



Portrait of the National Research Programme (NRP 69)

# Healthy Nutrition and Sustainable Food Production

Second research phase



SWISS NATIONAL SCIENCE FOUNDATION

## Research covering the entire food chain

**The National Research Programme «Healthy Nutrition and Sustainable Food Production» (NRP 69) is studying the links between nutrition, health and environment. The main emphasis of the second programme phase, which started in 2016, is on research that covers the entire food chain from agricultural production through to the consumer.**

Since its launch in 2011, the National Research Programme «Healthy Nutrition and Sustainable Food Production» (NRP 69) has been studying the links between nutrition, health and the environment. Of particular interest is the sustainable production of food. The stakes are high: diet-related illnesses presumably account for one third of the health-care costs in Switzerland. In addition, efficiency in the use of limited

resources during food production, such as water and soil, needs to be improved. To improve public health and protect the environment, it is essential to transform food systems and reinvent food production.

The 20 projects conducted during the first research phase of NRP 69 are about to end. 2015 saw the inclusion of two international projects, funded in the context of a European Joint Pro-



**Prof Fred Paccaud**  
President of the NRP 69 Steering Committee

gramming Initiative (JPI). The two studies will investigate the use of biomarkers and genetics in nutritional science, thereby adding a significant new dimension to the programme.

All of the researchers have an excellent track record in their respective disciplines. But only a small number of groups are studying food production and public health. Part of the NRP 69

mission is to build bridges between these areas. We therefore want to forge ahead with efforts to reduce barriers between the research areas of agronomy, nutrition and public health. In the near future, we will start working on exchanges and on synthesising research results with the researchers active in the first phase of the programme.

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The second research phase also aims to strengthen the ties between individual disciplines. We selected three new projects to complement the research already being carried out under NRP 69. They investigate the entire food chain from agricultural production

through to the consumer. The new projects are presented in this brochure.

Thanks to its transdisciplinary approach, the National Research Programme «Healthy Nutrition and Sustainable Food Production» (NRP 69) will help to develop capacities in Switzerland. But one thing is already certain at this stage: transdisciplinary research groups are needed also beyond the end of the programme, covering the entire food chain and creating a link between food production and public health. If the programme is successful in promoting this type of research, this would be a first milestone along this road.



# First research phase

## Key Questions

■ **How can the Swiss population be encouraged to eat healthily?**

▲ **How can products that are healthy and fit for consumption be made available at affordable prices?**

● **How can the production, processing and distribution of food be managed effectively with the least possible impact on the environment?**

■ **Salt consumption**  
Sigrid Beer-Borst  
Institute of Social and Preventive Medicine,  
University of Bern

■ **Preventing obesity**  
Dr Lukas Emmenegger  
Laboratory for Air Pollution/Environmental  
Technology, Empa, Dübendorf

■ **Health motivators**  
Prof Claude Messner  
Institute for Marketing and Management,  
University of Bern

■ **Vitamin D**  
Prof Sabine Rohrmann  
Epidemiology, Biostatistics and Prevention  
Institute, University of Zurich

▲ **Citizen consumer**  
Prof Jean-Philippe Leresche  
Science, Politics and Society Observatory,  
University of Lausanne

▲ **Social inequality**  
Prof Pedro Marques-Vidal  
Institute of Social and Preventive Medicine,  
University of Lausanne

▲ **Preservative bacteria**  
Prof Leo Meile  
Institute of Food, Nutrition and Health,  
ETH Zurich

▲ **Dietary fibres**  
Prof Laura Nyström  
Institute of Food, Nutrition and Health,  
ETH Zurich

- ▲ **Nano-preservation**  
Prof Cornelia Gabriela Palivan  
Department of Chemistry, University of Basel
- ▲ **Healthy pigs**  
Prof Peter Spring  
Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences
- ▲ **Functional Food**  
Dr Andreas Steingötter  
Institute for Biomedical Engineering,  
ETH Zurich
- ▲ **Staphylococci**  
Prof Roger Stephan  
Institute for Food Safety and Hygiene,  
University of Zurich
- ▲ **Safe cereals**  
Dr Susanne Vogelgsang  
Agroscope, Institute for Sustainability  
Sciences, Zurich
- ▲ **Metal exposure**  
Prof Wolfgang Wilcke  
Institute of Geography, University of Bern
- **Organic food basket**  
Prof Marion Fresia  
Anthropology Institute, University of Neuchâtel
- **Food losses**  
Dr Gabriele Mack  
Agroscope, Institute for Sustainability  
Sciences, Ettenhausen
- ▲● **Sustainable milk production**  
Dr Pierrick Jan  
Agroscope, Institute for Sustainability  
Sciences, Ettenhausen
- ▲● **Sustainable agri-food systems**  
Dr Birgit Kopainsky  
Flury & Giuliani GmbH, Zurich
- ▲● **Iron and zinc**  
Prof Raffaele Mezzenga  
Institute of Food, Nutrition and Health,  
ETH Zurich
- ▲● **Cow emissions**  
Dr Sabine Schrade  
Agroscope, Institute for Sustainability  
Sciences, Ettenhausen

## Joint Programming Initiative «A healthy diet for a healthy life»

### ■ MIRDJET

Prof François Pralong  
University of Lausanne

Prof Luc Tappy  
University of Lausanne

Dr Jörg Hager  
Nestlé Institute of Health Sciences, Lausanne

### ■ FOOTBALL

Dr Guy Vergères  
Agroscope, Institute of Food Sciences, Berne

Prof François Pralong  
University of Lausanne

## Second research phase

### ■▲● Dietary transition

Prof Suren Erkman  
University of Lausanne

### ■▲● Innovations in nutrition

Dr Jürg Minsch  
Zurich University of Applied Sciences,  
Wädenswil

### ■▲● Diets of the future

Dr Matthias Stolze  
Research Institute of Organic Agriculture,  
Frick

# Joint Programming Initiative «A healthy diet for a healthy life»

## ■ MIRDIEI

### Measuring the effects of nutrition with biomarkers

The health effects of nutrition differ from person to person. Metabolic, environmental and genetic factors all play a role. However, there is still no precise measurement method for this. The study investigates how changes in eating habits influence certain genetic building blocks, the so-called micro-RNA. In the future, such genetic biomarkers will make it easier to tailor recommendations for healthy eating to individual demographic groups.

**Prof François Pralong**, University of Lausanne  
**Prof Luc Tappy**, University of Lausanne  
**Dr Jörg Hager**, Nestlé Institute of Health Sciences

## ■ FOOTBALL

### What our metabolism tells us about our diet

Research on food consumption today is often conducted through surveys. Though the substances produced in the body when food is metabolised provide more precise information, these biomarkers have not yet been systematically classified. This international project classifies and assesses metabolic products linked to nutrition, thereby providing a useful basis for future research.

**Dr Guy Vergères**, Agroscope, Institute of Food Sciences, Berne  
**Prof François Pralong**, University of Lausanne

## Second research phase

### ■▲● Dietary transition Toward healthy and sustainable diets in Switzerland

At a time when consumers are paying increasing attention to what they eat, this project aims to find out what might tip the balance in favour of transition to a healthy and sustainable diet. By analysing prescribed diets, social practices and the impacts of nutrition on our health and on the environment, the project will identify factors that can encourage or block a change in eating habits. The overall goal is to aid the transition toward healthy and sustainable diets in Switzerland.

Prof Suren Erkman, University of Lausanne

### ■▲● Innovations in nutrition Innovations for future-oriented diets and food production

People around the world are consuming increasing amounts of meat and dairy products, leading to a rise in nutrition-related health risks and in pressures on the environment. This project aims to identify innovations along the value chains that would reduce the negative impacts of producing and consuming animal-based food. In collaboration with practitioners, the researchers are developing strategies and recommendations that will promote healthy and sustainable eating habits and lead to more creativity and variety on our dinner plates.

Dr Jürg Minsch, Zurich University of Applied Sciences,  
Wädenswil



■▲● Diets of the future  
Recommendations for sustainable and  
healthy diets

How can we achieve a healthy and sustainable diet? This interdisciplinary project is looking for answers to these questions based on different scenarios of how eating habits among the Swiss population could develop until 2050. It will analyse how diets impact on public health and sustainability. By making recommendations, the project will contribute to lowering environmental and social costs as well as public health expenses.

**Dr Matthias Stolze**, Research Institute of Organic  
Agriculture, Frick



### **NRP 69 in brief**

NRP 69 aims at establishing a scientific basis and practical solutions for a healthy nutrition and a sustainable food production in Switzerland. The programme has an overall budget of 13 million Swiss francs and will continue until the end of 2018. Altogether twenty-five research projects were approved in two calls for projects.

### **NRP 69 pursues the following goals**

- Generate knowledge to support the development of sustainable eating habits and food production in Switzerland
- Develop strategies against diet related diseases like diabetes and cardiovascular diseases
- Promote current and upcoming reform processes in the Swiss agricultural and nutrition sectors