



SUSFOOD2

CORE organic

# JOINT CALL "TOWARDS SUSTAINABLE AND ORGANIC FOOD SYSTEMS"

IN 2019, THE ERA-NET COFUNDS SUSFOOD2  
& CORE ORGANIC (SF/CO) LAUNCHED  
THE JOINT CALL "TOWARDS SUSTAINABLE  
AND ORGANIC FOOD SYSTEMS" FOR  
TRANSNATIONAL RESEARCH PROJECTS.  
THE JOINT NETWORK CONSISTS  
OF 21 FUNDING BODIES  
FROM 18 COUNTRIES.





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## HIGHLIGHTS: WHAT ARE SUSTAINABLE AND ORGANIC FOOD SYSTEMS?

Sustainable and organic food systems will be achieved by substantial progress in the organisation and management of food systems and supported by the development of novel technologies. Innovation is key to support food systems transformation and to operate within natural resource boundaries and diminish climate change impact. In this regard, system approaches based on agroecological principles are gaining recognition as a pathway to enable sustainable intensification of food production and consumption, not only for organic food production, but also in the conventional sector.

Food systems comprise activities for food production, processing and packaging, distribution and retail, as well as consumption. Various factors, like environmental and socio-economic drivers, have influence on the system and therefore, different approaches can increase the sustainability of such a complex network.

## JOINT FORCES

Core Organic and SUSFOOD2 are both an ERA-NET, this is a network of European ministries and research councils funding research at national levels. The main focus of both ERA-NETs is to join forces and fund transnational research projects, to support a focused and coordinated research and innovation effort. SUSFOOD2 “Sustainable FOOD production and consumption” started in January 2017, and is the continuation of the FP7 ERA-NET SUSFOOD (2011-2014). The strategic goal of SUSFOOD2 complements the EU Bioeconomy and food policies, and aims to reinforce cooperation in research, development and innovation between EU members and associated states in order to maximize the contribution of research to the development of more sustainable food systems from production to consumption. The scope of SUSFOOD2 covers the entire food supply chain, with the main focus on food chain sustainability beyond the farm gate.

Core Organic Cofund is the acronym for “Coordination of European Transnational Research in Organic Food and Farming Systems”, it started in December 2016. The CORE Organic Cofund is the continuation of the ERA-NETs CORE Organic I, II and Plus, that started in 2004. The objective of CORE Organic is to improve the knowledge basis and innovation capacity necessary for supporting further development of organic food and farming as a way to respond to significant societal challenges in Europe’s agriculture and food systems. CORE Organic aims at supporting sustainable growth of the organic sector in Europe and beyond.

## FUNDING TWELVE RESEARCH PROJECTS

In the Joint Call, twelve research projects taking into account a system approach are supported by funding bodies from participating countries. The Joint Call covered four topics. 60 Project consortia applied for funding. Through a two-stage peer review process, twelve research projects taking into account a system approach were selected by funding bodies from participating countries. The selected twelve research projects comprised 67 Partners organisations. The total funding amount was 7.8 Million Euro. Projects were selected for three of the four topics. Under the fourth topic “Sustainable and Smart Packaging” no projects were selected.

## TOPIC 1: "RESOURCE-EFFICIENT, CIRCULAR AND ZERO-WASTE FOOD SYSTEMS"

### **ALL-IN - ALFALFA FOR SUSTAINABLE LIVESTOCK FARMING SYSTEMS: IMPROVE ALFALFA-RHIZOBIA SYMBIOSIS AND NEW FEEDING STRATEGY BASED ON ECOLOGICAL LEFTOVERS**

Increased alfalfa production will allow using it as a central component for livestock feeding. The feeding strategy is based on the principle of "ecological leftovers". Diets will be designed to optimise the reuse of bio-wastes (scraps and harvest residuals of local by-products), especially those obtained from olive oil manufacturing (i.e. pomace). The addition of specific amounts of olive oil pomace will allow modulating rumen metabolism and possibly reducing methane emission. Milk yield and composition and meat production from ewes fed the experimental diets will be analysed. Variation in rumen metabolism will be monitored biochemically and by microbiota analysis.

### **BIO4FOOD - HIGH QUALITY AND NUTRIENT RICH FOOD THROUGH CROP WASTE-DERIVED BIOSTIMULANT AND BIOPESTICIDE**

Bio4Food will exploit the biostimulatory properties to promote plant yield and quality, aiming to increase the content of the health promoting minerals, iron, magnesium and zinc, in vegetable and fruit crops. The socio-economic acceptance of our approach and the market opportunities will be studied to develop a road map for the implementation of bio-based methodology for crop production and protection. The possibility to recycle waste will be evaluated at the level of the farm up to the food processing industry, taking into account the profitability of the technology. Bio4Food will contribute to the reduction in crop waste, providing natural plant protection products, and offer consumers vegetables rich in health-promoting minerals.

### **FERBLEND - FERMENTATION-INDUCED VALORIZATION OF SIDE STREAM BLENDS FROM OILSEED AND DAIRY INDUSTRY**

Sustainability in food supply chain is an up-to-date subject that covers, among others, the optimization of energy flow and the reduction of emissions, but also a complete-as-possible utilization of production side streams to reduce food losses as far as possible. The project FERBLEND aims at exploring innovative solutions for the exploitation of cheese whey and press cakes from seed oil processing through targeted fermentation. In this joint research, the partners from Denmark, Germany, Italy and Poland, in line with contributions from Spain and Turkey, explore solutions for creating liquid, semi-solid or solid platform products that may be used as ingredients in beverages, spreads or snack products. A substantial increase of knowledge concerning processing and fermentation of blends of oilseed press cakes and whey, resulting in tailored foods, is expected.

### **FOODLEVERS - LEVERAGE POINTS FOR ORGANIC AND SUSTAINABLE FOOD SYSTEMS**

Despite the recent uptake of innovative production systems, food systems continue to move on unsustainable trajectories. This can be explained by many sustainability interventions addressing solely more obvious but less powerful areas of intervention rather than engaging with the root causes of unsustainability. Instead, FOODLEVERS focuses on those leverage points at which interventions promise far more potential to transform food systems into sustainable ones.

Therefore, the project will analyse case studies of innovative organic and sustainable food systems throughout Europe and identify best practice processes. By doing so, key leverage points will be identified to further develop and scale up existing innovative organic and sustainable food systems.



## **POULTRYNSECT - THE USE OF LIVE INSECT LARVAE TO IMPROVE SUSTAINABILITY AND ANIMAL WELFARE OF ORGANIC CHICKENS PRODUCTION**

Poultry meat production has a negative environmental impact mainly due to feed production, where soybean meal is the most common protein source. A promising alternative source of proteins is insects, which has shown great potential environmental benefits because as efficient bioconverters they are able to recycle nutrients from organic residue. Moreover, live insect larvae fed to poultry enable birds to express their normal active behavior reflecting positive impacts on animal welfare.

Poultrynssect project, exploiting the use of live insect larvae, aims to give concrete solutions to the expectations of organic poultry meat consumers and European citizens sensible to the environmental impact of livestock production and healthy nutrition.

## **PROVIDE - PROTEIN AND BIOMOLECULES SOURCES FOR NUTRITIONAL SECURITY AND BIODIVERSITY OF BAKERY PRODUCTS IN A CIRCULAR FOOD SYSTEM**

The project focuses on valorisation of food industry by-products for use in bakery production. This will be based on "green" innovation processes, which will also use by-products from organic products and thus the resulting new products can be marketed "organic". With the aim to promote circularity in the agrifood systems, 4 specific objectives have been identified:

- identify by-products rich in nutrients and bioactives,
- valorise by-products,
- promote circular Food Systems,
- define strategies to put the new products into the market.

Three case studies for these new bakery products will be implemented. Quality & safety of sources, by-, intermediate-, and end-products, as well as the health enhancing properties of plant and by products extracts, will be assessed. The new products will be tested for consumers' perception and acceptance and the technologies implemented at industrial scale. Environmental and socio-economic sustainability will be assessed and integrated traceability systems developed. PROVIDE is designed to achieve a multi-sector impact (public authorities, market system, consumers/society, healthcare, environment, sustainability & circular economy), thus reflecting its multidisciplinary (analytical chemistry, (micro)biology and biotechnology, environment, food technologies, etc.), multi-actor and Pan-European (North, Central, Southeast, South Europe and Marocco) approach.

## **SYSORG - ORGANIC AGRO-FOOD SYSTEMS AS MODELS FOR SUSTAINABLE FOOD SYSTEMS IN EUROPE AND NORTHERN AFRICA**

SysOrg identifies how pathways to increase sustainable food production and consumption can be successfully designed. This requires a better understanding of food systems, including the multitude of actors involved and the identification of critical points within systems.

We assume that although food systems are regionally very different, similar entry points for transition exist. These need to be identified in order to derive recommendations for a more sustainable design. Therefore, the following questions are addressed:

- What is the understanding of sustainability to drive the transformation towards sustainable food systems?
- How can pathways to increase sustainable food production and consumption across the system be successfully designed?
- What are the reasons, motivations, drivers or barriers for actors to opt for more sustainable solutions?
- What are the promising entry points for developing, consolidating and disseminating organic food and farming, reducing waste and shifting to sustainable diets? What are critical points to bring these perspectives together in a systems approach?

This is done by mapping and analysing five case territories (Copenhagen, Cilento, North Hestia, Warsaw, Kenitra) in a transdisciplinary way.

SysOrg will result in improved and locally adapted strategies and tools for transformation of food systems across Europe and Northern Africa to sustainable, resilient and resource efficient food systems with less environmental impact and high socio-cultural acceptance.

## TOPIC 2: "DIVERSITY IN FOOD FROM FIELD TO PLATE"

### **FOODIVERSE - DIVERSIFYING SUSTAINABLE AND ORGANIC FOOD SYSTEMS**

The FOODIVERSE project aims to produce practice-oriented knowledge on how diversity in diets, novel food supply chains and food governance contributes to more organic and sustainable food systems. The project provides multi-level perspectives on transforming local food systems across Europe by promoting diversity of consumers, producers and key stakeholders.

Methodologically and theoretically this project takes a relational approach on diversity, emphasising different characteristics in various contexts and across different scales. Diversity has diverse meanings, for example in urban Norway or in rural United Kingdom, but also to German consumers, Italian government officials or Polish food producers.

We seek to identify the relations in characteristics of diversity that accelerate a transformation toward more sustainable food systems.

The project directly promotes organic food systems through involving consumers, producers, food-processors and those governing food systems with a living lab methodology. A user-centred and innovation approach in local contexts of Italy, Germany, Norway, Poland and the United Kingdom assists in comparing whilst instantaneously implementing the results in real-life scenarios. We engage different actors and include a diverse range of viewpoints on organic food systems.

### **SPIWI - SUSTAINABLE PRODUCTION OF INNOVATIVE SPARKLING WINE**

The SPiwi-project aims to investigate and optimize strategies for the production of future oriented organic 'SParkling' wines, made from 'Piwi' (fungus-resistant) grape varieties. Hence the name 'SPiwi'.

Europe has a leading role of organic wine production in the world (almost 90% of the total organic grape production worldwide is located in Europe). New insights in organic and sustainable viticulture are therefore of economic importance. The introduction of fungus-resistant varieties can partly avoid the yield losses that often occur in organic viticulture.

To further optimise the sustainability and economic crop return of these varieties, this project will develop guidelines for organic crop protection, it will develop a chemical-free vinification process, it will research its waste streams and finally the consumer acceptance of these organic wines. These findings will be demonstrated and an economic feasibility study will be communicated to the public.

## TOPIC 3: "MILD FOOD PROCESSING"

### **HO-FOOD - INNOVATIVE HIGH PRESSURE PROCESS TO INCREASE THE PRESERVATION OF READY-TO-EAT ORGANIC FOOD**

Ready to Eat (RTE) fresh organic products are rich in macro and micronutrients, have a good taste and appearance but are affected by quick spoilage, mainly caused by microorganisms and enzymes on their surface. Current available technologies to increase their safety and shelf life are still very limited. Our goal is to develop an innovative low temperature technology that overcomes these current limitations. We will develop innovative wholesome products, improving their safety and extending their shelf-life. By using low temperature sensorial and chemical properties will be preserved, resulting in healthy and palatable food while preserving the phytochemical components of organic foods.

### **MI-WINE - MILD INNOVATIVE TREATMENT FOR WINE STABILISATION**

The main critical issues in white wine production are protein instability (responsible for haze or unsightly sediment during storage in bottle) and oxidation (causing wine's browning). To counteract, the common approach is the addition of adjuvants and antioxidant. However, these actions have some disadvantages, as they require discontinuous processes with production of large volume of wastes, and possible allergenic effect related to sulfur dioxide addition, with limited preservation effect in long storage-bottled wine. The MI-WINE aims to obtain a fast and cost-effective continuous process by using engineered high-performance material, which will be able to subtract metals and proteins, responsible for the main instability in wine, through a flow-system, environmentally friendly, able to stabilize wine in a continuous process and without waste production.

### **MILDSUSFRUIT - INNOVATIVE MILD PROCESSING TAILORED TO ENSURE SUSTAINABLE AND HIGH QUALITY ORGANIC FRUIT PRODUCTS**

The global demand for organic processed fruit characterized by high quality, long shelf-life and improved nutritional value is growing due to an increasing interest in a healthier and more environmentally friendly food production. Consumers expect a superior quality compared to conventionally processed foods, such as less pesticide and additives residues, the lower nutritional and quality reduction due to processing operations and a low environmental impact. MILDSUSFRUIT aims to improve the competitiveness of the organic sector, increasing the level of quality, sustainability and consumer confidence of organic processed fruit products (apple, citrus and berries). The research activity will be performed following a "processing-guided" strategy, aimed to answer to stakeholders needs to have a significant impact on the EU organic sector. Different innovative technologies such as ultrasound, pulsed electric fields, vacuum or high pressure impregnation, among others, will be studied for the processing of raw material into minimally processed, semi-moisture and dried products and the valorization of their by-products in a sustainable and optimized way. A principal output of the project will be the development of a Code of Practice for European organic fruit processing industries. An active engagement with multi-actors and a dissemination plan will ensure that the outputs of the project will be comprehensive and accessible, meeting the needs of the end-users.

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