

World Food System Center News

WFSC News & Upcoming Events

Welcome New Members The WFSC warmly welcomes the new members who joined the Center in 2014. Prof. Anthony Patt chairs the Human-Environment Systems Group at the Institute for Environmental Decisions (D-USYS). Prof. Jan Carmeliet chairs the Buildings Physics Group at the D-ARCH. The Center is looking forward to working with the two new members and their groups.

Public Lecture Series The **next event** in our public lecture series will be held in collaboration with the annual conference of the Society for Tropical Ecology, which is taking place in Zurich next year. The lecture will connect with the conference theme of "Resilience of Tropical Ecosystems" and take place on 8 April 2015.

World Food System Conference 2015 The WFSC recently launched a call for contributions for the conference we are organizing next 21-26 June at Monte Verità in Ascona, Switzerland. The event, "Tackling World Food System Challenges: Across Disciplines, Sectors, and Scales," aims to bring together approximately 90 researchers and other food system stakeholders to exchange ideas, methodologies, success stories, and lessons learned. We are especially interested in contributions that highlight solution-focused, interdisciplinary, and system-oriented research and practice to address how to feed the world while considering human health, the environment, and social well-being. Full details are available [online](#).

Outreach

Academia Engelberg WFSC Executive Director Michelle Grant and seven alumni of WFSC Summer School program participated in Academia Engelberg's 13th Dialogue on Science from 15-17 October. This year's conference focused on the topic of food security, giving the predominantly Swiss audience an opportunity to hear presentations about the food systems in the home countries of the alumni: Kenya, China, the United States, and Switzerland. The group organized four interactive workshops in which conference participants were presented with the task of addressing a country-specific food system challenge. Each of the speakers had previously

attended one of the summer school courses organized by the World Food System Center, where they studied the topic of food security and related challenges using a food systems perspective. The Academia Engelberg Conference also featured contributions from WFSC members (Prof. Johan Six, Sustainable Agroecosystems, Dr. Maria Andersson, Human Nutrition, and Prof. Wilhelm Gruissem, Plant Biotechnology).

WFSC Ambassadors This summer, the WFSC Ambassador Program was launched as a central component of the Mercator Program's outreach activities. This program offers support for small projects and short-term educational or professional development activities to students and young scientists associated with the Center. The program has been very popular, with far more applicants than funds available. In the first year it supported seven students, allowing them to take advantages of new opportunities to learn about the role and potential of organic production systems to contribute to global food security. The program supported activities ranging from field research on organic Basmati rice production in India, to travel to participate in a conference on organic phosphorus, and modeling the impact of organic farming on the environment. It also supported the development of a new start-up promoting organic, edible insects.

Our Common Food The Our Common Food Innovation Lab is a six-month **start-up program** designed to teach core skills and provide coaching for entrepreneurs hoping to launch a food start-up. It is also a community for food entrepreneurs and experts to share their know-how, networks, and passion for sustainable and innovative food enterprises. The

Call for Contributions Now Open
WORLD FOOD SYSTEM CONFERENCE 2015

Find details online at www.wfscconference2015.org



The logo for the World Food System Conference 2015 features the text "TACKLING WORLD FOOD SYSTEM CHALLENGES" in a bold, sans-serif font. The word "WORLD" is stylized with icons: a leaf for 'O', a pair of scissors for 'O', a fork and knife for 'L', and a person for 'D'. Below the main text is the tagline "Across disciplines, sectors and scales." To the right of the logo, a vertical purple bar contains the text "JUNE 21-26 2015" and "Congressi Stefano Franscini, Monte Verità Ascona, Switzerland".

program's inaugural class, which includes two alumni of the WFSC summer school program, started the course this fall. As a knowledge partner in this program, the World Food System Center hosted a teaching and coaching session at ETH Zurich in October. The WFSC is excited to be partnering with Our Common Food and we are looking forward to following the progress of this group of young entrepreneurs.

The Good Growth Plan, One Year Later The WFSC was invited to participate in an event recognizing the one year anniversary of Syngenta's "Good Growth Plan" on 18 September in Bern, Switzerland. During the first part of the event, Syngenta representatives introduced the efforts made concerning the "Good Growth Plan" and the quantification of the progress made towards the set commitments. The invited stakeholders were asked to provide critical feedback on the plan's commitments and the metrics being used to measure progress. The second part of the event was dedicated to agriculture and biodiversity in Switzerland. It included a presentation about the Swiss Federal Office for Agriculture's REDES project on resource use efficiency, in which the WFSC collaborated last year.

Research

Research for a Sustainable Swiss Food System The WFSC was commissioned by the Swiss Federal Office for Agriculture to conduct a foresight study that considers the implications of global trends and projections for the Swiss food system, and informs the development of a research strategy to ensure a sustainable Swiss food system in the next 20 years. This [project](#) began with a summary of global trends and drivers related to the food system, and will identify key implications of these trends for the Swiss food system, and research themes most critical for building



Academia Engelberg Dialogue on Science 2014: Food Security (photo: Academia Engelberg)



Students could select climate-friendly meals at the Mensa Polyterrasse during phase I of the sustainable catering campaign. (photo: Heidi Hostettler, for Seed Sustainability)

a sustainable Swiss food system. The next stage of the research is a stakeholder survey that will be administered this fall, with the project concluding in Spring 2015.

Improving Resilience in Food Systems Building on a feasibility study proposed and supported by the WFSC Partnership Council in 2013, Prof. Johan Six (Sustainable Agroecosystems) and WFSC colleagues have taken the challenge of improving the resilience of food systems a step further. They define food system resilience as the capacity over time of a food system and its units at multiple levels, to provide sufficient, appropriate and accessible food to all, in the face of various and even unforeseen disturbances. It is complementary and essential to sustainability. A resilient food system is capable of providing continued food security despite disturbances, thanks to its robustness, absorptive capacity, flexibility and adaptability, and learning capacity. The project will develop an operational approach for decision-makers to design food system resilience. With seed funding from the BLW to continue this work, the interdisciplinary team ultimately hopes it will develop into a [flagship project](#) with the WFSC.

Education

Sustainable Catering at ETH If you had lunch at the Mensa Polyterrasse these days you would have witnessed the second campaign of the interdisciplinary student research project "Sustainable Catering at ETH Zurich". At the request of the Catering Commission of the ETH Zurich, the WFSC launched this project together with ETH Sustainability and the SV Group in spring this year. This "Seed Sustainability" [project](#) wants to determine key factors affecting sustainability in campus catering and to test the effectiveness of different interventions. The first campaign that was carried out in

Q&A with Viviana Loiza, PhD student working on the project “A Comprehensive Examination of Nitrogen Cycling and Microbial Communities within Soil Microenvironments in Integrated Organic Farming Systems in Switzerland.”

Q. What are integrated organic farming systems?

A. They are organic systems in which reduced tillage and fast-growing cover crops are integrated to combat weeds, rather than the heavy plowing normally used in organic systems to reduce weed pressure.

Q. How are integrated organic farms good for soil and crops?

A. Reduced tillage practices have benefits for the soil, like reduced nitrogen (N) losses, but weeds remain problematic. Nitrogen is one of the most important nutrients and its timely availability to the plant has a direct impact on crop yield. In this study, we will look at how different types of fast-growing cover crops can battle weeds and hope to show that cover crops combined with reduced tillage will maximize N use efficiency by the plant.

Q. What will your finding tell us about organic agriculture?

A. We hope to learn more about organic management options that further advance the competitiveness, adoption, and profitability of organic farming.

Ms. Loiza is working with Dr. Engil Pereira, Prof. Johan Six, and Prof. Marcel van der Heijden on a research project funded by the WFSC's Research Program, Organic Production Systems, which is supported by the Mercator Foundation Switzerland.

spring this year was concerned with climate impact. Two MSc students with the Chairs of Consumer Behaviour and Ecological Systems Design are currently looking at how food waste can be reduced on campus. The project has raised a great deal of interest in different university-networks that work on campus sustainability as it is pioneering commitment in a field that has received little attention in the past. Initial results were discussed with stakeholders at a workshop on 30 October and a report will be available in February 2015.

World Food System Summer School: Organic Production Systems This August, 23 students from 16 countries successfully completed the WFSC's third [summer school](#) course. The course was again held at “Gut Rheinau,” Switzerland's largest organic farm and featured a mix of lectures from ETH and visiting professors, field trips, farm work, art, and participatory group work exercises. This year's program covered topics that ranged from agroecology to milling to human nutrition and international trade. The highly competitive program attracts applicants from around the world and from diverse disciplines. While learning to apply a multi-disciplinary food systems perspective, students share



Summer school students from 16 countries participated in the program this year in Rheinau. (Photo: WFSC)

their own disciplinary expertise and cultural experiences with one another during the two-week immersion program. The kind support of the Mercator Foundation Switzerland and Partner Re made this special opportunity possible. Applications will open for the 2015 course in March.

New Rice Flake Processing Technology in India – MS Thesis Projects

Two Master's students from ETH Zurich spent five months in Bangalore, India working on a research project to develop, implement, and verify a new processing solution for a healthier, hygienic, and economical rice flaking process. The project was developed in collaboration with WFSC Partner Bühler, WFSC member Prof. Erich Windhab (Food Process Engineering), and Prof. Mirko Meboldt (Product Development and Engineering Design). Prior to starting their research, the two students, Mira Lorenz and Timon Heinis participated in the WFS summer school program held in India in February 2014. This project provided a unique platform for an interdisciplinary and cross-sectoral partnership that offered students an opportunity to take a food systems perspective to real-world problem solving. Read more about [their experience](#).

Member Highlights

Food System Research Funded Prof. Sonia Seneviratne was recently awarded a European Research Council (ERC) Consolidator grant to investigate the mechanisms underlying the development of droughts and heat waves. The project started in September 2014. Two projects proposed by WFSC members were accepted in the food security module of the R4D/SNF/SDC program. One project was submitted by **Profs. Emmanuel Frossard** and **Johan Six** with Dominique Barjolle (FiBL) and colleagues from Cote d'Ivoire, Burkina Faso and Nigeria and will focus on “Biophysical, institutional

and economic drivers of sustainable soil use in yam systems for improved food security in West Africa (YAMSYS)". Also accepted was the project, "Oil palm adaptive landscapes (OPAL)" submitted by **Prof. Jaboury Ghazoul** and colleagues in Indonesia, Cameroon, and Colombia, which aims to improve management of oil palm landscapes. Both are six-year projects and will begin in early 2015. Postdoctoral researchers **Wilma Blaser, Charlotte Decock, and Engil Pereira** (Sustainable Agroecosystems) secured seed funding for their projects on cocoa in Ghana, Basmati rice in India, and sweet potato in Mozambique, respectively.

Awards **Dr. Simone Nanzer** (Plant Nutrition/Prof. E. Frossard) received the Vontobel medal in March 2014 for her PhD thesis entitled "Evaluation of a phosphate fertilizer from sewage sludge ashes: a journey from the molecule to the field". **Dr. Colin Cercamondi** (Human Nutrition/Prof. M. Zimmermann) received the Josef G. Knoll Europäischer Wissenschaftspreis in August 2014 for his work "Improving iron nutrition from sorghum and millet based diets in malaria endemic areas". **Raschida Bouhouch** (Human Nutrition/Prof. M. Zimmermann) was awarded the Nestlé Switzerland Nutrition Prize 2014 for her doctoral research on "Iodine supplementation in lactating mother/newborn pairs in southern Morocco".

Teaching The Sustainable Agroecosystems Group (Prof. Johan Six) launched its first new course this fall for Master's students, "**Agroecologists without borders.**" In the spring term, there will be hands-on teaching and learning activities in the newly-transformed Hädliweg greenhouse.

To subscribe or read online, visit www.worldfoodsystem.ethz.ch/outreach-and-events/resources/newsletters



Michelle Grant, Christophe Laroix, Christina Engels, and Shana Sturla at WFSC Member Apéro in October. (Photo: WFSC)

Q&A with Christina Engels, postdoctoral researcher on the project "Novel approach to biologically control spoilage of fresh vegetables using naturally produced reuterin"

Q. You are researching a way to make ready-to-eat vegetables safer—should we be concerned about the safety of those products?

A. All in all they are safe to eat, and increasing demand shows that we all like their convenience. However, while greatest attention is being paid during washing and packing, there remains a small risk of microbial contamination. Microbial contaminants include spoilage bacteria leading to economic losses due to shortened shelf-life, but also pathogenic bacteria possibly resulting in food poisonings. There have been several recent cases of foodborne illnesses linked to consumption of minimally-processed foods.

Q. What is reuterin? Can it help make fresh vegetables safer?

A. Reuterin is a natural antibacterial compound produced by a bacterium called *Lactobacillus reuteri*. The bacterium is not harmful for humans; it is in fact considered a beneficial probiotic. Most likely, *Lactobacillus reuteri* produces reuterin to inhibit its bacterial competitors in its natural habitat.

Q. And how does this work exactly?

A. Reuterin has already proven its antimicrobial activity in previous studies. In this study we want to challenge this activity in an application trial and hope to show that reuterin can be used to decrease pathogens and spoilage bacteria on the surface of fresh vegetables and therefore to increase food safety and prolong the shelf-life of these products. In contrast to popular belief, the fact that a substance is derived from a natural source does not guarantee its safety. Therefore we will also conduct a thorough toxicological evaluation of reuterin, its degradation products and of potential adducts between reuterin and food compounds to ensure the safe consumption of reuterin-treated products.

Dr. Engels is a postdoctoral researcher working with Profs. Christophe Lacroix and Shana Sturla on a research project funded by the WFSC's Research Program, Sustainability in Food Value Chains, which is supported by Coop.



Summer school students help out with farm work at the Gut Rheinau organic farm. (Photo: Yan Ling Baey)