



# Food Day @ETH 2024 Proceedings

30 October 2024

14:00 – 21:00 CET, ETH Zurich

**ETH Zurich established the World Food System Center in 2011. Our mission is to be a leader in scientific research, education, and outreach across the food system that contributes to the key challenges of food and nutrition security, environmental health, and social well-being.**

#### Food Systems and the Sustainable Development Goals

The United Nations 2030 Agenda for Sustainable Development affirms 17 Sustainable Development Goals and 169 targets to build a better world. Fighting hunger is a central element of the SDGs, which are integrated and balance the three dimensions of sustainable development: economic, social, and environmental.

In order to advance food system transformation to achieve the SDGs, effective policies are required that support and coordinate actions. This approach, taking local conditions into account, should be co-developed by various actors, especially farmers, but also industries, retailers, policy makers and consumers. Effective solutions and concerted actions based on improved coordination, collaboration, and communication among all these actors are key. Only then can we successfully transform and build sustainable food systems that ensure food and nutrition security, human and environmental health, and social well-being for all across the globe.

#### The Center

The World Food System Center was established at ETH Zurich based on the understanding that solutions to food system challenges require collaboration from stakeholders across the entire food value chain. Since its founding in 2011, the programs of the Center bring opportunities to students, scientists, and professors who are concerned with food systems in their research and studies. Providing interactive platforms to engage with a wide range of local to global stakeholders from different sectors and disciplines is key.

Our annual research symposium brings together a diverse audience from academia, industry, government, and international organisations for interactive discussions and workshops on food system topics. The plenary session of this year's Food Day focuses on the role of research and innovation in accelerating food systems transformation.

The symposium gives young researchers and practitioners a chance to share their ideas and passion. Oral presentations from Center funded projects will highlight research on climate-smart agriculture, food technology, and nutrition. We will then have a keynote by Patrick Honauer, who will share his thoughts on how local food networks can drive positive change.

Follow us on:



World Food System Center, ETH Zurich

# Program

## 14:00 – 16:30 Workshops

- › Ultra-Processed Foods: Myths, Facts, and Future Role
- › Reaching Mutual Agreements: Practice the Art of Negotiation
- › Zukunft des Schweizer Obstbaus: Tradition trifft Innovation
- › Gesunde Gewohnheiten, gesunder Planet: Ernährung neu denken

## 16:00 – 17:00 Coffee Break and Poster Session in AudiMax Foyer

## 17:15 – 19:00 Plenary Session in AudiMax

### Welcome

- › **Martijn Sonneveld**, Executive Director, World Food System Center
- › **Jeanne Tomaszewski**, Communications and Outreach Manager, World Food System Center

### Introduction and Center Outlook

- › **Robert Finger**, Chair, World Food System Center

### Session: Climate-smart Agriculture

#### *Towards digital twins of farms for a more sustainable and efficient food production*

- › **Joaquin Gajardo**, Crop Science Group, ETH Zurich

#### *Drivers and origins of nitrous oxide emissions from agroecosystems*

- › **Fabio Turco & Lorenz Allemann**, Grassland Sciences Group, ETH Zurich

### Session: Food Technology & Nutrition

#### *Enzymatic strategies for promoting efficient use of plant protein in sustainable food systems*

- › **Mingqin Li**, Laboratory of Food and Soft Materials, ETH Zurich

#### *Addressing impacts of the gut microbiome on health risks from food systems factors*

- › **Jacob Folz**, Laboratory of Toxicology, ETH Zurich

### Keynote: How local food networks can drive positive change

- › **Patrick Honauer**, Lecturer (ZHAW) and Co-founder of BachserMärt, Social Gastronomy & GastroFutura

## 19:00 – 21:00 Networking Poster Session with Reception in AudiMax Foyer

# Workshops



## Ultra-Processed Foods: Myths, Facts, and Future Role

This workshop offers all the opportunity to collaboratively address the challenges and opportunities that ultra-processed foods present. The goal is to ensure equitable access to safe, nutritious, and affordable food while considering the broader implications for global food systems. Through thoughtful exploration of health, regulation, food security, and innovation, the workshop aims to advance understanding of the role of ultra-processed foods in our diets.

**In collaboration with the Swiss Food and Nutrition Valley**

## Reaching Mutual Agreements: Practice the Art of Negotiation

Discover how negotiation is a competency we all have, and that can be practiced and improved through clear, evidence-based methods and tools. Practicing this competency will also enhance your ability to engage effectively at the science-policy interface. This is critical for tackling complex and urgent challenges such as transitioning towards sustainable food systems.

**In collaboration with the Engage Project of the ETH Domain**



## Zukunft des Schweizer Obstbaus: Tradition trifft Innovation

Der Obstbau ist in vielen Regionen der Schweiz tief verwurzelt, sowohl kulturell als auch wirtschaftlich. Doch wie viele andere Bereiche der Landwirtschaft steht auch der Obstbau vor wachsenden Herausforderungen. In diesem Workshop beleuchten wir drängenden Fragen aus unterschiedlichen Perspektiven: Welche Auswirkungen haben der Klimawandel und neue gesetzliche Rahmenbedingungen auf die Anbausysteme? Und welche Rolle spielen dabei der Markt und die Konsument\*innen?

**In Kooperation mit dem SVIAL**



## Gesunde Gewohnheiten, gesunder Planet: Ernährung neu denken

In diesem interaktiven Workshop lernst du, wie du deine Ernährungsgewohnheiten langfristig positiv und nachhaltig verändern kannst – für deine Gesundheit und den Planeten. Basierend auf den Prinzipien der Planetary Health Diet erfährst du, wie der vermehrte Konsum von Obst, Gemüse, Hülsenfrüchten und Nüssen und die Reduktion von Fleisch und tierischen Produkten zu einer gesünderen und umweltfreundlicheren Ernährung führen.

**Dieser Workshop wird vom Zurich-Basel Plant Science Center organisiert und ist Teil des Programms «Dialog im Quartier».**



# Speakers

## Introduction and Center Outlook

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Robert Finger

Professor of Agricultural  
Economics and Policy & World  
Food System Center Chair

## Presenters

Food Technology & Nutrition

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Mingqin Li

Laboratory of Food and Soft  
Materials, ETH Zurich



Jacob Folz

Laboratory of Toxicology,  
ETH Zurich

## Presenters

Climate-smart Agriculture

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Joaquin Gajardo

Crop Science Group,  
ETH Zurich



Fabio Turco

Grassland Sciences Group,  
ETH Zurich



Lorenz Allemann

Grassland Sciences Group,  
ETH Zurich

## Keynote

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Patrick Honauer

Lecturer (ZHAW) and  
Co-founder of BachserMärt,  
Social Gastronomy & Gastro-  
Futura

## Moderation

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Martijn Sonneveld

World Food System Center  
Executive Director



Jeanne Tomaszewski  
World Food System Center  
Communications & Outreach  
Manager

# Presentations

Wednesday, 30 October, Plenary Session, 17:15 – 19:00 CET

**Title:** Towards digital twins of farms for a more sustainable and efficient food production

**Authors:** Joaquin Gajardo<sup>1</sup>, Lukas Roth<sup>1</sup>, Sergey Prokudin<sup>2</sup>, Michele Volpi<sup>3</sup>, Achim Walter<sup>1</sup>

<sup>1</sup> Crop Science Group, Department of Environmental Systems ETH Zurich

<sup>2</sup> Computer Vision, Department of Computer Science

<sup>3</sup> Swiss Data Science Center

To meet the challenge of feeding a growing population under a changing climate, increasing food production sustainably is essential. Artificial intelligence and computer vision have enabled significant breakthroughs in agriculture, powering applications that support farmers in tasks such as weeding, fertilization, harvest, and disease detection. While these applications often rely on analyzing images at specific timepoints, tracking crop development over time is crucial to monitor information impacting crop yield and resilience to extreme weather. Our research focuses on achieving this goal by developing algorithms to create explicit 3D and 4D virtual replicas of farms based on simple smartphone image captures. This spatio-temporal reconstruction of the crop growth process will be a key building block for comprehensive crop monitoring and the digitalization of agriculture.

Our work contributes to sustainable food systems by enabling more efficient and precise crop management, reducing resource waste, improving crop resilience, and increasing production within existing arable areas. It aligns with UN Sustainable Development Goals, particularly SDG 2 (Zero Hunger), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land), by promoting sustainable agriculture practices and enhancing food security in the face of climate change.

**Title:** Drivers and origins of nitrous oxide emissions from agroecosystems

**Authors:** Fabio Turco<sup>1</sup>, Lorenz Allemann<sup>1</sup>, Sambit Shome<sup>1</sup>, Kukka-Maaria Kohonen<sup>1</sup>, Joachim Mohn<sup>2</sup>, Frank Liebisch<sup>3</sup>, Nina Buchmann<sup>1</sup>

<sup>1</sup> Grassland Sciences Group, ETH Zurich

<sup>2</sup> Laboratory for Air Pollution & Environmental Technology, Empa

<sup>3</sup> Water Protection and Substance Flows, Agroscope Reckenholz

Nitrous oxide (N<sub>2</sub>O) is one of the most important anthropogenic greenhouse gases. The intensive use of nitrogen fertilizers caused an increase in N<sub>2</sub>O emissions over the last decades. However, identifying drivers of soil N<sub>2</sub>O emissions under field conditions is challenging due to high spatio-temporal variability and limited availability of high-resolution measurements. In the DONA project, we measure N<sub>2</sub>O fluxes at half-hourly resolution, using the eddy covariance method in combination with meteorological stations, soil sensors, and manual sampling. The project is divided into two sub-projects:

*DONA I: Evaluating N<sub>2</sub>O mitigation potential of precision fertilization*

To compare the emissions from a standard fertilization practice versus a precision fertilization approach based on satellite data, N<sub>2</sub>O fluxes from the two treatments were measured with an eddy covariance tower and 8 semi-automatic chambers over a winter wheat growing season.

*DONA II: Upscaling N<sub>2</sub>O emissions from field to farm scale*

To upscale N<sub>2</sub>O emissions from field to farm scale we measure N<sub>2</sub>O fluxes, meteorological and soil climate during a crop rotation at field scale and combine them with satellite-derived vegetation indices, and management from multiple fields in an empirical model.

The results of DONA will contribute to a better understanding of the spatio-temporal dynamics and drivers of N<sub>2</sub>O emissions under field conditions and provide a selection of site-specific management options to reduce N<sub>2</sub>O emissions, thus contributing to the 13th Sustainable Development Goal Climate Action.

**Title:** Enzymatic strategies for promoting efficient use of plant protein in sustainable food system

**Authors:** Mingqin Li<sup>1</sup>, Carol Bouvard<sup>1</sup>, Tonghui Jin<sup>1</sup>, Simone Wüthrich<sup>2</sup>, Qiyao Sun<sup>1</sup>, Ting Li<sup>3</sup>, Jiangtao Zhou<sup>1</sup>, Zhou Dong<sup>1</sup>, Eva Maria Zunzuneigui Bru<sup>1</sup>, Raffaele Mezzenga<sup>1</sup>

<sup>1</sup> Department of Health Sciences and Technology, ETH Zurich

<sup>2</sup> Functional Genomics Center Zurich UZH/ETH Zurich

<sup>3</sup> School of Food Science and Technology, Jiangnan University

<sup>4</sup> Taste and Wellbeing, Givaudan, Kempthal, Switzerland

The trend towards a resilient food system and circular economies has triggered demands for green technologies that utilized renewable resources, like plant proteins, as nature biopolymer and building blocks. However, many plant proteins exhibit poor functionality in their native state, limiting their application potential. Enzyme technologies, recognized for their safety, energy-efficient, and consumer acceptability, are effective processing aids to enhance plant protein functionality. This study explored the use of enzyme to enhance the performance of plant proteins sourced from agrifood production side streams. By employing enzymatic modifications, including hydrolysis, cross-linking and deamidation, we tailored the techno-functional properties of plant proteins from potato, corn, and barley spent grain. Our findings revealed proteases treatment overcomes structural and solubility barrier of corn protein, leading to self-assembled nanofibrils. Additionally, enzymatic cross-linking strengthened the molecular network and microgels of potato proteins, suitable for meat-analogue formulation.

These results underscore the role of enzymatic modifications in advancing the understanding of the structure-functionality relationship in emerging plant proteins, broadening their potential applications. This research contributes to the development of sustainable food system by offering green solutions for valorizing production side streams and expanding the application of plant proteins into fields, from future food products to sustainable materials.

**Title:** Addressing impacts of the gut microbiome on health risks from food systems factors

**Authors:** Jacob Folz, Alona Slastennikova, Shana J. Sturla

Laboratory of Toxicology, Department of Health Sciences and Technology, ETH Zurich

The gut microbiome is a key mediator of beneficial and potentially adverse effects of the diet on health and disease risks, however current risk assessment strategies for food do not account for the gut microbiota for consumer health impacts of pesticide residues or other environmental contaminants, as well as novel food ingredients or additives. We have established a physiologically relevant combined experimental-computational model to assess toxicological risks of food-related chemical exposures. Results from experimentally mimicking gut metabolism of the widely used herbicide metazachlor are used as a proof of concept in implementing the proposed model.

Current work has discovered 18 previously unidentified chemicals derived from metazachlor metabolism. These products were then assessed computationally using quantitative structure-activity relationship (QSAR) algorithms to predict toxicity towards human relevant endpoints (liver enzyme inhibition, endocrine disruption, genotoxicity, cytotoxicity). Two products of metazachlor metabolism are predicted to be more potent inhibitors of liver enzymes compared to metazachlor. Chemical synthesis and purification of these chemicals followed by in-vitro cytotoxicity and enzyme kinetics assays are underway. Additional diet-related chemical exposures are now entering the modular experimental-computational model to assess microbiome mediated health risk.

# Networking Poster Sessions

Wednesday, 30 October, 16:00 – 17:00 and 19:15 – 21:00 CET



Since 2016, the Food Day @ETH Networking Poster Session is an open and appreciated way for researchers from across departments and institutions to come together and exchange. It enhances the visibility of ongoing food system related research and gives scientists the opportunity to network and exchange ideas with other research groups, industry partners, and guests. All displayed posters highlight how research at ETH Zurich and partner institutions contributes to creating a more sustainable food system.

During the two poster sessions, the authors will stand by their posters and be available to answer questions and discuss their work. Presentations will be informal in nature, and attendees are welcome to walk around and familiarize themselves with the topics being presented. At the end of Food Day, three posters will be awarded with poster prizes, based on attendee voting.

# Poster List

**Poster 01:** Genetic and robotic technologies for pest detection in vineyards

**Authors:** M. Lüthi & A. Seewald, S. Mintchev, L. Pellissier

**Affiliations:** ETH Zurich, WSL

**Poster 02:** Lactobreath: A metabolomics approach to characterize lactose malabsorption

**Authors:** A. Vadakkechira & K. Mallick, R. Guillod, G. Vergères, R. Zenobi, D. Pohl, K. J. Burton-Pimentel, S. Giannoukos

**Affiliations:** ETH Zurich, Swiss Allergy Centre, Agroscope, Federal Office for Agriculture (FOAG), Federal Department of Economic Affairs, Education and Research (EAER), USZ Zurich

**Poster 03:** Exploring parental behavior in commercial infant snack choices: Balancing health with convenience

**Authors:** A. Hässig-Wegmann, S. Román, L. Sanchez-Silez, M. Siegrist

**Affiliations:** ETH Zurich, University of Murcia, Hero Group Lenzburg

**Poster 04:** Unlocking plant potential: Harnessing natural deep eutectic solvents for enhanced protein isolates from peas and rapeseed

**Authors:** A. McMackin, J. Dumpler, A. Mathys

**Affiliations:** ETH Zurich

**Poster 05:** Comparing the nutritional value and prices of meat and milk substitutes with their animal-based benchmarks across six European countries

**Authors:** A. Siegrist, A. Green, F. Michel, A. Mathys

**Affiliations:** ETH Zurich

**Poster 06:** Innovative field phenotyping methods to optimize peas for climate resilience and human consumption

**Authors:** B. Keller, C. Oppliger, A. Walter

**Affiliations:** ETH Zurich

**Poster 07:** Coffee: Between unmet basic needs, emotions and lifestyle

**Authors:** B. Thom, M. Sigrist, L. Späth, S. Pfister, D. Banyanga, G. Schneider, M. Stettler, K. Kintche, J. Jacobi

**Affiliations:** ETH Zurich, International Institute of Tropical Agriculture (IITA), Bukavu, DRC, Universidade Federal Rural do Rio de Janeiro (UFRRJ), Brazil

**Poster 08:** Nothing in common? Consumers' distinct representations of plant-based and conventional dairy

**Authors:** B. Etter, F. Michel, M. Siegrist

**Affiliations:** ETH Zurich

**Poster 09:** Fruit quality losses within long and complex fresh fruit supply chains: Digital twins can reveal what we cannot see!

**Authors:** C. Verreydt, Tarl Berry, Deniz Turan-Kunter, Thijs Defraeye

**Affiliations:** Empa, University of Stellenbosch, South Africa, Wageningen University & Research

**Poster 10:** Nutrient management shapes the subsoil microbiome in a long-term agricultural field trial in Kenya

**Authors:** C. Müller, M. Hartmann, R. Feola Conz, D. Mugendi Njiru, B. Vanlauwe, J. Six, M. Van de Broek

**Affiliations:** ETH Zurich, University of Embu, Kenya, International Institute of Tropical Agriculture

**Poster 11:** Evaluating the naturalness of 'natural' labelled products and their alignment with consumer expectations in terms of naturalness and healthiness

**Authors:** D. Radaelli, A. Hässig, S. Román, L. Sanchez-Siles, M. Siegrist

**Affiliations:** ETH Zurich, Facultad de Economía y Empresa, Universidad de Murcia, Hero Group

**Poster 12:** Nitrogen cycling in tropical pastures in the Northwestern Amazon

**Authors:** D. M. Villegas, H. Falk, M. Sotelo, J. Arango, E. Frossard, H. M. Krause, J. Velasquez, A. Oberson

**Affiliations:** ETH Zurich, International Center for Tropical Agriculture (CIAT), Universidad de la Amazonia, Research Institute of Organic Agriculture (FiBL)

**Poster 13:** Towards acceleration of environmentally relevant screening test for biodegradable polymers

**Authors:** E. Galeri, A. Rupp, C. Lott, M. Weber

**Affiliations:** ETH Zurich, HYDRA Marine Sciences GmbH

**Poster 14:** Drivers and origins of nitrous oxide emissions in winter wheat

**Authors:** F. Turco, M. Barthel, L. Allemann, N. Buchmann

**Affiliations:** ETH Zurich

**Poster 15:** Improving the sustainability of food production under climate change: Reinventing agroecological rice farming in Iran

**Authors:** F. Adelisardou, J. Jacobi, L. Merbold, G. Abdollahzadeh

**Affiliations:** ETH Zurich, Agroscope, Gorgan University of Agricultural Sciences and Natural Resources

**Poster 16:** Swiss Foodcoop Network

**Authors:** F. Jakober

**Affiliations:** SNF Bridge / BFH Institute for Design Research

**Poster 17:** Hydroponic crop production with high nutrient use efficiency from waste streams for space applications

**Authors:** I. Giménez de Azcárate Bordóns, A. Oberson, E. Frossard

**Affiliations:** ETH Zurich

**Poster 18:** Productivity, emissions intensity and pollution swapping in dairy farming

**Authors:** I. Parikoglou, S. Wimmer, R. Finger

**Affiliations:** ETH Zurich, Bavarian State Research Center for Agriculture.

**Poster 19:** Drought risk management in agriculture: A copula perspective on crop diversification

**Authors:** J. Schmitt, F. Offermann, A. F. S. Ribeiro, R. Finger

**Affiliations:** ETH Zurich, Institute of Farm Economics, Germany, Helmholtz Centre for Environmental Research – UFZ



**Poster 20:** Feed intake regulation stabilized daily intake pattern but reduced lactational performance with little impact on rumen fermentation or efficacy of 3-nitrooxypropanol in dairy cows

**Authors:** K. Wang, S. E. Räsänen, L. Eggerschwiler, T. He, M.Z. Islam, Y. Li, X. Ma, R. Siegenthaler, Z. Zeng, M. Niu, F. Dohme-Meier

**Affiliations:** ETH Zurich, Agroscope

**Poster 21:** Consumer acceptance of different protein sources for meat alternatives: A multinational study

**Authors:** K. Pronk, B. Etter, F. Michel, and M. Siegrist

**Affiliations:** ETH Zurich

**Poster 22:** Upscaling N<sub>2</sub>O emissions from field to farm scale with ecosystem flux measurements and remote sensing

**Authors:** L. Allemann, F. Turco, K.M.Kohonen, F. Liebisch, N. Buchmann

**Affiliations:** ETH Zurich, Agroscope Reckenholz

**Poster 23:** Greenhouse gas emissions from field application of acidified and ammonium-stripped cattle slurry and digested slurry

**Authors:** L. Agostini, H.M. Krause, M. Diener, J. Mayer, N. Buchmann, E. Bünemann

**Affiliations:** ETH Zurich, Agroscope, Research Institute of Organic Agriculture (FiBL)

**Poster 24:** Cultured meat: The vegetarian dilemma

**Authors:** M. Lanz, B. Wassmann, Michael Siegrist

**Affiliations:** ETH Zurich, Singapore-ETH Centre

**Poster 25:** Persistence of fungal biocontrol agents on blackberry leaves and their virulence against adult Japanese beetles

**Authors:** M. Wey, L. Wyser, E. Hösli, M. Maurhofer, G. Grabenweger

**Affiliations:** ETH Zurich, Agroscope

**Poster 26:** Insect-based utilization of biowastes for sustainable agriculture and food

**Authors:** M.L. Schön., M. Gold, A. Fuhrmann, D.A. Peguero, A. Mathys

**Affiliations:** ETH Zurich, Singapore-ETH Centre Sandec, Eawag

**Poster 27:** How do minimum wages affect farm profitability?

**Authors:** M. Kammer, S. Wimmer, E.M. Meemken

**Affiliations:** ETH Zurich, Bavarian Research Center for Agriculture

**Poster 28:** Exploring dairy cow metabolism through breathomics: Implementation strategy and findings

**Authors:** M.A. Barrientos-Blanco; M.Z. Islam; R. Peng; S. Räsänen; F. Wahl; R. Zenobi; S. Giannoukos; M. Niu

**Affiliations:** ETH Zurich, Agroscope

**Poster 29:** Does exhaled breath reveal rumen microbial activities in dairy cows?

**Authors:** M.Z. Islam, S.E. Räsänen, J. Lan, Y. Li1, F. Wahl, E. Slack, R. Zenobi, S. Giannoukos, M. Niu

**Affiliations:** ETH Zurich, Agroscope

**Poster 30:** SecureFood: An integrated approach to enhance food systems resilience, advocating for food security and uninterrupted food supply

**Authors:** M. Nehrey, V. Sakas B. Moore, A. Chalkidou

**Affiliations:** European Dynamics Luxemburg, Carr Communications Ltd, Empractis L.P., Ergastiria Galanakis E E

**Poster 31:** <sup>15</sup>N-isotopic tracing to investigate nitrogen dynamics in a long-term organic and conventional tea cultivation system in Sri Lanka

**Authors:** M. Chiewattanakul, S. Rathnayaka, D. Amarasena, A. Oberson, K. Mohotti, J. Mohotti, E. Frossard

**Affiliations:** ETH Zurich, University of Peradeniya, Tea Research Institute of Sri Lanka

**Poster 32:** Maintaining soil fertility in maize production: From research papers to outreach material for Kenyan smallholder farmers

**Authors:** M. Laub, P. Nyaga, R. Yegon, J. Six

**Affiliations:** ETH Zurich, Farm Africa, Kenya, University of Embu

**Poster 33:** Enhancing household nutrition in Bangladesh through participatory cooking demonstrations and nutrition education

**Authors:** M. Rashid, C. Speich, M. Talukder, A. Rouf, D. Barjolle, Y. Manyuk, H. Prytherch

**Affiliations:** Sustainable Agriculture Foundation (SAF) - Bangladesh, Swiss Tropical and Public Health Institute, University of Basel, ETH Zurich, Sight and Life

**Poster 34:** Contract labor and worker retention: Evidence from Nigeria

**Authors:** O. Aremu, A. Olajide, E.M. Meemken

**Affiliations:** ETH Zurich, University of Ibadan

**Poster 35:** Environmental footprint of intensive and alternative soybean production systems in Minas Gerais and Paraná states, Brazil

**Authors:** R. B. Malembaka, S. Pfister, B. Thom, R. Cintrão, M. Sigrist, J. Jacobi

**Affiliations:** ETH Zurich, Centro de Referência em Soberania e Segurança Alimentar e Nutricional (Ceresan)

**Poster 36:** Freshwater microalgae as a sustainable solution for reducing methane emissions in ruminant animals: a pilot study in rumen fermentation

**Authors:** Y. Li, M. Bagnoud-Velásquez, Y. Zhang, K. Wang, C. Kunz, S. Dubois, R. Peng, A. Baumeyster-Brahier, F. Wahl, M. Niu

**Affiliations:** ETH Zurich, Agroscope

**Poster 37:** Sustainability of Mediterranean crop rotation systems – evaluation from a water and nitrogen perspective

**Authors:** S. Pool, F. Frances, M. Garcia-Molla, J. Jimenez-Martinez

**Affiliations:** Eawag, ETH Zurich, Universitat Politècnica de València, Valencian Center for Irrigation Studies

**Poster 38:** Assessing the biodiversity footprint of global oil crops cultivation: Increased species extinction risks from 1995 to 2020

**Authors:** S. Wang, S. Pfister

**Affiliations:** ETH Zurich

**Poster 39:** Amaranth by-products: From waste to functional foods and nanomaterials

**Authors:** S. Mykolenko, R. Mezzenga

**Affiliations:** ETH Zurich

**Poster 40:** Measuring the impact of drought and soil management on soil biodiversity and multifunctionality

**Authors:** T. Galindo-Castañeda, L. D. Olivares-Martinez, I. Alsina, F. Brennan, R. Feola Conz, L. Garcia-Velázquez, H. Hestbjerg, R. Lock, T. Pennanen, K. Ryan, Z. Tóth, T. Van De Sande, P. Zanis, C. Yacoub López, J. Six, J. Finn, S. Lladó, M. Hartmann

**Affiliations:** ETH Zurich, Miguel Hernández University, University of Life Sciences and Technologies, Latvia, TEAGASC, Ireland, University of Alicante, Danish Technological Institute, LUKE, Finland, Hungarian University of Agriculture and Life Sciences, INAGRO, Belgium, Aristotle University of Thessaloniki, LEITAT Technological Center, Spain, University of Barcelona

**Poster 41:** Increasing sustainable consumption in Switzerland: The influence of eco-scores on food choice

**Authors:** U. Bernardic, S. Srinivasan, M. Filippini

**Affiliations:** ETH Zurich

**Poster 42:** Economic and behavioural factors in collective agri-environmental schemes – a choice experiment approach

**Authors:** V. Fahrni, R. Finger, R. Huber

**Affiliations:** ETH Zurich

**Poster 43:** Effects of 3-nitrooxypropanol (Bovaer10) and whole cottonseed on milk production and enteric methane emissions from dairy cows under Swiss management conditions

**Authors:** X. Ma, S. E. Räisänen, M. E. Garcia-Ascolani, M. Bobkov, T. He, M.Z. Islam, Y. Li, R. Peng, M. Reichenbach, A. M. Serviento, E. Soussan, X. Sun, K. Wang, S. Yang, Z. Zeng, M. Niu

**Affiliations:** ETH Zurich, Nestlé Institute of Agricultural Sciences

**Poster 44:** Long-term CO<sub>2</sub> flux measurements from an intensively managed temperate grassland

**Authors:** Y. Wang, I. Feigenwinter, L. Hörtnagl, N. Buchmann

**Affiliations:** ETH Zurich

# World Food System Center Posters

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ETH Zürich

World Food System Center

Weinbergstrasse 11

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**Food Day @ETH is an annual public event that brings together a diverse audience from academia, industry, government, and international organizations for interactive discussions and workshops on food systems innovation and research.**

**At this year`s edition, we focus on the role of research and innovation in accelerating food systems transformation. Oral presentations from Center funded projects will highlight research on climate-smart agriculture, food technology, and nutrition. We will then have a keynote by Patrick Honauer, who will share his thoughts on how local food networks can drive positive change.**

Layout: Jeanne Tomaszewski

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