of chemical pesticides;
- identify and/or develop new grape material (vine varieties) more adapted to warmer and drier climates as predicted by climate change effect on Mediterranean conditions, thus contributing to the resilience of Mediterranean vineyards against climate change;
- develop a user-friendly web-based tool to evaluate agroecological innovations applied in Mediterranean crops with aggregated indicators (economic, social, environmental) for improving small farmer decision-making;
- a roadmap for policymakers, with recommendations on adopting innovative systemic solutions and the small farmers’ preparation towards certification schemes in organic farming and integrated crop management systems.

New products and solutions

1

user-friendly web-based tool



Keywords

#date_palm #hops #grapevine #biological_control_agents

#integrated_crop_management #crop_residues

#bio_fertilisers #bio_pesticides #small-scale_farms



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

1.215.104 €



Duration

36 months



State and Coordinator Entity

PORTUGAL

**Laboratório Colaborativo
Montanhas de Investigação
(MORE)**



**montanhas
de investigação**

Scientific Coordinator:
GONÇALVES, Alexandre

Participating States/ 6



Research Units/ 9



Section 2

VALMEDALM

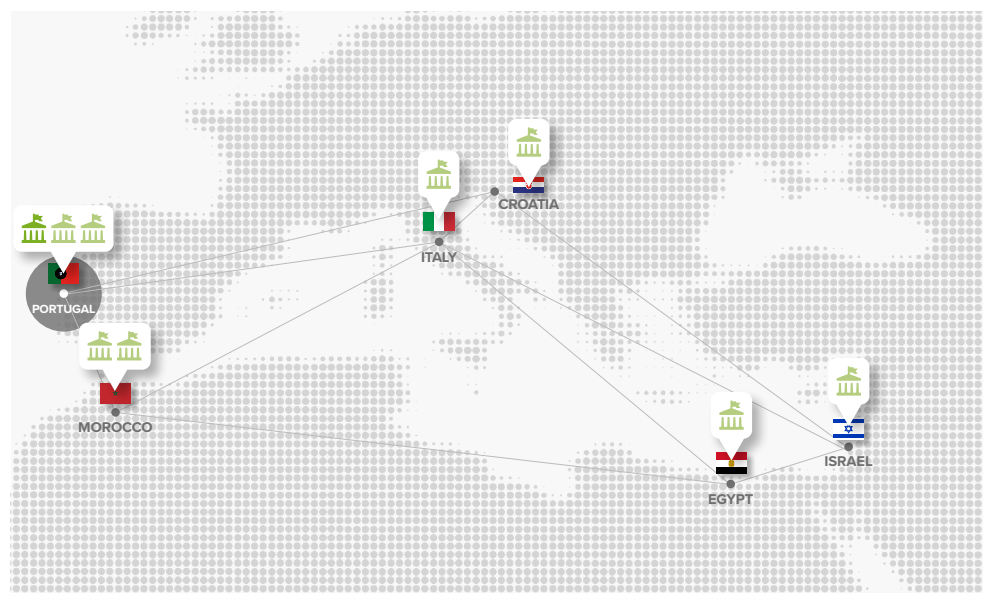
VALorization of MEDiterranean ALMond orchards through the use of intercropping integrated strategies

Context

The Mediterranean is a region of solid agricultural traditions associated with conventional agronomic practices losing efficiency due to climate change. Typical Mediterranean almond orchards are established on a mono-cropping system in a smallholding (i.e. < 5ha), implemented with long tree spacing for rainfed farming or intensively cultivated, the latter with increased cultivation costs but high yield expectations. Such agronomic strategies, coupled with the current climate change scenario, have decreased soil organic matter, soil erosion, water scarcity and biodiversity loss. Concerning the almond sector in the Mediterranean, in 2018, while Spain, Morocco and Turkey were the leading almond producers, Israel and Lebanon were reported as the ones with the best yields, while Israel and Greece presented the highest producer price values, which indicates that the Mediterranean countries could work in collaboration to improve almond production valorization for small-scale farmers. In this context, intercropping strategies can significantly enhance biodiversity and ecological stability, improve productivity, enhance biological control of insect pests, support pollinators, reduce fertilizer applications, and improve soil health. Altogether, intercropping can support farmer income; and improve sustainability by using natural resources more efficiently.

Objective and contents

The VALMEDALM consortium aims to empower local almond production in the Mediterranean by implementing intercropping practices as an integrated strategy aligned with economic and social aspects and sustainable principles towards an adaptation to climate change. VALMEDALM will focus on identifying intercropping practices and promoting their implementation across six Mediterranean countries to evaluate the effect of such intercropping practices in pests and weed management, in the assessment of nutritional and functional properties of almonds and associated crops, in the identification of the economic, social, and environmental impacts of the tested methodologies, and by promoting knowledge transfer and training for local farmers and farmer associations.



Other in Consortium/ 8

Instituto Politécnico de Bragança (IPB) - PT

Centro Nacional de Competências dos Frutos Secos (CNCFS) - PT

University of Split (UNIST) - HR

National Research Centre (NRC) - EG

Agricultural Research Organization, Volcani Center (ARO) - IL

Università degli Studi di Palermo (UNIPA) - IT

Université Sultan Moulay Slimane (USMS) - MO

Institut National de la Recherche Agronomique (INRA) - MO

To achieve its purposes, VALMEDALM will develop a set of demo sites to evaluate various factors affecting the implementation and success of intercropping practices, will produce an inventory of practices associated with intercropping towards pest and weed management and will establish a range of interaction channels and network strategies promoting knowledge transfer and collaborative work among local farmers and associations. Finally, VALMEDALM pretends to achieve solutions towards increasing farmers' income and focusing on the engagement of young farmers and women.

Expected impact and results

The VALMEDALM project will develop innovation efforts aligning with the needs of Mediterranean local farmers and the challenges of different regions and implement a work plan composed of transversal activities to achieve local farmers' training and effective dissemination and communication, aligned with six significant expected impacts. Thus, VALMEDALM intends to improve the sustainability of almond production systems by developing a total of 15 innovations in farming systems, leading to increased farmer's income, including agricultural-linked income sources, and ensure transparency and fair pricing structure along the value chain. VALMEDALM aims to promote access to work for young farmers and women and enable farmers' access to new markets, ensuring local producers access to new distribution channels, thus providing the public with healthier and more sustainable products. Also, on the scope of sustainability, VALMEDALM expects to improve sustainable food production systems through efficient use of natural resources and with eco-friendly processes reducing GHG emissions and reducing food losses along production and supply chains, including post-harvest losses and potentially valorizing the waste left.

New products and solutions

15

innovative solutions in farming systems



Keywords

#almond

#intercropping_practices

#pest_weed_management

#young_farmers

#women

#post-harvest_losses



Thematic Area

Farming Systems



Action and Topic

RIA - Up-scaling field practices based on agroecological practices to increase ecosystem services and biodiversity, to adapt the small farming systems to climate change and to increase farmers incomes



Budget

760.722 €



Duration

36 months



State and Coordinator Entity

PORTUGAL

**Universidade do Porto,
Faculdade de Ciências (FCUP)**

U. PORTO

**FC FACULDADE DE CIÊNCIAS
UNIVERSIDADE DO PORTO**

Scientific Coordinator:
CONCEIÇÃO, Santos

Participating States/ 4



Research Units/ 7



Section 2

VINEPROTECT

Ecological survey for biological management and protection of Mediterranean vineyards facing climate changes

Context

Mediterranean vineyards are challenged by climate change that jeopardises grape and wine quality. Also, diseases like mildews are limiting factors for grapevine production. Industrial management leads to a decrease of the vineyard ecosystem biodiversity, (over)uses of fertilizers and pesticides and may also overuse irrigating water. Thus, it urges to implement sustainable local strategies towards increasing biodiversity, reducing agrochemicals and increasing the vineyard's resilience to climate change associated stressors like prolonged drought and joint diseases (e.g., mildews).

VINEPROTECT consortium has six partners from Portugal, Italy, Turkey and Morocco, in a synergic complementarity. VINEPROTECT will make use of technological processes (e.g., genomics and microbiology, grapevine-(eco)physio(patho)logy, bio-gels, vineyards ecology, agronomy and socio-economy). They will develop sustainable agroecological procedures considering the specificities of the Mediterranean vineyards and the challenges associated to climate change.

Objective and contents

VINEPROTECT's primary goal is to implement an operational toolbox of sustainable agroecological practices oriented to local vineyards' specificities, to increase Mediterranean vineyards' resilience to climate change and diseases, while reducing the use of agrochemicals, and promoting local and circular agriculture/economy.

Specific objectives (SO) were established aiming at gaining knowledge on local endo/rhizosphere microorganisms (SO1) and local Trichoderma (SO2), establishing local collections of isolates; exploring those isolates (as formulations) to promote vines growth and resilience to severe drought or vine-pathogenic fungi (SO3); validate the efficiency of bio-nanohydrogels to increase the water retention by soils (SO4); validate these bio formulations in the field (SO5) and to evaluate the socio-economic impact (SO6) making accessible key results to stakeholders (SO7).

Achieving these SO will lead to constructing an operational toolbox considering local specificities. This operational toolbox integrates four sustainable bio-approaches:



Other in Consortium/ 6

Universidade de Trás-os-Montes e Alto Douro (UTAD) - PT

Università degli Studi di Verona (UNIVR) - IT

Université Cadi Ayyad (UCA) - MO

Muğla Sıtkı Koçman Üniversitesi - TR

Mersin Üniversitesi (MEU) - TR

Manisa Viticulture Research Institute, Ministry of Agriculture and Forestry - TR

(i) isolation of vineyard-associated endo/rhizo-microorganisms with potential to promote plants' growth and/or resilience to drought, (ii) isolation of local vineyard-associated *Trichoderma* species, showing activity against vine pathogens (iii) use of bio-hydrogels to help to retain soil-water; iv) survey of local nitrogen-fixing plants (e.g., clover) and implementation of these landscape-covers to prevent erosion, excessive evaporation and soil-heating, work as natural fertilizers and attract pollinizers.

Expected impact and results

VINEPROTECT is fully aligned with the PRIMA topic 2.2.1. The new operational toolbox will promote functional biodiversity management in vineyards with local grapevine varieties in each country/terroir. Also, the project will reduce the use of fertilisers and pesticides by using local endo/rhizosphere Plant Growth Promoters (PGP) and Biological Control Agents (BCA). By promoting increased nutrition and hormonal supplementation, PGP help coping with drought/heat stress, thus helping vineyards cope with climate change challenges. Also, the use of bio-hydrogels (based on pruned-waste) will promote circular agronomy/economy, increase soil water retention and decrease soil erosion, thus complementing the protective role of the clover-covers tested at the vineyards' inter-rows. Also, a comprehensive validation of the solutions will be proposed in selected vineyards by monitoring the plants' performance, grapes/wine metabolome and quality, and the impact on farmers' income.

Socio-economic impacts on the local vineyards' resilience and value-chain will be assessed at the project terminus. It is expected to validate the partners' local vineyards' proposed strategies to increase their biodiversity. VINEPROTECT will thus contribute to overcoming climatic change challenges and diseases and be available to the Mediterranean region.

Keywords

#vineyards

#toolkit

#biodiversity_management

#plant_growth_promoters

#biological_control_agents

#circular_agronomy_economy

#bio-hydrogels

#retain_soil-water

#pruned_waste

#nitrogen-fixing_plants

#Trichoderma



Thematic Area

Agri-food Value Chain



Action and Topic

RIA - Increasing the resilience of small-scale farms to global challenges and COVID-like crisis by using adapted technologies, smart agri-food supply chain and crisis management tools



Budget

709.434 €



Duration

36 months



State and Coordinator Entity

ITALY

**Università degli Studi di Milano,
Dipartimento di Scienze e
Politiche Ambientali (UNIMI)**



**UNIVERSITÀ
DEGLI STUDI
DI MILANO**

Scientific Coordinator:
BANTERLE, Alessandro

Participating States/ 5



Research Units/ 7



Section 2

GreenDriedFruits

Application of extreme temperatures in dried figs, dates, and currants disinfestation: sustainability in practice

Context

Following a lab-to-market strategy, the project aims to develop, implement, and test highly efficient species-specific and commodity-specific post-harvest pest management solutions based on extreme low or high temperatures (i.e., extreme cold or heat) to the stored fruit commodities.

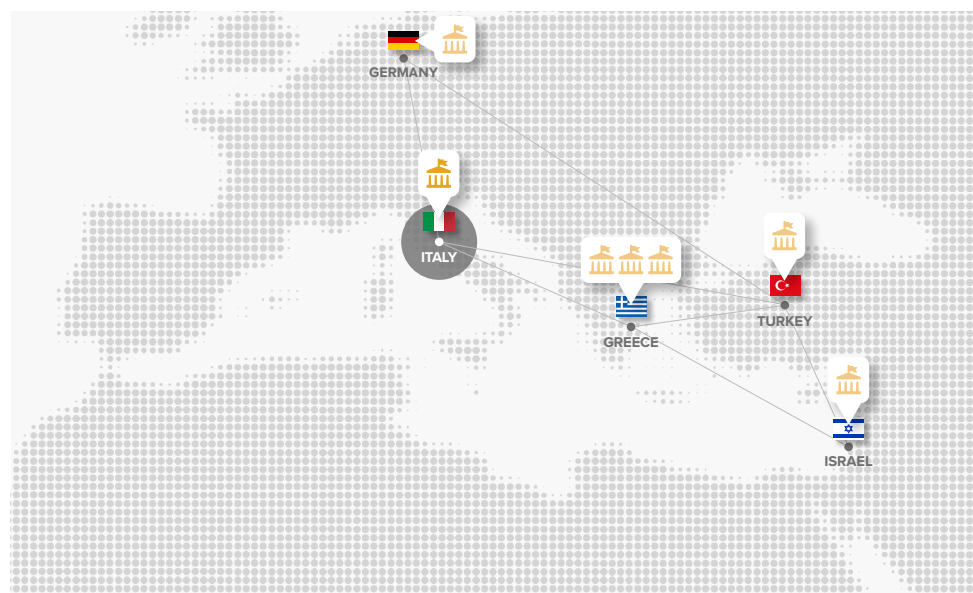
Research activities (from lab experiments to real-setting applications) will be geared at developing the highest insecticidal effectiveness meanwhile preserving the sensory and nutritional quality of dried fruits.

The thermal treatments (TT) are expected to increase the sustainability and resilience of all firms operating in the dried fruit supply chain, including small producers and processors. To maximise the impact of the TT protocols, a user-friendly Sensor-App system will be developed and tested to facilitate the adoption of the TT methods. Furthermore, the stakeholders will open demonstration facilities to facilitate knowledge transfer for a successful shift towards pesticide-free production. Both the supply-side and demand-side economic analysis will be conducted. These will be geared toward identifying market opportunities fostering international trade and developing marketing strategies to boost the market for the dried fruits.

Objective and contents

GreenDriedFruits aims to develop, test, and implement the effectiveness of novel sustainable technologies that can contribute to increasing the resilience and sustainability of the durable commodity value chains. The proposal focuses on dried fruits (i.e., figs, dates, and currants) that represent the primary agricultural commodities in the Mediterranean basin area. Consumers highly appreciate their sensory properties and nutritional characteristics and they have a primary economic impact in terms of local production and international trade.

GreenDriedFruits aims to provide sustainable solutions for post-harvest pest control in dried fruit commodities that the firms can efficiently and quickly adopt in substitution for pesticide use. In fact, in addition to the well-known negative environmental impact, pesticide use also has essential drawbacks that limit the economic perfor-



Other in Consortium/ 6

Technische Universität München (TUM) - DE

University of Thessaly (UTH) - GR

Agricultural Cooperatives Union, Aeghion SA - GR

Harokopio University of Athens (HUA) - GR

Green-storage Ltd - IL

Ankara Üniversitesi - TR

mances of the firms operating in the chain (e.g., impossibility to access the organic market, high food losses, increased health risks) and decrease product quality.

Expected impact and results

The project addresses the scope/challenges of the call by developing pest management solutions that:

- overcome the main inefficiencies of the current pest management methods;
- allow firms to adopt and apply TT in automated and highly controlled conditions to obtain optimal results;
- can be extended to various other durable commodities (including staple commodities). From a longer-term perspective, this will represent a key line of resilience for firms due to the increased automation of the process, its sustainability, the reduction of food losses and health risks;
- allow firms to comply with EU policy strategies (especially SDG 12 and Farm to Fork Strategy), possibly opening new commercial channels, such as the critical organic market.

The ambition of GreenDriedFruits is to translate scientific evidence into concrete solutions for firms that can enable a transition towards a more sustainable pesticide-free implementation of integrated pest management, as encouraged by the F2F strategy. GreenDriedFruits also aspires to become a pilot for further development and application of the TT technologies to various other durable commodities. Important ones would be wheat, rice, maize, flour, pasta, legumes, etc. These are of enormous importance in global food security. TT could also be applied to other high-value durable commodities, such as herbs, nuts, tobacco etc. The proposed TT protocols could also be extended to quarantine and pre-shipment pest control contexts from a longer-term perspective.

New products and solutions

1

user-friendly Sensor-App system for TT



Keywords

#dried_fig

#dates

#currants

#thermal_treatments

#post-harvest_pest_control

#food_security

#food_loss



Thematic Area

Agri-food Value Chain



Action and Topic

RIA - Increasing the resilience of small-scale farms to global challenges and COVID-like crisis by using adapted technologies, smart agri-food supply chain and crisis management tools



Budget

674.100 €



Duration

36 months



State and Coordinator Entity

PORTUGAL

Instituto Politécnico de Viseu (IPV)



Scientific Coordinator:
WESSEL, Dulcineia

Participating States/ 5



Research Units/ 9



Section 2

InovFarmer.MED

Improving Mediterranean supply chain through innovative agro-food business to strengthen small-scale farmers competitiveness, using prickly pear and fig as case study

Context

Globalisation caused the agro-food value chains to become increasingly complex, significantly when market patterns and consumer preferences are constantly changing, opening new challenges and opportunities for the valorisation of fresh, high-quality and healthy food products prickly pear and figs.

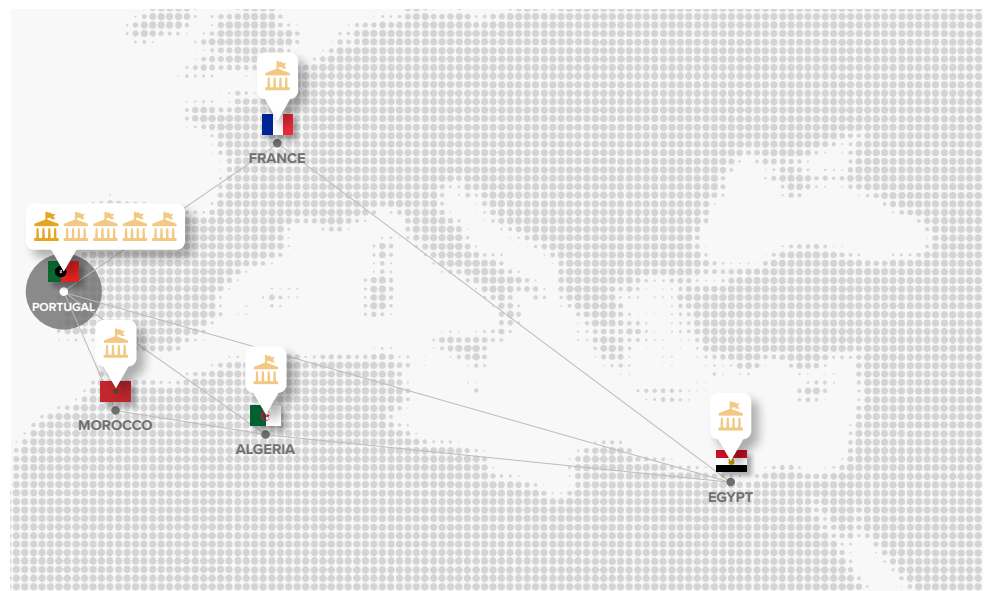
These traditional agro-products may show unique bio-properties yet often lack control over their physicochemical characteristics, harming the reliability of the product's end quality and decreasing its market value. While the demand for environmentally friendly production systems is increasing, the need to assure homogeneity and quality of end-products remains. It implies control over the entire value-chain to certify the end products, increasing their attractiveness, traceability and authenticity in regulated markets such as the EU (EU regulatory policies).

InovFarmer.MED is built around the concept of supporting small-scale farmers with more innovative, more efficient and sustainable practices, as well as better monitoring closer cooperation between farmers, processors, retail and consumers. These will stimulate food quality and safety, biodiversity and a better valorisation of endogenous resources, helping to increase the resilience of Mediterranean small-scale farmers.

Objective and contents

Objectives and the approach to achieve them are:

- to analyse current and traditional production methods applied by small scale-farmers and needs to be addressed in co-creative and multi-actor processes to increase food production and avoid food loss;
- to monitor fruit ripening, productivity, sales prices, stocks management, and improve end-product quality in the production of fig and prickly pear, using smart technologies and adopting best practices to increase fruit profitability in new marketing channels;
- to establish eco-friendly scientific methodologies for processing fresh fruits or edible parts of the plant with the direct flow to dedicated transformers, preserving the nutritional and bioactive properties in the new products obtained;



Other in Consortium/ 8

Universidade de Aveiro (UA) - PT

Chatron Lda - PT

Food4Sustainability - Associação Para A Inovação no Alimento Sustentável - PT

Pais Da Costa & Esteves Pereira - Consultoria, Lda - PT

Ecole Nationale Supérieure Vétérinaire d'Alger (ENSV) - DZ

Academy Company for Information and Communication Technology (ACICT) - EG

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

Université Ibn Zohr (UIZ) - MO

- to develop and implement training with and for small-scale farmers by the preparation of a toolkit for sustainable production, transformation and commercialisation, based on the knowledge gathered from the farmers and relevant actors of the supply chain, scientific community and strategies to build resilient business models encompassing user-centric digital services that support smallholders access to the market;
- to design innovative business models that will improve the interconnection between farmers, smallholder's organisations, transformers, retailers and consumers, using different digital technologies and platforms, such as mobile apps and e-commerce, to serve the various stages of the value chain of the targeted agro-products, increasing the income of small-scale farmers from the Mediterranean basin communities.

Expected impact and results

InovFarmer.MED will improve the Mediterranean supply chain by promoting the adoption of innovative and sustainable business models and partnerships on the agro-food systems, providing strategies and digital technologies to cope with any crisis. InovFarmer.MED is expected to improve the two study case agri-food value chain products, valorising Fig and Prickly Pear. It will enable the adoption of adapted Digital technologies that pave the way for an intelligent agri-food supply chain linking farmers/producers to food processing and retail in four piloting sites - Portugal, Algeria, Egypt, Morocco.

The innovative business model ecosystem will strengthen the position of smallholders and rural business positions, potentiating jobs creation and withholding as much added value as possible in rural regions. This project will facilitate the diversification of quality products, including processed ones, guarantee a more stable income and, therefore, increase resilience, leveraged. It will grant better access to the marketing and labour channels available through innovative agri-food supply chains that stimulate economic growth more balanced territorial development.

Demo sites

4



New products and solutions

2

Fig and Prickly Pear



Platforms/ Hubs

1

user-centric digital services that support smallholders access to the market



Keywords

#fig #prickly_pear #fresh_fruits #smallholder #smallfarmer
#storage #food_loss #innovative_business_models
#training #toolkit #digital_services



Thematic Area

Agri-food Value Chain



Action and Topic

RIA - Increasing the resilience of small-scale farms to global challenges and COVID-like crisis by using adapted technologies, smart agri-food supply chain and crisis management tools



Budget

766.966 €



Duration

48 months



State and Coordinator Entity

FRANCE

Laboratoire Informatique de l'Université de Pau et des Pays de l'Adour (LIUPPA)



Scientific Coordinator:
PHAM, Congduc

Participating States/ 4



Research Units/ 7



Section 2

RESILINK

Increasing Resilience of Smallholders with Multi-Platforms Linking Localized Resource Sharing

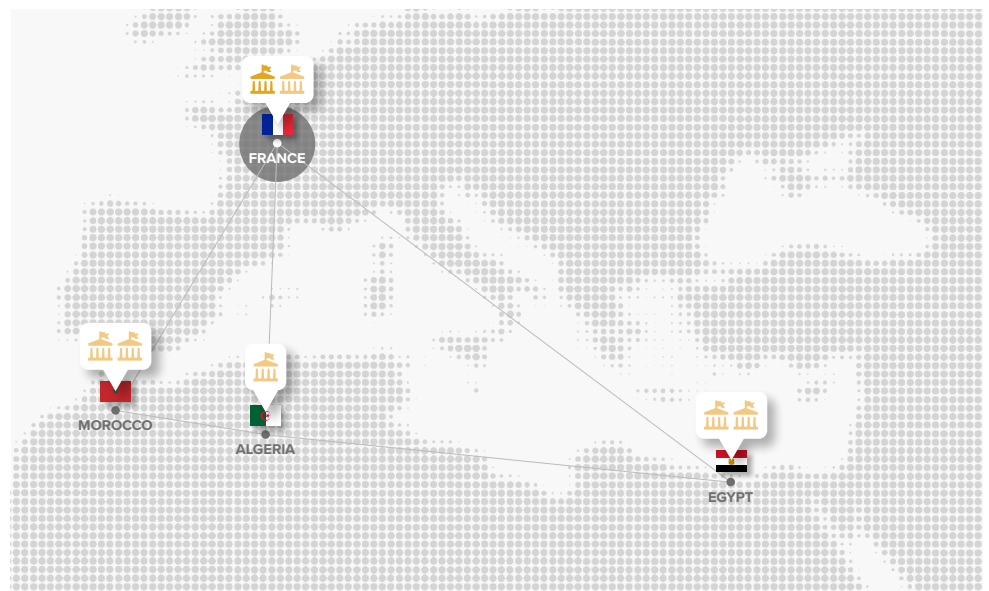
Context

Agriculture is an important sector for income generation, employment and food security in North Africa. Increasing the resilience of smallholders to face unexpected crises is a multidimensional challenge that requires a multifaceted policy. However, common to most crisis situations, the restrictions on movements has many impacts on the availability of distant resources such as agricultural supplies, equipment, services, labours and access to markets to name a few. Therefore, RESILINK will increase smallholder's resilience by providing continuity of access to both resources and markets in crisis situations. It will empower the local agri-food value chain model by optimizing usage of local resources, promoting and generalizing local resource sharing approach and facilitating territorial markets. This local agri-food value chain model will also be integrated with the local e-commerce, supply & distribution channels. The concept of localized and short agri-food value chain will also impact on the agro ecological system by minimizing the food losses and contributing to the climate & environment changes with shorter food supply chains and logistics. As a result, new and local innovative services can be identified and created, enhancing further the smallholders' agri-food chain.

Objective and contents

The objectives of the project are to improve the agri-food value chain by optimizing usage of local resources, generalizing local resource sharing approach and facilitating territorial markets. It will develop distributed digital resource management platform for real-time exchange of information on territorial resources and supplies & demands; connecting smallholders to new supply, sharing opportunities and distribution channels.

RESILINK will use cutting-edge digital technologies to connect fields and farms resources, automatize and add intelligence in the agri-food value chain to provide simple application interfaces adapted to smallholders. In addition, RESILINK will implement an incremental piloting & evaluation program to maximize smallholders' acceptability, large-scale adoption and sustainable usage (even in non-crisis situations).



Other in Consortium/ 6

Orange Labs, France Telecom-
Orange Group - FR

Université Mohammed-Chérif
Messaadia Souk-Ahras (UMCM) -
DZ

Agricultural Research Center
Egypt (ARC) - EG

Academy Company for Information
and Communication Technology
(ACICT) - EG

Université Sultan Moulay Slimane
(USMS) - MO

Institut National de la Recherche
Agronomique (INRA) - MO

Finally, RESILINK will address local innovation capacity and facilitate technology appropriation by developing the digital intelligent resource management platform in open-source with an extensive public API to maximize re-utilisation and facilitate the integration of new platforms.

Expected impact and results

RESILINK has the clear ambition to make digital smart technologies attractive & accessible to smallholders. The proposed solutions will be simple to use on a daily basis so that its usage will become natural, even in non-crisis situations. Then, by proposing a highly innovative generalized local resource sharing approach for smallholder's agro-food chain, RESILINK will contribute to higher quality of products and services by maintaining continuity of access to resources. Therefore, RESILINK will definitely have an important impact on sustainability and competitiveness by promoting digital smart technologies to improve efficiency and by creating new business opportunities towards the smallholder communities. An important additional impact is on improving efficiency of small-scale farming system as generalized usage of local resources will definitely have a positive impact on the efficiency of these small-scale farming systems by reducing both delays and cost of access to resources. Finally, while RESILINK focuses on a generalized resource sharing platform for smallholders, the technology building blocks developed by RESILINK can easily be adapted to a larger variety of application domains. The large networks of actors built during the project will create synergies, increasing the likelihood of innovative third-party applications by local entrepreneurs for instance.

Platforms/ Hubs

1

Management platform
in open-source



Keywords

#smallholder

#crisis

#resilience

#local_resource

#shortage_of_workforce

#traceability

#blockchain

#storage

#e-commerce

#multi-capital_sustainability_indicators



Thematic Area

Agri-food Value Chain



Action and Topic

RIA - Increasing the resilience of small-scale farms to global challenges and COVID-like crisis by using adapted technologies, smart agri-food supply chain and crisis management tools



Budget

1.061.328 €



Duration

36 months



State and Coordinator Entity

ITALY

Università della Calabria, Modeling & Simulation Center Laboratory of Enterprise Solutions, (MSC-LES, UNICAL)



Scientific Coordinator:
LONGO, Francesco

Participating States/ 4



Research Units/ 5



Section 2

SMALLDERS

Smart Models for Agrifood Local vaLue chain based on Digital technologies for Enabling covid-19 Resilience and Sustainability

Context

The COVID-19 pandemic has highlighted the need for more resilient food systems to effectively and efficiently address supply chain disruptions. More specifically, this global disaster has emphasised the problems of smallholders in the Mediterranean area, who generally operate in challenging conditions: infrastructures (e.g., roads, distribution channels) are often inadequate, access to credit is complicated, business growth opportunities are minimal. Due to the health emergency, many governments have taken drastic measures intending to limit the spread of the infection, resulting in the closure of the main distribution channels of smallholders, such as bars, restaurants, school canteens, open-air markets. In addition, travel restrictions and COVID-19 symptoms have severely limited the availability of the workforce in many fields. As a result, the amount of food wasted has grown enormously because, in some cases, it was not possible to complete the harvesting activities on time. In contrast, the goods remained in finished goods warehouses until they perished due to the multiple restrictions in the distribution stage. The SMALLDERS' platform aims to address all these issues.

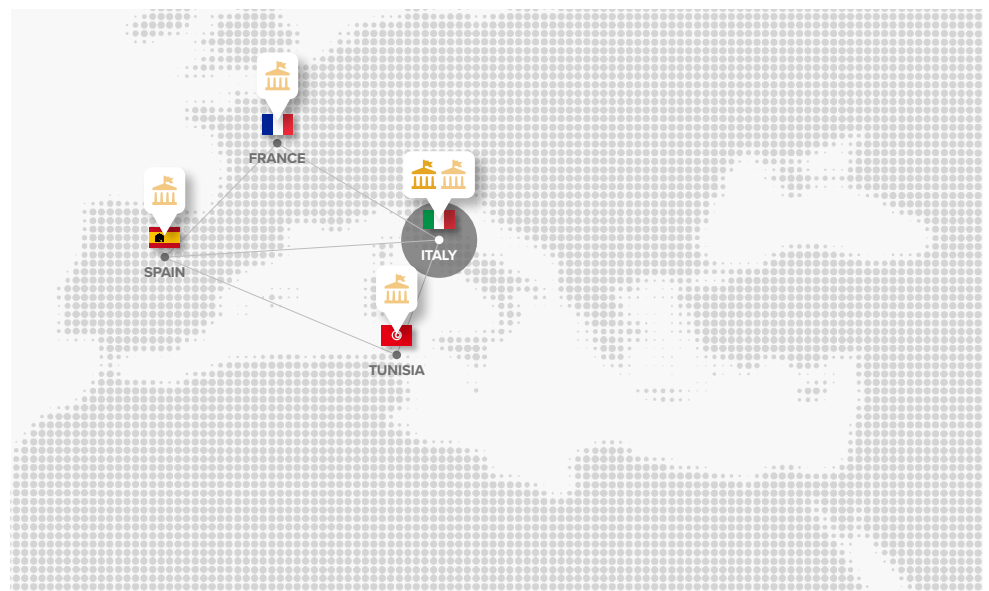
Objective and contents

The overall aim of the project is to carry out basic research as well as industrial research and development activities to identify a framework that encompasses innovative strategies, methodologies, technologies and business models to increase the resilience of small-scale farms in the Mediterranean area, to effectively and efficiently face unexpected and disruptive events such as the COVID-19 pandemic. The project will also aim to bring technological improvements to reduce water consumption, improve storage conditions, and reduce food waste.

The SMALLDERS project-specific objectives (SOs) are the following:

SO1: Increasing saleability and perceived value of smallholder products to be resilient and address any supply chain disruption in the event of a crisis.

SO2: Increasing smallholder products traceability, quality, safety and perceived value.



Other in Consortium/ 4

Università degli Studi di Parma,
Future Technology Lab, (UNIPR)
- IT

Universidad de Extremadura (UEX)
- ES

Ecole Nationale Supérieure des
Mines d'Alès (IMT Mines Alès) - FR

Laboratory of energy applications
and renewable energy efficiency,
Faculté des Sciences de Tunis
(LAPER, FST-UTM) - TN

SO3: Helping smallholders to cope with the shortage of workforce due to the COVID-like crisis.

SO4: Helping smallholders to increase the farm production efficiency.

SO5: Increasing the Multi-Capital Sustainability of Smallholders processes.

Expected impact and results

Increase profitability facing COVID-like crises: the use of blockchain technology will increase the transparency of the supply chain, then the safety and traceability of food products, therefore justifying the price to the final consumer. As for production costs, it will be possible to evaluate multiple scenarios using simulation models and quickly take countermeasures in case of inefficiencies. Moreover, the smallholder will choose the most convenient freight transport company day-by-day based on the routes made available on the platform.

Greater efficiency and sustainability in processes and use of resources: the platform will provide a dashboard layer, characterised by multi-capital sustainability indicators, which will make it possible to monitor the performance of the agri-food chain under multiple scenarios.

Increase mitigation capability: supply-side disruptions are limited as the platform facilitates supply-demand matching in the job market. Demand-side disruptions are faced by creating consortia of smallholders and/or using an e-commerce channel to sell directly to consumers.

Decrease in food loss: the SMALLDERS platform allows smallholders to provide and/or request a workforce. Therefore, it will be possible to organise and carry out the activities of harvesting, processing, and producing agri-food goods in the best possible way, reducing potential food losses. Furthermore, production inefficiencies will be facilitated through storage monitoring and production tracking via QR Code technology.

Platforms/ Hubs

1

Blockchain platform



Keywords

#smallholder

#crisis

#supply_chain_disruption

#food_loss

#shortage_of_workforce

#traceability

#blockchain

#storage

#e-commerce

#multi-capital_sustainability_indicators



Thematic Area

Agri-food Value Chain



Action and Topic

RIA - Increasing the resilience of small-scale farms to global challenges and COVID-like crisis by using adapted technologies, smart agri-food supply chain and crisis management tools



Budget

1.248.531 €



Duration

36 months



State and Coordinator Entity

SPAIN

Centro de Investigación y Tecnología Agroalimentaria de Aragón (CITA)



Scientific Coordinator:
DE MAGISTRIS, Tiziana

Participating States/ 8



Research Units/ 13



Section 2

TECHONEY

Development of a blockchain-based ecosystem that allows an improved positioning of small producers of honey on local and international markets

Context

The European beekeeping sector does not enjoy self-sufficiency, as it only provides 64% of the honey marketed in its territory, importing honey to cover its domestic consumption, mainly from China. Honey prices continue to fall, and there are no adequate tools, such as the absence of clear origin labelling and the problem of adulterated honey. A significant percentage of imported honey is adulterated, and the reduction of the price of honey in the Med's major producing countries has put beekeepers in a difficult position. Food fraud is rampant in honey production and has devastating consequences. The economic damage to beekeepers who produce authentic honey is approximately \$1 billion. Consumers often think they consume local honey when a proportion of it is a blend of national and foreign honey, often adulterated. In the Med. countries, especially in rural areas, there is a lack of quality labelling systems and traceability, which does not allow the small beekeepers to be identifiable by consumers along the food supply chain. About 20% of the honey is declared as blended EU honey or unblended honey with a geographical reference related to a member state suspected of containing added sugar.

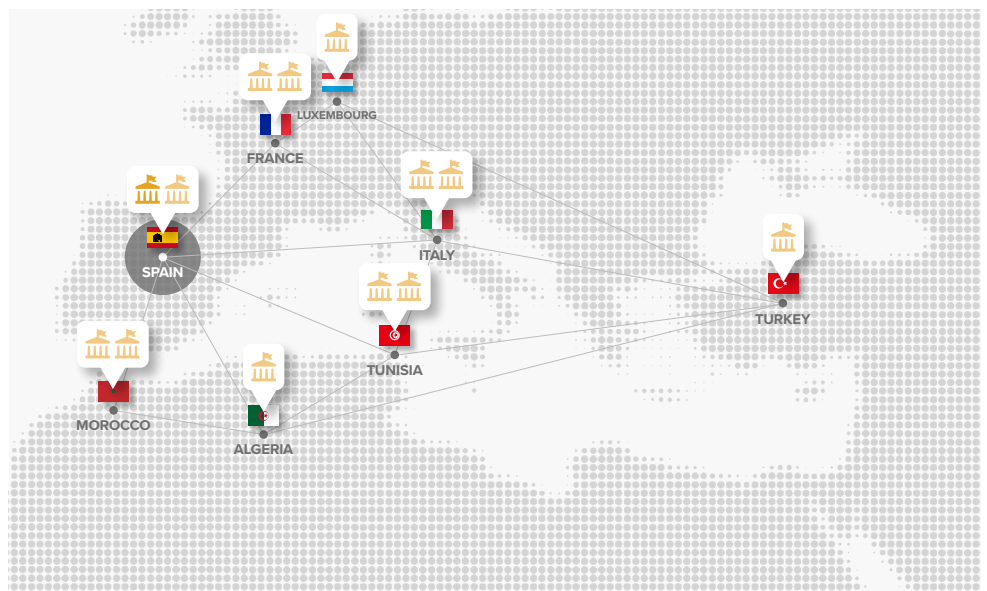
Objective and contents

TECHONEY's main objective is to identify strategies and establish lines of resilience to the new challenges determined by the COVID-19 pandemic for beekeepers in the Med agricultural systems through the implementation, definition, enhancement and transfer of competitive, profitable, efficient and trustful honey supply-chain alternatives that address beekeepers' capacities and attractiveness to fulfil consumer needs on unexpected food market changes.

The project proposes developing a traceability system to guarantee the quality and safety of honey within the supply chain for more effective communication to consumers and to strengthen access to different markets (e-commerce, direct sales, etc.).

The specific objectives (SO) are the followings:

1. map the current added-value chains and complexity level for honey products in five case studies by honey innovation and learning living lab (HILE);



Other in Consortium/ 12

Centro de Investigación
en Economía y Desarrollo
Agroalimentario (CREDA) - ES

Université Mouloud Mammeri de
Tizi-Ouzou (UMMTO) - DZ

Laboratoire d'Informatique
Gaspard-Monge - UMR 8049 CNRS
(LIGM) - FR

JASSP Sas - FR

Università degli Studi di Napoli
Federico II (UNINA) - IT

Sapienza, Università di Roma - IT

Luxembourg Institute of Science
and Technology (LIST) - LU

École nationale d'agriculture de
Meknès (ENAM) - MO

Sultan Moulay Slimane University
Beni-Mellal (USMS) - MO

Faculté des Sciences de Tunis
(FST) - TN

Institut National Agronomique de
Tunisie (INAT) - TN

Ordu Üniversitesi (ODU) - TR

2. increase the competitiveness and power of the beekeeping supply chain by understanding consumers' and retailers' opinions and acceptance;
3. to promote the traceability to differentiate local honey produced in the Med by the characterisation of local honey;
4. development of a new "Multichannel distribution" e-commerce platform and unique traceability ecosystems and effective business models across different stakeholders;
5. maximise the exploitation and transference of the findings by creating a website ITC Tool;
6. Maximise outreach and beneficial influence of the project results and reach the target users (beekeepers, small-scale food manufacturers and local distributors, canteens and retailers, local public authorities) through an effectively established communication and dissemination plan, including innovative training capsules.

Expected impact and results

TECHONEY is structured in four main technological pillars:

1. creation of a consortium IoT blockchain platform that involves various actors in the honey supply chain;
2. develop ICT tools for honey supply chain participants and consumers;
3. characterisation of the quality of honey to guarantee its traceability within the blockchain directly by consumers;
4. creation of a transformative learning community to ensure a smart-short-resilient shared supply chain.

Expected impact: knowledge of the quality and safety of Med honey will make it possible to inform and raise consumer awareness of the health risks of adulterated honey, ensuring market prices that improve beekeepers' yields.

TECHONEY will build a specialised traceability service that will make it possible to trace any honey production within the supply chain and guarantee food quality and safety.

Consumers will have information on the characterisation, authentication, and functional properties of the honey to obtain a map of their characteristics and peculiarities. Open a direct sales channel (e-commerce platform) that provides information, quality, safety and consumer confidence.

Characterisation of the qualitative aspects of local honey through certified local laboratories. The use of e-commerce and quality labelling systems will increase the opportunity for beekeepers to be identified locally (local and regional shops) and allow them to access new markets directly through the e-commerce platform (foreign markets), allowing the creation of a specific direct sales channel to reach consumers without having to go through traditional distributors.

Facilitate beekeepers' access to the honey market, bringing transparency along the supply chain, reducing fraud, increasing food safety, and improving communication between retailers, beekeepers and consumers.

Demo sites/case studies

4



Platforms/ Hubs

1

IoT blockchain platform



Keywords

#beekeeping

#honey

#living_lab

#ICT_tools

#IoT

#e-commerce_platform

#traceability

#labelling

#blockchain



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