



# CALL TEXT AND SUPPORTING INFORMATION

Call: Section 1 – Farming Systems in the Nexus 2024

Topic 1.2.1-2024 (IA) Transformative Adaptation of  
Mediterranean dry farming systems using water  
harvesting techniques to address extreme drought in  
arid and semi-arid environments.

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**Topic 1.2.1-2024 (IA)** Transformative adaptation of Mediterranean dry farming systems using water harvesting technique to address extreme drought in arid and semi-arid environments.

 <b>Thematic Area 2-Farming systems in the Nexus</b>	
<b>Alignment with SRIA</b>	Thematic Area 2 - Operational Objective 4 - Research Priority 2 - Cross-Cutting: Digital Technologies
<b>Alignment with EU policies</b>	<a href="#">Farm to Fork</a> <a href="#">Circular economy</a> <a href="#">Biodiversity Strategy for 2030</a> <a href="#">Bioeconomy Strategy</a> <a href="#">EU Adaptation Strategy for climate change</a>

### Challenge

As pointed out by the last IPCC report (2022) in the context of climate change, particularly in water-stressed regions like the Mediterranean basin, water availability poses a significant challenge to agriculture. The prolonged and severe droughts experienced across the Mediterranean in recent years, coupled with record-high temperatures and dwindling water resources (including underground, surface water, and dams), demand an urgent transformation of agricultural systems. Developing novel dry farming systems capable of withstanding extreme droughts while ensuring food security for a growing population is a pressing imperative.

The conventional approach of incremental adaptation, relying solely on new varieties resistant/tolerant to heat stress, is no longer sufficient in the face of prolonged droughts. Rainfed agriculture has been the dominant model in the Mediterranean region for centuries, but its low yields and susceptibility to extreme temperatures and prolonged droughts directly impact the incomes of vulnerable populations. This, in turn, leads to land abandonment and migration to cities or other countries. A substantial portion of rural communities still relies on rainfed farming systems, which are increasingly threatened by water scarcity and the impacts of climate change.

Nonetheless, many ancestral hydro technologies<sup>1</sup> have been developed worldwide to collect and store water in arid regions, fostering food production and generating income for local populations. Regrettably, many of these technologies have been abandoned or neglected in recent decades. In this context, re-evaluating ancestral hydro technologies for water harvesting, combining them with new farming practices (such as drought-resistant varieties and underutilized species), and integrating nature-based solutions holds significant potential for creating efficient and innovative systems. These systems can provide practical solutions for smallholders to maintain their livelihoods while ensuring food production in challenging conditions. The development of such innovative systems, with a low carbon footprint and minimal energy requirements, can contribute to addressing pressing issues such as water availability, drought, and biodiversity conservation. According to climatic projections and hydrological models, extreme drought and temperature records are expected to become increasingly common, necessitating rapid action to prepare for new farming systems capable of adapting to climate change and water scarcity. These systems must ensure food security in the region and provide a satisfactory standard of living for smallholders through their agricultural activities.

## Scope

This call for proposals aims to address the challenges of dry-farming in arid Mediterranean areas by integrating traditional and modern hydro-technologies to create sustainable and resilient agricultural systems. The focus is on systems that prioritize the use of saline-resistant and drought-resistant species or underutilized species with minimal water requirements, adapted to seasonal rainfall variations, and tolerant to solar radiation and elevated temperatures, including halophytes, cacti, and similar plants.

A circular economy approach is encouraged, promoting the recycling and re-use of various waste types as soil amendments, bio-fertilizers, or replacements for chemical inputs. Proposals should prioritize evaluating the impact on soil health and the circular economy of water resources, alongside broader environmental assessments. This

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<sup>1</sup> According to the conclusions by UNESCO-IHP (Intergovernmental Hydrological Programme) and collaborators during the International Conference on ancestral hydro technologies: <https://www.unescosost.org/post/launch-of-the-international-conference-on-ancestral-hydrotechnologies>. Ancestral hydro technologies are based and inspired by nature, coupling traditional knowledge and management of ecosystems, therefore ancestral hydro technologies can be fully considered as nature-based solutions. Ancestral hydro technologies should be considered not only as historical infrastructures and cultural heritage, but as models for sustainable water management for the present and the future and can be further enhanced by using the latest innovation and technologies from social, ecological and engineering disciplines. Ancestral hydro technologies serve for the further integration of WEF E NEXUS at local and regional scale for their trans functionality, and contribution to the Sustainable Development Goals (SDGs)".

approach enhances soil organic matter, carbon sequestration, water storage, nutrient use efficiency, and efficient water usage while considering the specific needs and contributions of women and men in the community.

The proposed dry-farming system incorporates modern water harvesting techniques inspired by traditional practices, such as rainwater harvesting, atmospheric moisture capture, and rehabilitating ancestral structures like canals. This optimized water conveyance and distribution increase water availability, conserve resources, and enhance soil moisture levels, contributing to soil health and resilience, with a particular focus on the roles and responsibilities of women and youth in these practices. Low carbon footprint technologies with minimal energy requirements are encouraged to ensure long-term sustainability and affordability, particularly for smallholders, and to address gender-specific barriers that may exist in accessing and utilizing such technologies. Economic considerations for small farmers in the Mediterranean arid areas should be addressed, ensuring proposed solutions lead to sustainable value chains or organizational models post-funding, with a special emphasis on promoting gender equality in economic opportunities and decision-making. Effective communication strategies should also be developed to ensure that the gender-transformative results and impacts of the project are recognized and shared at local and global scales.

A multi-actor approach involving farmers, researchers, policymakers, local communities, agronomic institutions, and living labs should be emphasized throughout the project's design, implementation, and evaluation. This ensures solutions are locally relevant, socially acceptable, and technically viable, considering the diverse needs and perspectives of different gender. Exploitation of results should be a priority, with a focus on practical application and dissemination of project findings and solutions within the Mediterranean region. The goal is to translate the outcomes into tangible benefits for stakeholders and promote wider adoption of the proposed dry-farming system. Proposals should also consider existing data and completed, or ongoing projects funded under PRIMA, H2020, Horizon Europe. This will prevent any redundancy and maximize the proposed solutions' impact.

Projects are expected to build links with the [Mission "A Soil deal for Europe"](#). Proposals should include dedicated tasks and appropriate resources for coordination measures and joint activities with relevant projects funded by the Mission. <sup>2</sup>

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<sup>2</sup> Here some indicative examples of specific activities that a project could undertake to build links with the Mission "A Soil Deal for Europe" and collaborate effectively with relevant projects funded by the Mission: Joint Workshops and Seminars: with the Mission to

Projects selected within this call shall produce a joint policy brief that aligns with the call's scope and objectives with the aim to translate the main lessons learnt, knowledge and evidence generated through project work into key messages for policy makers. Other forms of collaboration, including data sharing, communication and dissemination, joint deliverables, events, etc., between funded projects are strongly encouraged.

### Expected Impacts

- Establish “large demonstration” sites<sup>3</sup> in arid and semi-arid zones, offering a practical showcase of the project's effectiveness.
- Innovate new water harvesting systems, drawing inspiration from time-tested ancestral hydro-technologies.
- Create new products for both human consumption and animal feed that value and incorporate underutilized species/varieties.
- Develop new value chains and organizational-business models that can adapt to changing environments and market conditions.
- Improve the water use efficiency.
- Prioritize effects on soil health. Anticipated outcomes should improve indicators such as soil organic content, carbon sequestration, and water retention capabilities. This impact area should be thoroughly evaluated, considering the broader environmental consequences.
- Develop practical and affordable solutions specifically designed to benefit smallholders, addressing their unique challenges and limitations.

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discuss soil health, sustainable agriculture, and policy development. Invite Mission-funded projects to participate and share insights. /Data Sharing and Integration: Collaborate on sharing soil data, research findings, and analysis tools with the Mission. /Policy Advocacy: Form a task force to align project goals with the Mission's objectives and jointly advocate for supportive soil health policies. /Research Collaboration: Identify shared research interests and collaborate on research projects, leveraging shared resources and expertise. /Resource Sharing: Share research facilities, equipment, and tools to reduce costs through joint procurement. /Cross-Project Task Forces: Create joint task forces to address specific challenges like soil restoration or biodiversity conservation, drawing on members from various projects. /Policy Workshops: Organize policy-focused workshops with policymakers and experts from both the project and the Mission to develop collaborative policy recommendations. /Public Awareness Campaigns: Collaborate on awareness campaigns to educate stakeholders and the public about soil conservation and sustainable agriculture. /Monitoring and Evaluation: Establish a joint system for monitoring and evaluating the impact of collaborative activities. /Capacity Building: Offer training programs to enhance the skills and knowledge of project members and partners. /Networking Events: Participate in relevant conferences and networking events to connect with stakeholders and projects in the field.

<sup>3</sup> "Large demonstration" sites are designed as tangible, large-scale installations located in arid and semi-arid zones to showcase and validate the effectiveness of the proposed solutions beyond the confines of laboratory and experimental research facilities. These sites are meticulously designed to simulate real-world conditions, making the demonstrations applicable and relatable to actual scenarios. They serve as interactive platforms for stakeholders to visualize and comprehend the strategies, tools, and methodologies being proposed. This hands-on approach facilitates the learning process and encourages buy-in from various participants, ultimately aiding in the smoother adoption of these new strategies.

## Key Performance indicators

- **Demonstration Sites KPI**

Target: Establish at least 1 large demonstration site to showcase sustainable agricultural practices and technologies.

- **Water Harvesting Systems KPI**

Target: Develop and implement 1 innovative water harvesting systems to improve water availability for agriculture.

- **Crop Diversity KPI**

Target: (Re-)introduce a minimum of 1 new crop for human and animal consumption to diversify agricultural production.

- **Value Chain and Organizational Models KPI**

Target: Develop and implement 1 new value chain or organizational model to enhance agricultural sustainability and market access.

- **Smallholder Adoption Rate KPI**

Target: Achieve a minimum of 20% adoption rate among smallholders for the proposed sustainable agricultural solutions compared to the baseline at the beginning of the project

## Contributions to EU policies, HE Mission and Partnerships

The proposals should indicate linkages to relevant EU policies and objectives in the context of the European Green Deal and relevant Horizon Europe [Missions](#) and [Partnerships](#) in particular with the EU Mission [A soil Deal for Europe](#), Specific Objective 1 “Reduce land degradation relating to desertification” and Specific Objective 2 “Conserve soil organic carbon stocks”.

Links with [the European partnership on accelerating farming systems transition – agroecology living labs and research infrastructures](#) and with the [EU Partnership Circular Bio-based Europe Joint Undertaking](#) are welcome.

## Contribution to SDGs

The use of water harvesting techniques can contribute to several SDGs, including SDG 2 (Zero Hunger), SDG 6 (Clean Water and Sanitation) and SDG 13 (Climate Action).

Table 1. Supporting information for the Section 1 call for Proposals, Topic 1.2.1

Type of action	Innovation Action (IA)
The total indicative amount allocated to this call	EUR 9.6 million
Funding level	According to Horizon 2020 Rules. 70% (except for non-profit legal entities, where a rate of 100% applies).
Technology Readiness levels (TRL)	TRL 6-8 Proposals should clearly state the starting and end TRLs of the key technology or technologies targeted in the project.
Budget and duration of the grants	PRIMA considers that proposals requesting a contribution from the EU in the range of EUR 4.8 million and with a duration of 36 months would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submitting and selecting proposals requesting other amounts and/or duration.
Eligibility conditions for participation	Please refer to section 5.1.1 for the List of countries eligible for funding. Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the standard eligibility conditions (section 5.1.3), consortia must include at least an additional legal entity established in a Mediterranean Partner Country (MPC) <sup>4</sup> as defined in section 5.1.1.
Submission and evaluation procedure	The call will be organised according to a two-stage submission process. For the first step, a first-stage proposal (maximum ten pages) must be submitted within the first-stage submission deadline. Successful applicants in the first step will be invited to the second step to submit a full proposal (maximum 50 pages). A timeline for submitting and evaluating applications can be found in Table 6.
Evaluation rules	The award criteria, scoring, thresholds and weightings for IAs, listed in part 5.1.7, will be used.
Grant agreement	PRIMA MGA (multi-beneficiary), based on Horizon 2020 MGA.

<sup>4</sup> Mediterranean Partner Countries as defined in section 5.1.1 include the following Third Countries associated to Horizon 2020 (AC): Israel, Tunisia, and Turkey. And the following Third Countries not associated with Horizon 2020 (TC), having concluded international agreements for scientific and technological cooperation setting out the terms and conditions of their participation in PRIMA: Algeria, Egypt, Jordan, Lebanon and Morocco.

Consortium agreement	Participants in projects resulting from this call for Proposals must conclude a consortium agreement, according to Art 24 of the H2020 RfP before the conclusion of the PRIMA grant agreement.
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