



Joint SUSFOOD2 – CORE Organic exploratory workshop

Topics for collaboration between SUSFOOD2 and CORE Organic

Brussels, June 6th & 7th 2018, lunch-to-lunch

Public report - final

0. Introduction

Rationale for the workshop

Both the SUSFOOD2 and the CORE Organic ERA-NETs have expressed an interest to develop joint activities together on themes of mutual interest. There is a history of frequent exchanges of information and participation in activities. While both networks have their own, clear scope and target different audiences, there are common themes of interest, where meaningful intersections can be envisioned without unnecessary duplication. In preparation for the workshop, a Venn-diagram (see Annex A) was prepared to show these intersections between priorities of both ERA-NETs.

Apart from intersecting topics of interest, a considerable number of partners in both networks are from the same funding organisations. The shared experiences in the past, together with a high level of familiarity, trust and willingness to cooperate, has resulted in an open exploration of possibilities for joint activities, including a joint call. The purpose of this workshop was to further explore options for cooperation, both in terms of content (possible topics for cooperation) and form (joint call, other joint activity).



Participants and structure of the workshop

Thirty-five people registered, of which thirty-three participated. Participants were experts, funding partners and non-funding partners from both networks (see table 1). The workshop was organised as a lunch-to-lunch meeting. Day one focussed on topics of interest, elaboration of ideas and possibilities. Day two was a closed session, devised to further explore topics of interest identified in Day 1, and modes of cooperation in more detail between funding partners only.

Table 1: Workshop participation

CORE Organic		SUSFOOD2	
Funding partners			
Federal Ministry for Sustainability and Tourism (BMNT)	AU		
Department of Agriculture and Fisheries Flanders	BE-FL		
Walloon Agricultural Research Center (CRA)	BE-W		
		Flanders Agency for Innovation and Entrepreneurship (VLAIO)	BE
Bulgarian National Science Fund	BG		
Federal Ministry of Food and Agriculture (BMEL) represented by Federal Office for Agriculture and Food (BLE)	DE	Federal Ministry of Food and Agriculture (BMEL) represented by Federal Office for Agriculture and Food (BLE)	DE
International Centre for Research in Organic Food Systems (ICROFS) representing Ministry of Environment and Food of Denmark (DAFA)	DK		
Ministry of Rural Affairs MEM	EE	Ministry of Rural Affairs MEM	EE
		Centre for the Development of Industrial Technology (CDTI)	ES
Finnish Ministry of Agriculture and Forestry	FI	Finnish Ministry of Agriculture and Forestry	FI
Ministry of Agricultural, Food and Forestry Policies MIPAAF	IT	Ministry of Agricultural, Food and Forestry Policies MIPAAF	IT
Ministry of Education, Universities and Research MIUR	IT	Ministry of Education, Universities and Research MIUR	IT
Institute of Agricultural Resources and Economics	LV		
National Centre for Research and Development (NCBR)	PL		
Executive Agency for Higher Education, Research, Development and Innovation Funding UEFISCDI	RO	Executive Agency for Higher Education, Research, Development and Innovation Funding UEFISCDI	RO
		Department for Environment, Food and Rural Affairs (Defra)	UK
Non-funding / stakeholder partners			
Institute for Agricultural and Fisheries Research (ILVO)	BE	Institute for Agricultural and Fisheries Research (ILVO)	BE
		Flanders' FOOD	BE-FL
Federal Office for Agriculture and Food (BLE)	DE	Federal Office for Agriculture and Food (BLE)	DE
Natural Resources Institute (LUKE)	FI		
Wageningen University and Research (WUR)	NL		

Partners in CORE Organic that were not present at the workshop: Federal Office for Agriculture (FOAG); CH, Ministry of Economy, Industry and Competitiveness (MINECO); ES, National Institute for Agriculture and Food Research and Technology (INIA); ES, Ministry of Agriculture, Food and Fisheries (MAA); FR, National Institute for Agricultural Research (INRA); FR, Institute of Agricultural Resources and Economics (AREI); LV, Ministry of Agriculture, Nature and Food Quality (LNV); NL, The Netherlands Organisation for Scientific Research (NWO); NL, The Research Council of Norway (RCN); NO, Swedish Research Council for Environment, Agricultural Science and Spatial Planning (Formas); SE, Ministry of Agriculture, Forestry and Food (MKGP); SI, Ministry of Food, Agriculture and Livestock (GDAR); TR.

Partners in SUSFOOD2 that were not present at the workshop: Federal Ministry of Research and Education (BMBF); DE, INIA; ES, ADE; ES, Ministry of Economy and Competitiveness (MINECO); ES, ACTIA; FR, The French National Research Agency (ANR); FR, Department of Agriculture, Food and the Marine (DAFM); IE, MoA; LT, Formas; SE, LNV; NL, The Netherlands Organisation for Scientific Research (NWO); NL, RCN; NO, GDAR; TR.

2. Expert introductions

Environmental impact of food - Prof. Dr. Sirpa Kurppa (LUKE, Finland)

Food systems approach

Food systems can be defined as ‘*gathering all the elements and activities that relate to the production, processing, distribution, preparation and consumption of food, and the output of these activities, including socio-economic and environmental outcomes*’. Food systems and ecosystems can be linked through resource efficiency, environmental stability, resilience and the public health agenda. All these linkages can also be defined in terms of sustainability challenges we are currently facing: unsustainable food systems, resources constraints (also in light of climate change) and food waste. As such these are part of the Sustainable Development Goals (SDG). In this regard, resilience also means balancing the needs of the environment and the needs of society.

Global food and nutrition security

The United Nations’ Food and Agriculture Organisation (FAO) defines food security as ‘*[...] existing when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*’. While the expected growth of the world population to nine billion in 2050 is estimated to lead to a near sixty percent increase in food demand, hunger and undernutrition in combination with micronutrient deficiencies (hidden hunger) on the one hand, and on the other hand over-nutrition exist in parallel. In 2016 worldwide 815 million people were chronically undernourished, as the same time worldwide obesity has nearly tripled since 1975. Socio-economical inequity, ageing and urbanization also have an effect on the way in which the food systems are established. Countering these challenges requires systems approaches as well. One important tactic is concentrating on regional and local food system developments, which include reducing or eliminating food transportation over the globe (“sustainable food regions”). Other focus on microbiome impacts and sufficiency strategies.

Resources constraints and food industry

Many food systems are currently unsustainable from a natural resources perspective (goal is production for maximal output). Land degradation, depletion of fish stocks, nutrient losses, impacts on biodiversity, air, soil & water quality and greenhouse gas emissions are the challenges. An overarching issue is climate change which will affect what can grow and where. In addition, food system activities beyond the farm gate contribute to environmental degradation through water use, pollution and energy use. Combating this requires a modification of the production schemes with emphasis to water efficacy, flexible nutrient and feed efficacy and total energy use (getting out or rebound effect).

Food waste

Food waste is a third global challenge. And though progress has been made in research and policy commitment, the problem is not yet solved. It takes more research, development and innovation to halve, per capita, food waste at the retail and consumer level by 2030, and reduce food losses along the food production and supply chains (both targets of Agenda 2030). A holistic waste management approach needs to be raised, starting from sustainable product design. Examples of such holistic approaches include ‘grow your own food’, where there is also a conceptual step from consumerism to ‘*prosumerism*’ (e.g. you as individual are part of the production process), in the city context this raises issues with regard to availability of work, suburban food security, sanitation and city farm epidemics and capabilities & automatization trends (robotics). Growing meat or berries in laboratory is already possible and while the price is still high, costs are decreasing. Consumers still value ‘real’ food over artificial, but what if the latter is more sustainable? And do artificial foods contain the same diversity of secondary metabolites or profitable microbes?

Novel concepts, alternate approaches

- It may be beneficial to apply the so-called ‘**Re-concepts**’: **Reduce** - exploitation of resources, **Reuse** - commodities, infrastructure, **Revive** - through consequent changes, **Recycle** - materials, commodities, **Redefine** - resource needs, **Re-imagine** - potential uses, **Redesign** - use flows, uses of materials and infrastructures, **Replace** - components, ingredients, **Rebuild** - compounds, **Regenerate** - renew, **Reform** - reformulate, **Reorganize** - processes/systems, **Resilient**: adaptability, transformability, persistence, preparedness;

- Include the use of the **microbiome approach**: food moved over long distances is sterilised to prevent spread of microbes. If food from the own environment is used, there is less need for sterilisation procedures, as microbes are native to the environment;
- Different ways of calculating **ratios of food costs** like using proteins as calculation unit (instead of kilo) helps creating a more accurate picture;
- Food systems are big and complex. One of the biggest challenges (and current gap in research) is **building the connection between different scales** (from farming scale to local and regional scale);
- It is important to **recognise regional economies and their players**: material producers, energy carriers (forestry, agriculture, waste processing from food chain).

Environmental impact of food - Dr. Stefanie Wunder (Ecological institute, Germany)

The main challenges in reducing environmental impact are: population increase, land degradation and trends toward more resource intense food habits: there is less land per person available. Combating these challenges requires sustainable land management. Without changing consumer behaviour, this is impossible. The two most important leverages are a diet change towards less animal products and reducing food waste.

Consumer behaviour and food waste

Food waste can be perceived as 'collateral damage' between the different factors and priorities influencing consumer behaviour with respect to food (convenience, health, food safety, guests, variety, proper amounts). Food waste then is seen as a conflict of interest between those priorities. Behavioural change can only be reached if it is done in accordance with other goals and needs of household practices. There is a limited amount of research done on behaviour in relation to food waste and a clear gap when it comes to evaluation of impact of various drivers of behaviour and what helps in terms of motivation, ability and opportunity to make behavioural changes. The studies that *are* available, indicate that neither attitude, awareness nor healthiness of food significantly influences behaviour. What is most important is the descriptive norm; what are others (peers) doing? Also food sufficiency and tastiness of food are significant factors. This has implications for communication and education.

Research gaps and possible barriers for change

- It is important to better understand the role of household variables (age, gender, price consciousness, ecological values, different life stages, cultural background) to evaluate impact of tailored capacity building on consumer abilities;
- In addition, the role of 'nudging'; how to influence an individuals' 'choice architecture' is an area that requires more research;
- *Prosumerism*: whether or not the 'IKEA effect' is also relevant for food. If consumers place high value on products they (partially) produce themselves, then a reconnection of people and food production may be needed;
- Research needs to be combined with real world interventions where active participation is required.
- Communication is a two-way street and not just dissemination at the end of a project.
- Tackling food challenges in relation to environmental impact requires new synergies and different narratives. Think in terms of resilience to climate change (heavy rainfalls), biodiversity, healthy food, social interactions (cultural gardens).
- Beware of potential market and policy barriers:
 - Novel foods regulations,
 - CAP funding (and accessibility),
 - Access to agricultural land,
 - Bioenergy and bioeconomy policy,
 - Urban agriculture
 - Lack of food planning
 - 'Unfair trading practices'

Mild food processing - Dr. Maarit Maki (LUKE, Finland)

Organic and regular food

Food processing practices are common in both 'regular' food and organic food. What defines organic is not a quality claim but a production claim: it is in the way the food is processed. Organic food has more restrictions to processing techniques: only the use of '*additives, processing aids and other substances and ingredients used for processing food or feed and any processing practice applied, such as smoking, that respect the principles of good manufacturing practice*' are allowed. While the use of GMO's is prohibited, only natural flavours are allowed and minerals (trace elements included), vitamins, amino acids, and micronutrients, are only authorised as far their use is legally required in the foodstuffs in which they are incorporated.

Organic food production in relation to food quality and health

Five aspects are defined in organic food production and food quality: naturalness, health, sustainability, process & product orientation and a system approach. Consumers however, generally associate organic products with health. However, health claims of food are generally rather difficult to establish for organic foods because there is no placebo for comparison available. While health is an important aspect for both regular food and organic food consumption, there is a different understanding of health: organic food consumption is influenced by an overall holistic healthy lifestyle, while functional food consumption is characterized by small 'adjustments' to lifestyle. Current scientific evidence from human studies is insufficient to conclude whether organic foods are more beneficial for health than regular food. In addition, there are no long-term cohort studies focusing on chronic diseases (CVD, diabetes, cancer, neurodegenerative conditions) and no controlled human intervention studies available. However, it has been shown that organic plant products have higher contents of some essential or beneficial food compounds such as vitamin C and phenolic compounds (the latter are important in preventing food spoilage). Studies also show lower contents of nitrates and pesticides in organic food.

Food processing & health

Before food is available for buying in supermarkets, it undergoes a cycle starting with selection and control of the raw materials through processing aids, packaging, storage, transport and quality assurance checks. The extent and purpose of food processing steps in this cycle, determine the classification of the product. There are four categories ranging from unprocessed, or minimally processed foods, to ultra-processed food and drink products. Minimally processed foods are natural foods altered by processes such as removal of inedible or unwanted parts, drying, crushing, grinding, fractioning, filtering, roasting, boiling, pasteurisation, refrigeration, freezing, placing in containers, vacuum packaging, and non-alcoholic fermentation. None of these processes adds substances such as salt, sugar, oils or fats to the original food, in contrast to ultra-processed food. The consumption of the latter is associated with an increased risk of diet-related non-communicable diseases. Actual comparison studies show that moderately or highly processed foods indeed contain more sugars, saturated fat and sodium than minimally processed foods.

What are careful or mild processing techniques

Careful processing techniques include the use of gravity, vacuum or air pressure in liquid pumping instead of centrifugal pumps and careful design of piping systems, the rapid and efficient heat treatment in pasteurization or cooling systems in freezing in order to avoid losses and to preserve vitamins and avoidance of mixing of oxygen to avoid colour and flavour defects. One classical biological careful processing technique is the use of lactic acid bacteria that form acids which lower the pH and preserves the product. In addition, these bacteria produce vitamins K and B and improve digestibility when di- and oligosaccharides are metabolized. Tailored lactic acid starter cultures enhance the hygiene, sensory, nutritional and shelf life properties. The process is suitable for raw materials of animal and plant origin and can be used both in conventional and organic production. New mild preservation techniques include high-pressure processing (HPP) and pulsed electric field processing (PEF). These techniques inactivate micro-organisms as effectively as standard heating techniques and have the added bonuses of retaining flavour, texture and nutritional value while consuming less energy. As a result, shelf life is extended and products do not have to be thrown out so soon. New mild food processing techniques are available, but need to be integrated in the market.

Food waste as result of spoiling

Consumers continue to demand minimally or nonthermally processed products for a variety of reasons. However, reducing or eliminating thermal treatments also increases susceptibility to spoilage and decreases shelf life. Especially fungi are problematic spoilage organisms in processed foods. Preservative elimination, sodium and sugar reduction, and the use of natural flavours have the potential to increase the threat of fungal spoilage. It is important to realise that the use of milder food processing techniques may lead to shorter shelf life of food products than the use of heavier processing techniques. The hygiene in mild processing, including the selection of raw materials, process design and the packaging process, must be well designed to balance for this threat.

Mild food processing has important benefits for optimising healthy food. However it is important that there are clear principles and related criteria for the evaluation of additives and processing methods. The principle of carefulness/careful processing might be helpful in this respect in the communication between manufacturers/retailers and consumers. Food production and processing side streams can be used as sources of natural plant based antioxidative additives. If they are used in organic food products, their production method should meet the organic requirements and their safety should be evaluated. The biggest challenges for increasing the use of mild food processing techniques are not in the process and techniques, but in the reduced shelf life of products.

3. Plenary discussion - first impression on topics

During the plenary discussion round, the participants were invited to ask more questions to the expert speakers and give their first impressions on the selected topics. It was generally agreed that mild food processing as well as environmental impact of food are suitable and important for both ERA-NETs and often a priority at the national level as well. Further additions were made to the proposed topics:

- Combine entrepreneurs with researchers;
- What kind of services are needed to nudge consumers and change their behaviour?;
- Improve communication between consumers and producers;
- Diversification?
- What are best practices for packaging, how can we use Life Cycle Assessments, how to connect shelf life to food waste;
- Mild / careful / gentle processing technologies in terms of nutritional aspects and regional scale are attractive;
- City and science - participatory approaches are attractive;
- Food waste may be included as subtopic or function as a topic in itself;
- Environmental impact is also broad enough to cover many aspects;
- Ecological footprint of food? Is there a research gap? Ecological footprinting needs to be linked to consumer awareness. Also ecological footprint of products or lifestyles is missing. Possible intervention options are also missing;
- A clear link between the suggested topics and the Sustainable Development Goals (SDG) needs to be made: all countries are expected to implement the SDGs and act as responsible world citizens: for many countries their extra-territorial footprint is much larger than their intra-territorial;
- Include circular bio-economy and green protein research.

4. Scope of the ERA-NETs SUSFOOD2 and CORE Organic

SUSFOOD2 - Dr. Nikola Schulz (PT Juelich, Germany)

The vision of the SUSFOOD ERA-NET is that: ‘All food chain partners contribute to achieving sustainable, secure and resilient food systems which feed the world and make sustainable choices the easy and preferable choices for consumers’. This vision is translated into several objectives: developing sustainable food systems, reducing environmental impact and waste, resilience of the whole food chain, sustainable consumer behaviour and quality of life and competitive / economic growth. Various opportunities for cooperation with the CORE Organic ERA-NET can be identified under the themes of mild food processing and environmental impact of food.

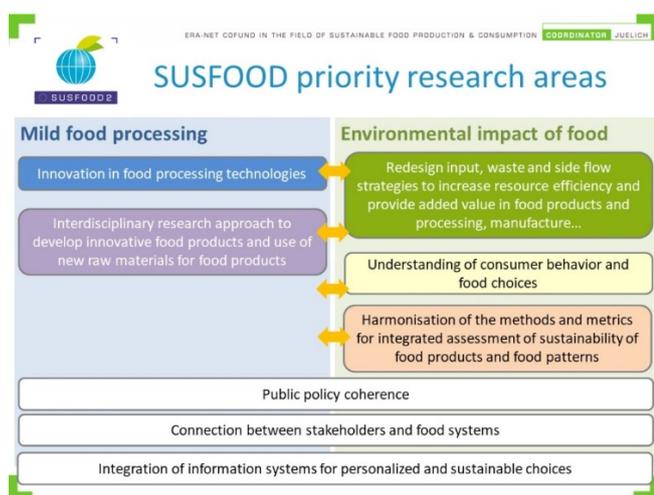


Figure 1: possible topics for cooperation

Research Topics	Call 1 2013	Call 2 2014	Call 3 2017
Redesign input, waste and side flow strategies to increase resource efficiency and provide added value in products and processing	3	1	4
Innovation in food processing technologies and food products	3	3	6
Innovative food products and use of new raw materials	-	2	-
Understanding of consumer behaviour and food choices	3	-	2

Figure 2: SUSFOOD funded projects related to joint topics

Under a **mild food processing** topic, two relevant research areas exist, under which several projects are already ongoing: innovation in food processing technologies, and interdisciplinary research approach to develop innovative food products and use of new raw materials for food products. Under an **environmental impact of food** topic, areas of interest are redesigning input, waste and side flow strategies to increase resource efficiency and provide added value, understanding consumer behaviour and food choices, and harmonisation and assessment of sustainability. Under most of these topics, SUSFOOD2 has already funded projects, proving these topics are of high interest for the ERA-NET. Apart from these, there are other topics of common interest (figure 1 in white), but these may be more difficult to fund as competitive research projects.

Important new inputs lie in the areas of personalized nutrition (management of food intake, personalized production, health), plant-based/ alternative protein sources, reduction of salt, fat, sugar, clean labelling, understanding food environments, smart and digital solutions (ICT), local and small scale production and knowledge transfer to SMEs.

CORE Organic - Dr. Ivana Trkulja (ICROFS, Denmark)

The aim of CORE Organic is to improve 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. Its overall objective for the CORE Organic Cofund Call 2016 is that the proposed research projects support sustainable growth of the organic sector in Europe and beyond. Also CORE Organic has already funded a total of sixteen projects under a food quality topic. Each call, starting from 2006, has included such a topic, ranging from ‘Quality of organic food - health and safety’ to ‘Organic food processing concepts and technologies for ensuring food quality, sustainability and consumer confidence’. During the Biofach event in spring 2018, both ‘strategies for minimal and mild food processing’ and ‘reconnecting consumers with food production’ were identified as important topics of common interest for both networks.

Participation in Biofach 2018

CO and SUSFOOD 2 - Biofach Congress
 Session: 'European research meets organic food processing at eye level',
 Representatives from food manufacturing, trade organizations and research to present and discussed: (i) challenges of the organic food sector, and (ii) how transnational research could contribute to the solutions.

Science Day at BioFach 2018 'Organics in future EU Research & Innovation policy', Workshop: The contribution of organics to sustainable food systems – 'Reconnecting consumers with food production' and 'Strategies for minimal and mild food processing'

Scientific- Societal - Entrepreneurial- Legal aspects - Processing techniques - mild for whom? → DOWNSIZING



Figure 3: possible topics for cooperation identified during Biofach 2018.

CO Calls and relation to Joint Topics

CO Calls	Projects	CO Processing research topics
CO II 2010	HealthyGrowth	Integrity of organic volume and values chains; transition from niche to volume; consumers
	Authentic Food	Authentic organic plant production; traceability; consumers
	SafeOrganic	Safety; antibiotic resistance along the food chain; consumers
CO Plus 2013	EcoBerries	Safety, quality and nutritional value; packaging
	FaVorDeNonDe	Sensory analysis of organic and conventional fruit/vegetables cultivations
	SusOrganic	Product quality; energy efficiency; LCA; food metrics
CO Cofund	ProOrg	CoP - provide tools and strategies for decision making of food processors and organic labelling companies
2016	SusOrganicPlus	Smart and low energy input processing chains; natural food additives and colourants; CoP

Figure 4: CORE Organic funded projects related to joint topics.

Both suggested topics relate to important current frameworks and developments. The EU FOOD 2030 and UNEP Sustainable Food Systems Programme objectives include:

- awareness raising of the need to shift to sustainable food systems;
- building enabling conditions for the uptake of sustainable practices across food systems;
- increasing access to actionable information and tools to make food systems more sustainable; and
- building synergies and cooperation to enhance and facilitate the shift to sustainable food systems.

Other important developments include how the ERA-NET instrument will develop under 'Horizon Europe', the Inter-disciplinary - Responsible Research and Innovation (RRI) framework, advocated multi-actor approaches and system governance towards sustainable food systems.

4. Discussions and inventory of topics

Break-out sessions

In three groups, the proposed topics were discussed in a World Café setting. Each group had twenty minutes per session for a guided discussion. They were invited to propose subtopics and in a separate group to propose any other topic suggestions that they might prefer over mild food processing or environmental impact of food.

Annex 1 gives an overview per topic of the outcomes of the break-out session. The results of the break-out sessions were aggregated and regrouped to the following longlist of possibilities:

The Circular Economy (brought up in *environmental impact of food* session and as *free topic*)

- How to valorise side-streams of food production?
- Resource efficiency
- How to reduce waste? --> Industry 4.0

Packaging (brought up in *environmental impact of food, mild food processing* sessions and as *free topic*)

- Options with 100% recycling from the beginning.
- Whole chain logistics
- New strategies for reduction of plastics
- Migration of microplastics and health risks

Interactions and empowerment of stakeholders (brought up in *environmental impact of food, mild food processing* sessions and as *free topic*)

- What motivates behaviour?
- How can stakeholders across the food chain reduce their environmental load?
- How to support SME?
- Economic options for future farmers

Diversity of food (brought up in *environmental impact of food* and *mild food processing* sessions)

- New varieties/cultivars/species for climate change resilience /more healthy ingredients

Healthy diets (brought up in *mild food processing* session)

- What impact do new varieties have on (mild) processing techniques
- Mild processing for nutrient preservation

Scaling of environmental practices along the food chain (brought up in *environmental impact of food* session)

Industry 4.0 (brought up in *mild food processing* session)

- Traceability issues; sensors in packaging?
- Smarter food processing (no over processing – ultra processing)

Novel technologies (brought up in *mild food processing* session and as *free topic*)

- Mild processing technology also accessible for SME's
- Novel food preservation methods – preserving food without processing

Legislation frameworks (brought up in *mild food processing* session)

- Definition of mild, gentle, careful processing

Sustainable (local) district approach (ala biodistrict approach for organic) (brought up as *free topic*)

- What is supporting implementation of such approaches?
- What are challenges and enablers (legislation, community, consumers)?

Consumer communication / awareness (brought up as *free topic*)

- Understanding consumer behaviour (organic labelling / sustainable), food choice, what is healthy?

Linking sustainable measurements (like footprinting) with behaviour of all food chain actors (brought up in *environmental impact of food* session and as *free topic*)

- Ecological footprint of organic/sustainable food

Food systems assessments (brought up as *free topic*)

- Real economic impact of food production / food systems
- Assessment of current food systems in terms of environment – scenario building
- Comparative study of different approaches (behaviour changes)

Establishment of new sustainable supply chains (brought up as *free topic*)

- With specific criteria (sustainability, food waste, organic , resource efficiency)
- What governance system is needed to get there?

Systems approaches along the food chain (brought up in *environmental impact of food* session)

Ecosystem Services of sustainable agriculture (brought up in *environmental impact of food* session)

5. Concluding notes

Discussions on the topics were continued at day two; the closed funding partners meeting. During the day, in-depth discussions about the structure of a joint action, the possibilities and possible time-line for a joint call between SUSFOOD2 and CORE Organic were also discussed in more detail. For this meeting, a separate short report (funders addendum) will be made available to the participating funding partners only.

The organising team would like to thank the expert speakers for their valuable contribution to the workshop, and the participating partners for their active discussions, input and contributions to further both content and ideas on jointly organising activities between the ERA-NETs SUSFOOD2 and CORE Organic.

This workshop was organised by the following team: **Lucie Andeltova** (BLE, Germany – CORE Organic), **Annika Fuchs** (BLE, Germany – SUSFOOD2), **Nikola Schulz** (PT Juelich, Germany – SUSFOOD2), **Ivana Trkulja** (ICROFS, Denmark – CORE Organic), **Sari Autio** (LUKE, Finland – CORE Organic), **Marianne Claessens** (VLAIO, Belgium – SUSFOOD2), **Dorri te Boekhorst** (for WUR, Netherlands – CORE Organic).

Contributions were received from **Arnd Bassler** (BLE, Germany – CORE Organic), **Stephane Bellon** (INRA, France – CORE Organic) and **Christine Bunthof** (WUR, Netherlands – CORE Organic).

2018.06.11/DtB

Topic 1: Environmental impact of food

- **Circular economy**
 - How to valorise side-streams of food production?
 - How to reduce waste?
 - Resource efficiency
- **Packaging**
 - Options with 100% recycling from the beginning.
 - Whole chain logistics
- **Interactions and empowerment of stakeholders**
 - What motivates behaviour/ incentives?
 - How can they reduce environmental load?
 - How to support SME?
 - Economic options for future farmers
- **Systems approach along the food chain**
- **Scaling of environmental practices along the food chain**
- **Diversity of food**
 - New varieties in plan breeding for climate change resilience /more healthy ingredients
- **Ecological footprint of organic/sustainable food**
- **Ecosystem Services of sustainable agriculture**

Topic 2: Mild food processing

- **Healthy diets**
 - Mild processing to keep the nutrients
- **New cultivars - new species**
 - What impact can they have on processing (mild processing)?
- **Industry 4.0**
 - How to stimulate waste reduction?
 - Traceability issues; sensors in packaging?
 - Smarter food processing (know what you do with food - no overprocessing / ultraprocessing)
- **Novel technologies**
- **Mild processing techniques, also accessible for SME's**
- **Valorisation of side streams**
- **Legislation framework**
 - Definition of mild, gentle, careful processing

Topic 3: Free discussion

- **Sustainable (local) district approach as well as short-chains (aka biodistrict approach for organic)**
 - What is supporting implementation of such approaches?
 - What are challenges and enablers (legislation, community, consumers)?
- **Consumer communication / awareness**
 - Understanding consumer behaviour (organic labelling / sustainable), food choice, what is healthy?
- **Linking sustainable measurements (like footprinting) with behaviour of all food chain actors**
- **Food packaging**
 - New strategies for reduction of plastics;
 - Migration of microplastics and health risks (safety).
- **Real economic impact of food production / food systems**
- **Assessment of current food systems in terms of environment – scenario building**
 - Comparative study of different approaches (behaviour changes)
- **Novel food preservation methods – preserving food without processing**
- **How to establish new sustainable supply chains**
 - With specific criteria (sustainability, food waste, organic, resource efficiency);
 - What governance system is needed to get there?

ANNEX 2 Participants list

SURNAME	NAME	COUNTRY	ORGANISATION	NETWORK	
Victor	Aguilera	UK	Defra	SUSFOOD2	
Seija	Ahonen-Siivola	Finland	MMM	Both networks	
Lucie	Andeltova	Germany	BLE	CORE Organic	
Sari	Autio	Finland	LUKE	CORE Organic	
Arnd	Bassler	Germany	BLE	CORE Organic	
Mauro	Bertelletti	Italy	MIUR	Both networks	
Els	Bonte	Belgium (Flanders)	Dept LV	CORE Organic	June 7 th only
Veselin	Brezin	Bulgaria	Bulgarian National Science Fund	CORE Organic	
Katrien	Broekaert	Belgium	ILVO	SUSFOOD2	June 6 th only
Christine	Bunthof	Netherlands	WUR	CORE Organic	
Roberta	Cafiero	Italy	MIPAAF	CORE Organic	
Elena	Capolino	Italy	MIPAAF	Both networks	
Marianne	Claessens	Belgium/Flanders	VLAIO	SUSFOOD2	
Cristina Laura	Cotet	Romania	UEFISCDI	Both networks	
Lieve	De Cock	Belgium	ILVO	CORE Organic	June 6 th only
Annika	Fuchs	Germany	BLE	SUSFOOD2	
Konrad	Kosecki	Poland	NCBR	CORE Organic	
Sirppa	Kurppa	Finland	LUKE	expert	June 6 th only
Maarit	Mäki	Finland	LUKE	expert	June 6 th only
Maarja	Malm	Estonia	Ministry of Rural Affairs	CORE Organic	
Ligita	Melece	Latvia	Institute of Agricultural Resources and Economics	CORE Organic	
María José	Montilla	Spain	CDTI	SUSFOOD2	June 7 th only
Alessandra	Morganti	Italy	MIPAAF	CORE Organic	
Helena	Pärenson	Estonia	MEM	SUSFOOD2	
Serenella	Puliga	Italy	MIPAAF	Both networks	
Veerle	Rijckaert	Belgium	Flanders' FOOD	SUSFOOD2	
Elke	Saggau	Germany	BLE	Both networks	June 7 th only
Dorri	te Boekhorst	Netherlands	WUR	CORE Organic	
Ivana	Trkulja	Denmark	ICROFS	CORE Organic	
Julie	Van Damme	Belgium	CRA-W	CORE Organic	June 6 th only
Stefan	Vetter	Austria	BMNT	CORE Organic	June 7 th only
Christiane	Winkel	Germany	BLE	CORE Organic	
Stefanie	Wunder	Germany	Ecological Institute	expert	June 6 th only

ANNEX 3 Programme

DAY 1 TOPIC EXPLORATION OF JOINT ACTION	
12:00 – 13:00	Registration - Lunch
13:00 – 13:30	Introduction
30'	Welcome, introduction to the activity Annika Fuchs and Lucie Andeltova (SUSFOOD2 and CORE Organic, BLE) Blitz introduction of participants to each other
13:30 – 14:10	Introducing environmental impact of food (state-of-art, gaps, needs)
40' (2x 15'+5')	Prof. dr. Sirpa Kurppa (LUKE, Finland) Dr. Stephanie Wunder (Ecological Institute, Germany)
14:10 - 14:30	Introducing mild food processing (state-of-art, gaps, needs)
20' (15' + 5)'	Dr. Maarit Mäki (LUKE, Finland)
14:30 – 15:00	Plenary discussion – first impressions on these topics
	Are these topics suitable and priority for the networks? Are there special subtopics, which are of high interest? Are there any conditions to implement these topics?
15:00 – 15:15	Coffee break
15:15 – 15:55	Scope of the ERA-NETs and relation to topics
40' (2x 15'+5')	SUSFOOD2 scope and relation to the topics Nikola Schulz, (<i>SUSFOOD2 Secretariat, Juelich</i>) CORE Organic scope and relation to the topics Ivana Trkulja (<i>CORE Organic secretariat, ICROFS</i>)
16:00 – 17:15	Break-out sessions to discuss possible topics in more detail
75' (3 x 25')	Per topic break-out discussions to assess whether the topic is of interest to the partners, what are priorities, and is there common ground between the partners for a joint topic. A separate group to discuss other possible priorities that are could serve a joint call.
17:15 – 17:45	Report back from break-out groups
17:45 – 18:00	Closing day 1
DAY 2 FUNDERS MEETING	
08:30 – 09:00	Welcome coffee
09:00 – 09:30	Common discussions on topics
30'	Recap day 1 on discussions
09:30 – 10:45	Common discussions on topics (continued)
75'	Are the presented topics relevant and how broad or narrow the topics should be? Do they fit the needs of the partners? Do they fall within the scopes of both ERA-NETs?
10:45 – 11:00	Coffee break
11:00 – 11:45	Common discussions on call type
45'	Survey results next funding activity Call type ('classic') or other form (for example network call) Experiences from other ERA-NETs with joint calls
11:45 – 12:15	Next steps
12:15 – 13:00	Closure & sandwiches

Annex A: Areas of interest between CORE Organic and SUSFOOD2 ERA-NETs.

CORE Organic

- Processing technology that fits organic food products (“minimal & mild”)
- New processing and packaging that preserves quality
- Alternatives to *contentious** substances/techniques
- New additives/auxiliaries of natural origin
- Shelf life versus food waste
- “Zero waste” packaging
- Reducing environmental impact throughout the value chain
- New processing & packaging that decreases environmental impact
- Public health effects of organic food systems
- Consumer attitude towards *contentious** substances/techniques
- Supporting the transition towards sustainable food systems
- Communication of the benefits of mild processing to consumers

SUSFOOD2

- Resource-efficient and innovative processing technologies addressing sustainability
- Technologies and processes to maintain or optimise general food quality as well as nutritional quality
- New raw materials to increase sustainability
- Encourage sustainable consumer behaviour
- Technological as well as societal approach to innovation
- Harmonised tools for assessing sustainability of food products and food patterns
- Challenges and opportunities to achieve sustainable food systems with focus on different stakeholders and their interconnections (multi-stakeholder approach)
- Resource efficiency and added value in food products and processing, manufacture etc.
- Waste reduction & Re-use of valuable components
- Insight into consumer choices: How can “sustainable” become the preferred choice?
- Information systems to support personalized sustainable choices (methods, technologies)
- Review and renew policies supporting sustainable food systems
- Resilience of the food supply chain
- Improve competitiveness and economic growth in the EU food industry with special attention to SMEs
- Limiting environmental impact

Careful processing technologies

New additives/auxiliaries and raw materials

Best practice for packaging

Measurement of environmental impact

Reduction of environmental impact

Consumer behaviour

System governance towards sustainable food systems

* *Contentious*: controverse, debated

This Venn-diagram provides information on areas of interest addressed by each ERA-NET as well as areas of common interest. ERA-NET SUSFOOD2 themes are in purple, CORE Organic themes are in green. The overlap (text in white) shows areas of common interest between the two ERA-NETs.