

Food 4.0 funding programme: Call for project proposals

An initiative of the Swiss Academies of Arts and Sciences

As part of the Food 4.0 funding programme, the Swiss Academies of Arts and Sciences are supporting innovative and effective projects across the food value chain which will contribute towards ensuring a successful future for the Swiss food system.

Background

Food production in Switzerland is facing increasing competitive pressure. A Europe-wide trend towards increasingly cheaper food is extremely difficult to contend with in view of the existing level of salary/production costs in Switzerland. This means innovative developments for the Swiss food system are required to develop the production of safe, healthy and tasty food to ensure Switzerland remains a commercially relevant production location for food and food industry manufacturing technologies in future.

Programme objectives

The Food 4.0 programme

- promotes transdisciplinary innovations in the Swiss food system;
- enables cooperation between the private sector and science to test the market potential or feasibility of innovative products, processes, services, technologies and scenarios;
- enables the definition of areas of action for (political) decision-makers;
- carries out networking activities to establish links between players in the Swiss food system, including with technology companies outside of it.

2024 call for proposals

Innovative implementation projects in the following main development areas will be supported taking account of the framework conditions, sustainability, quality, safety, traceability and consumer interests:

1. Technologies for hybrid products of different protein sources
2. Precision bio-technology/bio-transformation
3. Digital transformation of the food system
4. Precision agriculture

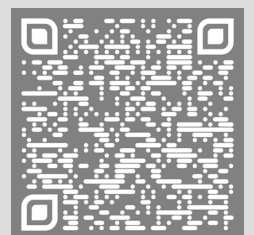
Deadline for submission of proposals:

22 October 2024

Decision on implementation:

20 December 2024

Further information
satw.ch/en/food





Four main development areas

Technologies for hybrid products of different protein sources

The development of hybrid products that combine various protein sources is becoming increasingly important in the food industry. These products not only offer a broader range of nutrients (e.g., a more comprehensive amino acid profile), but they can also enhance sustainability by reducing dependence on a single protein source. Hybrid products can be created by combining multiple protein sources, such as animal-based proteins (e.g., milk, insects) with plant-based proteins (e.g., legumes, algae, lupins, soy), or even by combining different plant proteins.

Precision biotechnology/biotransformation

Continuous and robust food fermentation under 'extreme' industrial production conditions for accelerated fermentation kinetics so that greater productivity and shorter processing times and selectiveness can be achieved through the use of new enzymes or enzyme combinations. These could be provided from micro-organisms which manage to survive under extreme conditions, such as high or low temperatures or in high salt concentrations. The extraordinary biotransformation capability of enzymes, which are produced from such micro-organisms, provides new opportunities for food biotechnology and the foods produced with it.

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Digital transformation of the food system

The use of state of the art digital technologies for big data management for networking and automation solutions is an opportunity to create a more efficient and sustainable structure for integrated food value chains as part of a bioeconomic circular economy, taking account of significantly improved consumer centricity. This includes the areas of sensor technology, robotics, artificial intelligence and blockchain technology. The hope is to reduce waste, energy consumption and greenhouse gas emissions, improving all footprints.

Precision agriculture

Precision agriculture is a modern approach to farming that utilizes technology and data analysis to improve the efficiency and sustainability of agricultural processes. The primary goal is to increase yields and optimize the use of resources while minimizing negative environmental impacts. Precision agriculture integrates various technologies such as GPS (Global Positioning System), GIS (Geographical Information System), satellite imagery, drones, and sensor technology to collect real-time data, analyze it using AI and machine learning, and support actions such as treatment or harvesting through the use of robotics. This data and these tools enable precise decision-making and targeted interventions at the field or even individual plant level. A related concept within precision agriculture is cellular agriculture, where cells of animal or plant origin are cultivated in bioreactors and structured and functionalized using processes such as 3D printing.

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