Research & Innovation for Tomorrow's Nutrition & Food Systems

A joint contribution from TP Organics and ETP Food for Life

Introduction

This document describes two topics of interest for both TP Organics and ETP Food for Life: 1) Strategies for Minimal and Mild Food Processing, and 2) Increasing Consumer Understanding and Engagement, with special focus on Sustainable Consumption. It has been developed by a joint task force of experts from TP Organics and ETP Food for Life, who have identified areas of common interest based on the Strategic Research and Innovation Agendas of both European Technology Platforms.

Topic 1 - Strategies for Minimal and Mild Food Processing

Specific challenge

In the past decades, the production of food and food ingredients has become highly optimized. Plant-based ingredients such as sugars, proteins, starches and many other ingredients, are often highly purified, which makes them universally applicable in many products. However, fractionation and purification affect the sustainable use of raw materials, energy and water. In addition, there is an opposing consumer pull for organic food and natural ingredients. Innovation in the design of minimal, mild or careful processing methods that preserve food structure and deliver healthy, tasty and environmental friendly foods for consumers is needed. These new processing methods should be embedded into systematic “cradle-to-cradle” and circular economy approaches.

Scope

Projects should aim at assessing and developing mild, minimal and careful processing methods to ensure the integrity of food, especially its naturally occurring nutritional, structural and functional properties, by taking into account all types of processing, including industrial food processing and cooking in public canteens and restaurants.

To accomplish this, activities will be carried out at four levels:

1. Technology

Projects should deliver a framework for defining and assessing minimal, mild and careful processing of food in the context of sustainability and public health and with the aim to reduce the use of additives and processing aids. This should entail the development of scaled-down processing solutions to enable local ingredient sourcing. Advanced technologies, based on the “cradle–to-cradle” and circular approaches, should be developed to make better use of the diversity and complexity in raw materials and to facilitate their total use.

2. Market

Projects should contribute to a better understanding of how consumers perceive natural food ingredients and how this perception is linked to food origin and processing methods. They should provide insight in the way how the benefits of minimally, mildly and carefully processed food can be communicated to consumers in order to enhance sustainable consumption and public health. Finally,

the acceptability of proposed food processing technologies by producers and processors, consumers and other stakeholders should be investigated.

3. Sustainability, nutrition and public health

Projects should assess the impact of processing technologies on the characteristics of products including food structure, composition and stability, safety, nutritional and sensory quality, as well as the impact on all sustainability dimensions (environmental, social, economic), public health and labour safety.

4. Strategy

Projects should produce a Code of Practice, covering processing of conventional, organic and origin-linked quality food that provides guidance and decision criteria for selecting and developing the most appropriate mild, minimal and careful technologies for food processing. Business models should be developed to bring minimally produced food products on the market.

Projects should cover conventional food processing as well as processing for organic and origin-linked quality schemes. A multi-actor approach should be adopted, involving the industry, consumers and other actors in the agri-food chain.

Expected impact

- Evidence based criteria for selection, design and control of minimal, mild or careful processing technologies
- New appreciation of the diversity of European foods, and understanding of their impacts on both health and sustainability in production
- More minimally, mildly or carefully processed food available on the market resulting in positive impact on the environmental, social and economic dimensions of sustainability as well as public health
- Support for new job creation and job retention in rural areas through down-scaling of processing methods
- Better communication about minimally processed foods and increased consumer awareness about the benefits of minimal, mild and careful processing

Topic 2 - Increasing Consumer Understanding and Engagement, with special focus on Sustainable Consumption

Specific challenge

Food consumption is essential in human life, not only in terms of nutritional needs, but also in terms of social (relationships), emotional (life satisfaction), and identity-related (food culture) needs. Despite increasing similarities across Europe, the aspects that consumers or specific consumer groups value in food and eating depend on local context and socio-economic background and may relate to primary production, processing and manufacturing, distribution, purchase, preparation, eating and even food waste disposal. This diversity of values and preference makes the transition towards sustainable production and sustainable food consumption in Europe a significant challenge. In order to make progress, a better understanding of consumer knowledge and behaviour is needed. Close relationships need to be re-established between consumers and food producers. Research and practical models are needed to make the choice for sustainable food the easy choice for consumers.

Scope

A. Consumer understanding

Projects should achieve a better understanding of the role of consumer awareness, knowledge and behaviour as well as social and cultural values in the transition towards sustainable food systems. Projects should focus on how consumers and specific consumer groups perceive sustainability issues and adhere to sustainable dietary patterns. Projects should investigate the systems and institutional, socio-cultural and purchase context surrounding food choices in everyday life to better understand essential leverage points that support the transition to sustainable food systems. Research should explore the various strategies that consumers adopt to negotiate between potentially conflicting aspirations in their daily decisions when buying food. Special attention should be paid to value-based food systems and how they can foster sustainable consumption. In this regard, there is a diversity of models that could be explored, such as the organic food system, or food supply more tailored towards (individual) consumer needs. Research should consider to what extent consumer choices and activities can drive further improvement of the sustainability performance of food systems. A segmentation of consumers according to involvement in different food systems and cultural and socio-economic background should be made in order to develop efficient support policies, commercial and social marketing strategies.

Projects should adopt a multi-actor approach with close collaboration between supply chain actors (SMEs), consumers and researchers.

B. Consumer engagement

Values and knowledge that consumers have about sustainable food do not correlate with their behaviour. This *value-action gap* prevents progress towards sustainable food systems. Therefore, projects should develop and test strategies to close this gap. Strategies should include:

- Re-establishing close contacts between consumers and food producers regardless of location or scale of production;
- Making consumers co-producers of food;
- Exploring and developing ICT and big data tools that provide consumers with transparent, reliable and relevant information about sustainability aspects of food;
- Identifying, analysing and testing models which strengthen the role of the consumer in the transition towards sustainable food production and consumption, such as the organic food system, food supply more tailored towards (individual) consumer needs or origin-linked quality schemes.

Projects should adopt a multi-actor approach with close collaboration between supply chain actors (SMEs), farmers, consumers and researchers.

Expected impact

- Improved strategies for communicating sustainability and ethical issues of food systems and solutions to promote the added value of sustainable food systems
- Strategies for enhancing the role of consumers in the transition towards sustainable food production and consumption
- Contribution to improved policy support for sustainable food systems, including model systems like the organic food system
- Practical systems and ICT tools that make the sustainable choice the easy choice for consumers

Authors

This paper has been written by a task force composed of experts from TP Organics and ETP Food for Life:

TP Organics

Johannes Kahl, University of Copenhagen

Flavio Paoletti, Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria (Council for Agricultural Research and Economics)

Alexander Beck, Assoziation ökologischer Lebensmittelhersteller

Raffaele Zanoli, Università Politecnica delle Marche

Bram Moeskops, TP Organics Secretariat

ETP Food for Life

Didier Bonnet, Cargill

Remko Boom, University of Wageningen

Hans van Trijp, University of Wageningen

Rebeca Fernández, ETP Food for Life Secretariat