FOSC
ERA-NET Cofund on
Food Systems and Climate

SUSFOOD2

JOINT SUSFOOD2/FOSC CALL

First Newsletter - February 2022

Editorial

Dear Reader,

Some years ago, not many people could have imagined the situation we are facing nowadays with the COVID-19 pandemic. How to be prepared for the unknown? Also, policy and research are increasingly concerned with the occurrence of major perturbations that are difficult to predict. The recent SCAR 5th Foresight Report "Resilience and transformation" highlights the importance of enhancing system resilience. It dedicates one section to lessons learned from the COVID-19 pandemic and points out to "Coping with disaster" as one of the cross-cutting issues that must be addressed in future research on food systems.

The 2021 joint Call initiative by the two ERA-Nets SUSFOOD2 and FOSC, originated under the premise that attaining resilient and sustainable food systems would require a transition from current linear food production systems, vulnerable to system shocks, to resilient circular systems that encompass efficiency, side-stream valorisation and avoidance of food loss and waste and consider the interdependencies within the systems and its stakeholders. Such a transition will have to be accompanied by substantial progress in the organisation and management of food systems and supported by the development of novel technologies, which will play a key role to support the transformation of food systems so that they operate within natural resource boundaries with minor climate change impact.

Therefore, the joint network of 14 funding bodies from 13 countries offered about 8 mil Euro funding to research proposals addressing the two call topics on I) Innovations to improve food systems sustainability, with a focus on increasing resource efficiency and reducing waste and II) Food Systems adaptation and resilience to system shocks.
The 5 selected projects are introduced to you in this newsletter. The research projects will investigate a variety of research topics such as the potential of microalgae for the valorization of brewery waste (AlgaeBrew); using plant and seaweed proteins for food innovations (IPSUS); resilience empowerment in Mediterranean agri-food heritage systems (MedAgriFoodResilience); smart dairy systems (SmartDairy) and innovative and sustainable olive oil production systems (Olive 3P).

The development of more sustainable and resilient food systems is in line with the Sustainable Development Goals of the United nations and will bring opportunities for new technologies and business models that will concurrently improve environmental and human health outcomes, employment opportunities, prosperity, equity and wellbeing of human communities. The results from the funded projects should also deliver input to objectives stated in the "European Union's Action Plan for Resilience" and the EU Commissions "A clean Planet for all" and "From Farm to Fork" strategies.

Thank you for your interest.
On behalf of the editorial team, enjoy the reading

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MedAgriFoodResilience, Socio-environmental shocks assessment and resilience empowerment in Mediterranean agri-food heritage systems

Traditional agri-food systems are increasingly receiving attention at international level, especially thanks to their multifunctional role and as examples for alternatives to agricultural models based on maximizing productivity. Traditional agri-food systems developed through the centuries by local communities are still actively supporting the livelihood of local farmers, providing solutions for climate change mitigation and adaptation as well as contributing to the preservation of agro-biodiversity, traditional knowledge and cultural identity. The importance of these systems is testified by Globally Important Agricultural Heritage Systems (GIAHS) Programme established by the Food and Agriculture Organization (FAO), whose aim is to identify and preserve worldwide sites characterised by agricultural systems created and managed over time by local communities, that are today fundamental for the adaptation and mitigation towards global challenges, contributing to food security and sustainable development of rural communities.

The project will focus three GIAHS sites in Italy, Morocco and Algeria, applying a multidisciplinary approach linking together landscape structure, climatological studies, social role and biodiversity assessment. These three systems have been developed in challenging environmental conditions (steep slopes, dry and hot climate, and water scarcity) but are crucial for the livelihood of local communities and part of the Mediterranean diet. The results of the project will lead to the identification of the best practices to be replicated in other traditional agri-food systems to increase the adaptation and resilience to social and/or environmental systems shocks.

More information: https://susfood-db-era.net/main/MedAgriFoodResilience

IPSUS, Climate smart food innovation using plant and seaweed proteins from upcycled sources

Food choices impact human and planetary health. The negative environmental impacts of the food system, increasing food insecurity and the prevalence of unhealthy and unsustainable diets are driving policymakers, scientists, companies and consumers to demand sustainable solutions. A trans-national and inter-disciplinary consortium consists of ~20 natural/social scientists and engineers from 7 universities and 2 industrial partners across 6 countries (UK, Italy, Romania, France, Turkey, and Morocco) across the 3 continents (Europe, Africa & Asia) has co-designed the project IPSUS to address Net Zero opportunity by linking sustainable protein shift and food waste valorisation. IPSUS will develop new insights into upcycling opportunities for under-utilised protein-rich plant side-streams of pumpkin, hazelnut, grape, potato, brewers' spent grain, and seaweeds across the UK, Italy, Romania, France, Turkey, and Morocco in order to future-proof the alternative protein supply chain (by replacing unsustainable predominance of soy protein based products). The goal is to understand the food system drivers, barriers and trade-offs of sustainable protein shift in the lower-middle income as well as high income countries. The envisioned food system unlock for the upcycled plant and seaweed proteins will also deliver eco-innovative technologies to create plant-based meat and cheese alternatives with superior qualities via the proposed product prototyping.

More information: https://susfood-db-era.net/main/IPSUS

AlgaeBrew, Unlocking the potential of microalgae for the valorisation of brewery waste products into omega-3 rich animal feed and fertilisers

As one of the largest agri-food sectors in the EU, beer production generates large amounts of waste in the form of wastewater and used grain. The standard processes used to treat waste are costly and unsustainable. AlgaeBrew will use microalgae, single-celled microorganisms that rapidly grow in water, to transform brewery waste into useful products, thus reducing brewing cost and making it more environmentally friendly.
Omega-3 oil is essential for the immune system and widely used in dietary supplements. Commercial omega-3 oil production relies on fish oil derived from wild-caught fish and puts enormous strain on the ocean ecosystem. A group of microalgae known as Nannochloropsis are rich in omega-3 oil and can be exploited as an alternative source. Nannochloropsis can help breweries treat their waste products while producing sustainable omega-3 oil. This will be a win-win solution for both breweries and food/feed producers.
AlgaeBrew aims to develop processes that use Nannochloropsis to upgrade brewery wastewater and used grain into omega-3 oil for the feed industry. The leftover Nannochloropsis biomass after oil extraction will be developed into biofertiliser to achieve a zero-waste goal. The project will be undertaken by seven universities, a beer producer and animal-feed producer in seven countries.

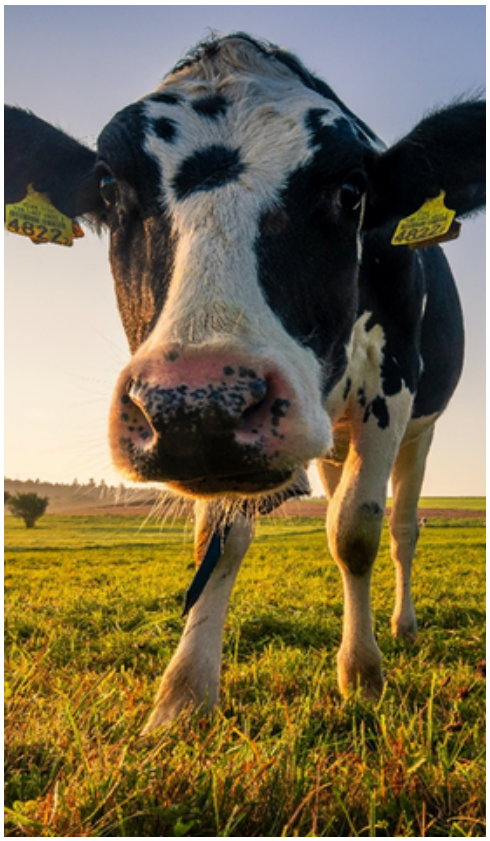
More information: https://susfood-db-era.net/main/AlgaeBrew

Olive3P, Innovative sustainable food system for olive oil production converting solid and liquid by-products into edible yeast and biopesticide

In the Olive3P project, innovative processes are developed to recover wastes and residues from olive oil production, including branches from olive harvest, as well as olive stone and liquid effluents from the olive milling process.
Solid residues are heated up in an oxygen-free environment and converted by carbonisation into biochar. Biochar is treated under high temperature with the addition of chemicals or steam to generate activated carbon. Then, olive mill effluents pass through a filter containing the activated carbon, which adsorbs (captures) soluble organic compounds, in particular polyphenols. Subsequently, filtrated olive mill effluents are mixed together with cheese whey and filled into a fermentation bioreactor to cultivate edible yeast, which can be applied as healthy animal feed for poultry and fish.
The activated carbon containing polyphenols is tested as a biocontrol agent to protect the roots of young olive trees from fungal diseases. Also, polyphenols are extracted from the adsorbent (activated carbon) by means of chemical processes, such as supercritical CO2 extraction, and subsequently applied as a conservative agent to increase storage stability of table olives.
Finally, the impacts of innovative processes on food quality, job creation, and environmental pollution are analyzed according to a Food Systems Approach.

More information: https://susfood-db-era.net/main/Olive3P

SmartDairy, Climate-smart Dairy: Assessing Challenges, Innovations, and Solutions



Food systems are responsible for one third of global greenhouse gas (GHG) emissions. Dairy production is a significant contributor to those emissions. Given that global demand for dairy is projected to increase, there is an urgent need to reduce emissions from this sector. Using a multi-actor, multi-disciplinary approach across four European countries, SmartDairy will assess challenges, explore innovations, and create new solutions to achieve a climate-smart food system, focused on the dairy supply chain. SmartDairy has a different focus in each partner country: In Ireland, it will assess the acceptability of dairy system carbon markets to accelerate the uptake of carbon mitigation measures by farmers. In Italy, it will simulate the implications of new climate-smart policies and business models along the dairy supply chain. In the UK, it will explore consumers' perceptions and willingness to pay for climate-smart innovations. In Finland, it will analyse socio-cultural issues related to the consumption of milk and alternative products, as well as dairy-based food waste reduction behaviour. Country specific outcomes will form the basis for creating solutions in collaboration with stakeholders that enable a climate-smart dairy system that is acceptable to all actors from farm to fork. Overall, SmartDairy will create impact by reducing GHG emissions, increasing resource efficiency, and reducing waste, bringing us a step closer to a climate-neutral future.

More information: https://susfood-db-era.net/main/SmartDairy

More details about individual research projects are available on:

Website:

- SUSFOOD2: https://susfood-db-era.net/main/content/Joint-call-2021
- FOSC: https://www.foscera.net/en/foscera/Projects.htm

LinkedIn:

- https://www.linkedin.com/in/food-systems-and-climate-fosc/

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