CALL TEXT AND SUPPORTING INFORMATION

Call: Section 2 – Multi-topic 2020

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Thematic area: Management of Water

Topic 2.1.1 (RIA[1]) Low-cost, lean solutions for enhancing irrigation efficiency of smallholder farmers

Challenge

Population growth and changing food consumption patterns are expected to lead to a big increase of food production, part of which would need to be covered through higher crop yields and greater crop intensity given limited scope for agricultural land expansion. Widening the use of efficient irrigation technologies and practices among small farmers is key to increase yields in a sustainable manner.

A lot of progress has been made in irrigation water methods and systems leading to enhanced efficiency of water use at large field scale. However, adoption of solutions enhancing irrigation efficiency has not reached the small holder farmers, primarily due to the high initial cost and high skills requested to master the technology. Efforts are needed to develop/adapt existing high-cost, high-tech solutions into low-cost, lean solutions for enhancing the irrigation efficiency, optimisation of natural resources use and income at the scale of smallholder farmers.

Scope

Research projects must develop feasible, low cost and lean technologies (or adapt already existing ones) that can enhance water efficiency at the level of smallholder farms. More specifically, technology and solutions should help Mediterranean farmers increase yields and crop quality, allow water savings and higher efficiency in the use of water, while taking into account the specificities of the agro-ecological and socio-economic contexts as well as the operation of the upstream wastewater treatment system. Efficient irrigation solutions should also help farming systems achieve better food security, sustained production and income and improvements in the living standards of small farmers. Proposals shall also take into consideration irrigation systems with sustainable and low cost systems for water harvesting. Proposals should encompass a participatory approach: farmers should be involved through demonstrations and capacity building actions, so that they can familiarise with the proposed technologies, tools and practices, assess them, adjust to their operational aspects and subsequently adopt them.

The proposed solutions should enhance farmers' knowledge of benefits and costs of water use for farming, while strengthening cooperation among them to achieve sustainable management of water resources. Involvement of decision-makers, water resource and irrigation planners/ scheme managers should also be sought to create synergies where possible, and inform sectoral policies, schemes and governance frameworks through the demonstration of best practices (bottom-up approach). Technical,

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agricultural (local customs in crop production and land use), social (social norms, as well as gender issues), climatic (variability in rainfall and temperatures, impact on crop production) and environmental (consequences of increased water use by irrigation) aspects should be analysed holistically to ensure that the proposed irrigation technologies are well tailored for the specificities of the context, as well as to guarantee their long-term viability.

Since lack of access to finance is often a constraint faced by small-scale farmers, the financial sustainability of the proposed irrigation solutions should be carefully considered, by assessing aspects like the investment, operational and maintenance costs (energy, labour), as well as the cost of agricultural inputs (seeds, fertilizer, pesticides, machinery). The market value of the produce and the possibility for farmers to access credit and markets should also be considered.

Expected impact

The project results are also expected to contribute to:

- Number and efficiency performance of new irrigation technologies to achieve optimal crop yields, while ensuring water safety and security (water quality and quantity);
- Strengthening capacities of small-scale farmers to support transition towards the use of more efficient and effective irrigation options
- Establishment of possible synergies with public authorities, as well as non-governmental actors (NGOs, private sector), to create the necessary policy/regulatory framework to support small-holder farming;
- Increase profitability of irrigation as an economic activity which can generate sustainable income for local farmers and help recover equipment costs, while decreasing use of resource inputs use (less water used to grow more higher-value crops) to preserve environmental sustainability.

KEY PERFORMANCE INDICATORS

- Number and efficiency performance of new irrigation technologies and scheduling protocols and models.
- SDG#6: indicator 6.4.1 Change in water-use efficiency over time

Thematic area: Farming Systems

Topic 2.2.1 (RIA[2]) Redesign agro-livelihood systems to ensure resilience

Challenge

Intensification of agriculture in the Mediterranean region to date has been mostly supported by irrigated (also requiring high-inputs of fertilizers, chemicals and labour) at the expense of more sustainable and climate-ready crops. This has contributed to an unsustainable use and management of natural resources (soil, water, and biodiversity), and to the degradation of the Mediterranean lands (salinization, soil pollution and loss of fertility, leading to desertification). Climate change is likely to further undermine the sustainability of current farming systems, e.g. by further accelerating invasions of pest/disease and reducing water availability.

Consequently, farmers' income and welfare are also increasingly unpredictable and unstable. Increasing the resilience of the agro-systems and / or favouring the transition to new farming systems that make a correct and efficient use of biological and natural resources is urgently needed. When possible, the development of mixed systems making sustainable use of all living resources (e.g. soil microbial communities, livestock) can make a positive contribution to raise the productivity of the entire farming system. The use of these practises and of new technologies, can contribute to a positive, inclusive growth trajectory that is both ecologically and economically sustainable and resilient to climate change.

Scope

Increasing the resilience of the system is a major challenge to face and overcome adverse and unforeseen events by improving the capacity of crops to properly respond to climatic perturbations (climate-ready crops), while ensuring an economic stability of the farmers and food security in the region. Research projects should aim at providing solutions for improving agroecosystem resilience to climate change in the Mediterranean area.

Projects should identify, design and test innovative farming systems that are resilient to climate change, and that can maintain sustainable productions even after extreme climatic events, including e.g. droughts, floods and alien pest invasions.

These systems should allow sustainable and efficient use of natural resources and decrease the use of chemical inputs. The maintenance or increase of the productivity, resistance, and recovery of the agro-

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system can be achieved through crop diversification and valorization of biodiversity[3] discovery and use of perennial crops, implementation of crop-livestock sustainable associations with a focus on the production of local and highly nutritious forage, application of agro-technologies provision of ecological services[4] with a circular economy approach.

Projects should produce outcomes concerning sustainable, widely adaptable solutions or dealing with the design of new agro-ecological farming systems supported by social or economic analyses, useful for policy decisions in terms of local governance, adaptive learning, product valorization, or incentives. The pathway to transition to more sustainable and resilient farming systems should be investigated and should provide guidance to the farmers. Resilience by the proposed farming systems should be assessed with appropriate socio-economic and ecological performance indicators.

Research and innovation proposals will be based on **multi-actor approach** and involve local stakeholders in the identification of barriers and opportunities from technical and socioeconomic point of view. Proposals should identify solutions to contribute to a balanced territorial development ensuring farmer incomes.

In this respect, innovations may be of a technical/technological, organizational/social and institutional nature and addressed to favour the adoption of the proposed systems.

Expected impact

- Systems redesigned to minimize the risk of failure associated with yield losses due to inappropriate farming systems (e.g. monoculture) and climate change, and secure the incomes of the farmers
- Adoption of environmentally, socially and economically sustainable agroecosystems productions.
- New organizations facilitating learning and coordination among actors, between farmers and along the value chain
- Increased efficiency of the use of natural resources (water)
- Increased soil fertility by the proposed farming systems
- Increased income and satisfaction by the farmers
- Yield stability and quality in comparison to standard farming systems under challenging environmental conditions

KEY PERFORMANCE INDICATORS

- Number of innovations in farming systems developed enabling sustainable and efficient agriculture and food systems.
- SDG#2 Indicator 2.4.1 Proportion of agricultural area under productive and sustainable agriculture

[3] e.g. local breeds, crop wild relatives, orphan crops, underutilized plants that are adapted to arid environments such as pulses

[4] (e.g. use of sentinel plants, exploitation of plant natural defences, and of associations between plants and soil microbiota)

Thematic area: Agro-food Value Chain

Topic 2.3.1 (RIA[5]) New optimized models of Agri-food supply chain systems offering fair price for consumers and reasonable profit share for producers

Challenge

The Mediterranean Agri-food value chain represents a complex ecosystem with numerous local actors, including farmers, small-scale food manufacturers and local distributors, canteens and retailers local public authorities. However, its competitiveness is seriously challenged by increasing imported agriculture resources and food products, as processed food, or as ingredients of food productions.

Those products are produced in large volumes for global markets, at low prices, and in regions suffering less from climate and environmental constraints, compared to the Mediterranean area. In addition, the price small farmers get for their products is quite low, compared to the price that products are sold to the end customer. This is due to the presence of many powerful actors, other than smallholders, in the farm-to-fork supply chain who can position and negotiate powerfully. Hence, there is a need for innovative organisational approaches and tools (tools and machines, business models, green public procurement, software, applications, etc.) that can help overcoming this challenge. New optimization models for the local Agri-food supply chain are requested, which provide local and distinguished benefit, economically, environmentally and socially to smallholders.

Scope

Increasing the competitiveness of small-scale farmers, manufacturers, local distributors and all other intermediate actors in the food chain is of key importance in order to guarantee a fair profit share for them. Optimized business models should be investigated that allows a better positioning of smallholders in the local and international markets, including innovative green public procurement approaches for local public authorities. In addition, new supply chain arrangements may be considered, analysed and empowered (if already in place elsewhere), especially shorter supply chains and more transparent relations between actors.

The access to markets, through innovative tools, including but not restricted to multi-technologies and ICT tools (web, apps, mobile devices), should be reconsidered as well as levers to improve the direct contacts between market players (supermarkets, out-of-home and consumers, canteens) and the farmers/ manufacturers, respecting the local socio-cultural characteristics of the target groups, i.e. smallholders in rural and underserved regions. Finally, all organizational and technological innovations and underlying research approaches that help local clusters and cooperatives to be more competitive are highly appreciated; considering the characteristics of the local societies. Additionally, the actions shall

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empower, through a Responsible Research and Innovation Approach, the climate of creativity of the small famers/producers/SMEs in the local community (i.e. social and inclusive innovations).
It shall also promote the concept and implementation of circular economy and responsible production-consumption concepts, with meaningful usage of resources via cascading eco-industrial methods and technologies highly performed at small scale.

Expected impact

- New technology tools and business models for access to market, suited to local clusters and SMEs, and creation of a new generations of young entrepreneurs.
- New insights in the competitiveness of local clusters of farmers, small manufacturers and distributors, with integrated innovative planning and institutional solutions for sustainability and profitability.
- New options to increase the added value of products from local clusters.
- Transparencies in fair trade and shortening Agri-food chain beneficial for smallholders.
- Verified consumer feedback on quality and safety of products from small holders, locally produced or obtained in inter-Mediterranean country trade.

KEY PERFORMANCE INDICATORSs

- Number of business models for quality and sustainability adapted to SME and smallholders.
- SDG#2 Indicator 2.3.1: Volume of production per labour unit by classes of farming/pastoral/forestry enterprise size

Supporting information for the Section 2 Call for Proposals

Type of action	**Research & Innovation Activities (RIA*[6])**
Total indicative amount allocated to this call	**EUR 38.152.000,00**
Funding level	Depending on National Regulations
Expected number of grants	PRIMA considers that proposals requesting a contribution as from **EUR 1 million** and with a duration from 36 months to 48 months, would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts according to national regulations.
Expected duration of the projects	36 or 48 months according to national regulations

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TRL	Proposals should clearly state the starting and end TRLs of the key technology or technologies targeted in the project.
Grant agreement	Each national funding body will fund the beneficiaries established in its own country, thus, the national funding rules apply. Each national funding body will sign a grant agreement (or any official documents acting as contract) with their national beneficiaries taking part in the selected project (section 5.2.11 of the AWP 2020). The coordinator of the project has to decide with his/her partners of a common starting date of the project and send this information to all the funding bodies involved in funding this project in order to ensure that the national contracts are synchronized in time to cover all the period of the project
Consortium agreement	A consortium agreement mentioning the distribution of the tasks among partners (as listed in the proposal) must be concluded. Some national funding bodies may require this document before signing the grant agreement then it is necessary to refer to the national regulations and draft this document accordingly (section 5.2.11 of the AWP 2020)