CALL TEXT AND SUPPORTING INFORMATION

Call: Section 1 – Food Value-chain in the Nexus 2024

Topic 1.3.1 (IA) Developing cost-effective and sustainable technologies adapted to Mediterranean Food Systems to decrease food loss and waste.

Version 1.0
19 January 2024

Topic 1.3.1 (IA) – Developing cost-effective and sustainable technologies adapted to Mediterranean Food Systems to decrease food loss and waste.

	Thematic Area 3-Food value chain in the Nexus
Alignment with SRIA	Thematic area 3, Operational Objective 7 (reduce losses and waste), Research priorities 2
Alignment with EU Policies	[Farm to Fork Strategy](#) [Waste Framework Directive](#) [EU Food 2030 R&I policy and pathways for action (Circularity and resource efficiency)](#) [Circular Economy Action Plan](#) [Plastics strategy](#) [EU policy Food security and affordability](#) [EU Zero Pollution Action Plan](#) [REPowerEU](#)

Challenge

The Mediterranean region is facing a significant challenge in meeting the growing demand for food due to demographic growth, climate change, the COVID-19 pandemic, and the consequences of the war in Ukraine. To address this challenge, reducing Food Loss and Waste (FLW) is critical for greater food security and environmental sustainability in the region. The FAO estimates that FLW in the Near East and North Africa amounts to 250kg/capita per year, valued at over USD 60 billion annually[1].

Cold storage and refrigeration are essential at every stage of the agri-food chain to increase shelf life, cut losses, and maintain product quality. Losses occur in the "first mile" between harvesting and processing, which accounts for more than 40% of the food products lost in the Mediterranean region[2]. By improving access to refrigeration, up to a quarter of perishable foods currently produced in the Mediterranean could be saved from spoilage. Renewable energy-based solutions offer significant advantages, including decentralized cold storage that can benefit smallholder farmers. However, scaling up renewable energy applications in food systems in the region presents common challenges, such as designing cost-effective solutions for smallholders and adopting a more holistic approach to renewable energy deployment efforts to reduce food loss and waste, integrating digital and emerging technologies can play a crucial role in achieving sustainability throughout the agri-

---

[1] Food and Agriculture Organization of the United Nations (FAO). (2017). Regional Overview of Food Insecurity: Near East and North Africa. Rome. https://www.fao.org/documents/card/en/c/b715647e-a958-4b88-87fc-9d1c3364b161/

[2] Food and Agriculture Organization of the United Nations (FAO). (2019). The State of Food and Agriculture 2019: Moving Forward on Food Loss and Waste Reduction. https://www.fao.org/3/ca6030en/ca6030en.pdf

food chain. Green technologies[3], known for being eco-friendly, rapid, and efficient in controlling microbes with minimal impact on food quality during processing, are in high demand. However, their adoption for food preservation may face obstacles related to cost, expertise, food safety, regulation, and business models. Addressing these challenges is essential to ensure the safe and effective use of green technologies in post-harvest activities.

Moreover, other types of green technologies, such as innovative packaging solutions, could also contribute to reducing FLW and enhancing food preservation during the agri-food chain. By addressing these challenges and implementing sustainable practices, the Mediterranean region can better meet the growing demand for food while mitigating the impacts of climate change and other pressing challenges.

Scope

This Call aims to support the deployment and demonstration of sustainable solutions to reduce food losses and waste, save energy, and enhance food safety during postharvest activities, including transportation, storage, and processing. The specific focus is on plant-based food and waste. These solutions should be scalable, sustainable, cost-effective, and tailored to smallholders in rural areas with limited access to electricity.

Proposals should implement processes and technologies adapted to Mediterranean food systems and climate conditions, ensuring a decrease in food losses and waste, prolonging food shelf-life, and enhancing food safety in different regions of the Mediterranean. The emphasis should be on the exploitation and dissemination of results, meaning that projects should not only focus on research and development but also on effectively utilizing and commercializing the outcomes and findings.

The use of renewable energy sources, such as solar and wind, can provide a reliable energy source, especially in remote areas with limited access to electricity. Biomass by-products from agri-food activities can also serve as a sustainable energy source for processing and storage. Proposals could explore innovative environmentally friendly green technologies, including active and intelligent packaging, as desirable alternatives to conventional preservation techniques to reduce their negative impact on the environment. It is crucial to ensure that green technologies used for food preservation are adapted to the specific conditions of the Mediterranean region and are cost-effective enough to be adopted by smallholders. This can be achieved by conducting research and development to identify innovative solutions tailored to the region's unique challenges. Recognizing the role of genetic factors in food losses, proposals should consider genetic-based selection of plant varieties with enhanced shelf-life and suitability for long-term storage, tailored to the unique conditions of

---

[3] Such as for example ozone, pulsed electric field, ohmic heating, photosensitization, ultraviolet radiations, high-pressure processing, ultrasonic, and nanotechnology)

different Mediterranean region. The proposals should include training and mobility initiatives to enhance the capacity of smallholders, with particular attention to women, to effectively adopt and implement sustainable solutions. To facilitate the adoption of green technologies for food preservation, it is essential to implement policy recommendations that can help reduce barriers and promote accessibility, especially for smallholders. Proposals should also analyse the economic, social, and environmental impact of renewable-based solutions and green technologies on reducing food losses and waste and improving food quality, including at the nutraceutical and sensorial levels. Additionally, the development of business models supporting the adoption and scaling of renewable-based solutions to reduce food losses and waste should be considered.

To emphasize the exploitation of results, actions should focus on effectively utilizing and leveraging the outcomes of the project. This includes optimizing the practical application and dissemination of the project's findings and solutions, ensuring that the results are translated into tangible benefits for stakeholders and wider adoption within the Mediterranean region.

Projects should also 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.

Finally the proposals should align with the [Food 2030 R&I policy and pathways for action,](#) in particular with the actions on: [Food waste and resource efficiency,](#) Food systems Africa and [the microbiome world,](#) and should integrate a robust approach for food systems transformation.

Expected impacts

- The proposed solutions are expected to significantly reduce food losses and waste along the entire food value chain, contributing to environmental and climate sustainability.
- Efficient methods to repurpose waste and by-products from the food value chain are anticipated to create value-added products, thereby promoting resource efficiency and sustainability.
- Innovative solutions in food processing, packaging, and distribution should lead to improved efficiency and cost reduction post-harvest, benefiting both producers and consumers.
- Use of alternative energy sources and implementation of ICT solutions, improving resource management and interactions within the value chain.

- Promotion of resource-efficient preservation and storage technologies for food safety, leveraging innovative solutions, including microbiome-based solutions[4].
- Enhanced interaction between different stakeholders in the food supply chain, notably farmers, smallholders, and large retailers, facilitating better management and potential price reductions.
- Improvement in the quality of food at the nutraceutical and sensorial levels.

Key Performance Indicators

- **Percentage reduction in food losses and waste KPI** within the project.

Baseline: Baseline levels of food losses and waste within the project.

Target: Achieve a minimum 25% reduction in food losses and waste compared to the baseline within the project, contributing to environmental and climate sustainability.

- **Efficiency and Cost Reduction KPI** (within the project): Percentage increase in the utilization of alternative energy sources and ICT solutions within the project.

Baseline: Current usage of alternative energy sources and ICT solutions within the food value chain within the project.

Target: Increase the utilization of alternative energy sources and ICT solutions by 20% within the project to improve resource management and interactions within the value chain.

- **Stakeholder Collaboration and Food Price Reduction KPI** (within the project): Percentage increase in interaction between different stakeholders in the food supply chain within the project.

Baseline: Existing levels of interaction between stakeholders within the project.

Target: Enhance interaction among stakeholders, such as farmers, smallholders, and large retailers, to improve management and potentially lead to a 5% reduction in food prices within the project.

- **Food Quality Improvement KPI** (within the project): Percentage improvement in food quality at the nutraceutical and sensorial levels within the project.

Baseline: Baseline quality levels of food at the nutraceutical and sensorial levels within the project.

---

[4] Collaborations are welcomed especially with HORIZON-CL6-2023-FARM2FORK-01-16 selected projects.

Target: Improve the quality of food within the project, achieving a 10% enhancement in nutraceutical and sensorial attributes.

Contributions to EU Policies, Mission, and Partnerships

The proposals should indicate linkages and synergies with relevant EU policies and objectives in the context of the European Green Deal and relevant Horizon Europe Cluster 6 work programmes,[5] Missions and Partnerships, in particular with European Partnership for Safe and Sustainable Food Systems.

Contributions to SDGs

The proposals should indicate their contribution to relevant SDGs and methodology to contribute to reporting SDG indicators specifically to SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), and SDG 13 (Climate Action).

- [5]Horizon Europe Work Programme 2021-2022 Food, Bioeconomy, Natural Resources, Agriculture and Environment https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-9-food-bioeconomy-natural-resources-agriculture-and-environment_horizon-2021-2022_en.pdf
- Horizon Europe Work Programme 2023-2024 Food, Bioeconomy, Natural Resources, Agriculture and Environment https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-9-food-bioeconomy-natural-resources-agriculture-and-environment_horizon-2023-2024_en.pdf

Table 1. Supporting information for Section 1 call for Proposals, Topic 1.3.1

Type of action	Innovation Action (IA)
Total indicative amount allocated to this call	EUR 9.1 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 5-8 Proposals should clearly state the starting and end TRLs of the key technology or technologies targeted in the project.
Budget and duration of grants	PRIMA considers that proposals requesting a contribution from the EU in the range of EUR 4.55 million and 36 months would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submitting and the selection of proposals requesting other amounts 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)[6] as defined in section 5.1.1.
Submission and evaluation procedure	The call will be organised according to a two-stage submission process. A first-stage proposal (maximum ten pages) must be submitted within the first-stage submission deadline for the first step. 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.
Consortium agreement	Participants in projects resulting from this call for According to Art 24 of the H2020 RfP proposals must conclude a consortium agreement before the conclusion of the PRIMA grant agreement.

---

[6] 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.