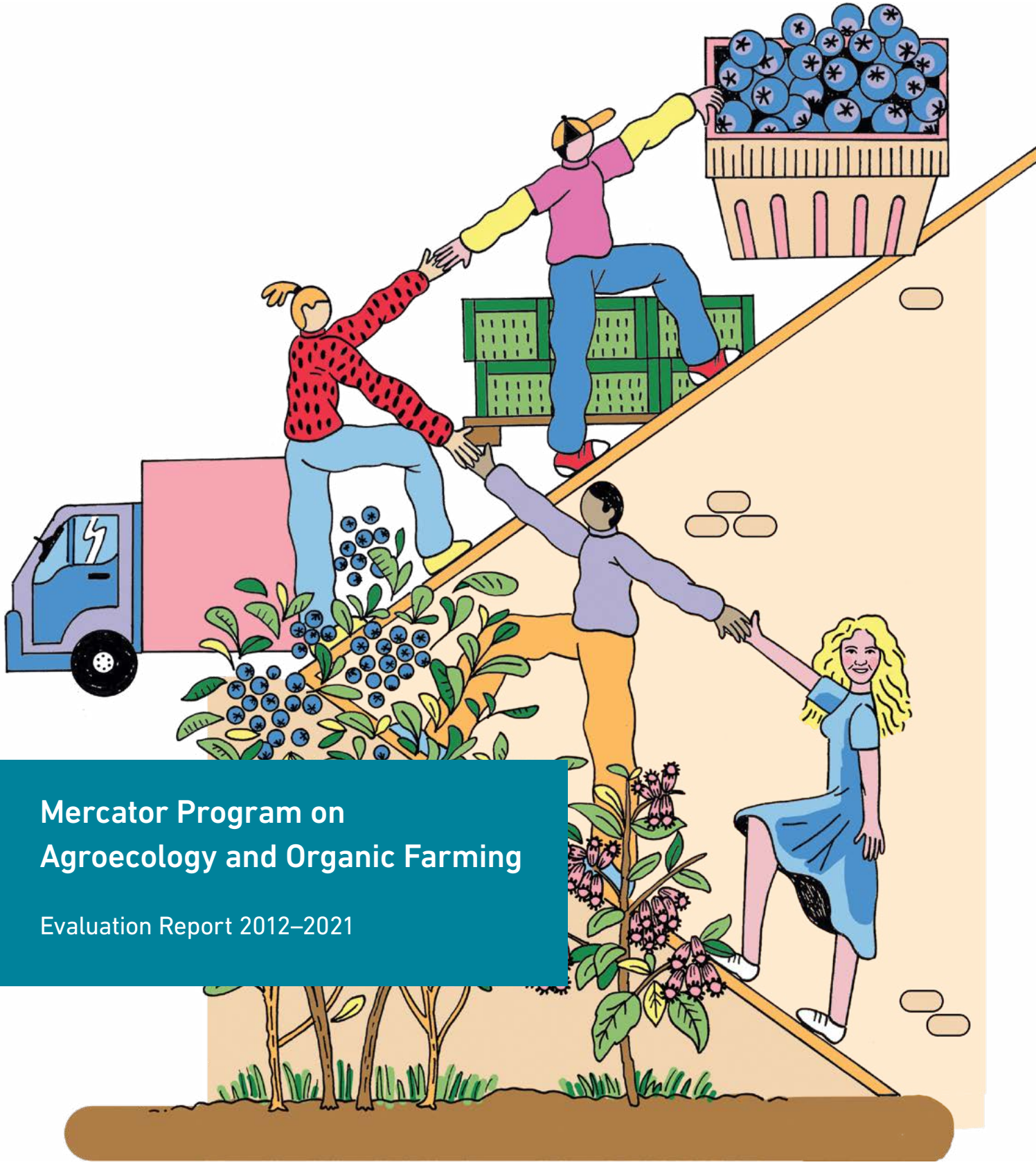
ETH zürich



Mercator Program on Agroecology and Organic Farming

Evaluation Report 2012–2021

World Food System Center

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The World Food System Center at ETH Zurich aims to support the transformation towards sustainable food systems through systems-oriented research, education and outreach. The research done at the Center supports healthy food production, food and nutrition security, environmental sustainability and social well-being using a food systems approach with inter- and transdisciplinary methods.

The Center now brings together 46 member research groups, containing around 1,000 scientists contributing to making global food systems more sustainable. The objectives of the Center are to: 1) generate new scientific knowledge and disseminate it to key stakeholders; 2) provide leadership and foresight on food systems issues; 3) build capacity of the next generation of decision makers; 4) establish strategic partnerships with industry, foundations, research institutions, policymakers, international organizations, NGOs and other stakeholders; 5) engage with partners to strengthen information dissemination and impact; and 6) act as initial reference location for reliable and up–to–date information on the global food system.

The Mercator Program supported projects in all three activity areas of the Center: research, education and outreach.

TEN YEARS OF NEW KNOWLEDGE, CONNECTIONS AND SYNERGIES

The question of how to feed the world in a way that ensures human health, environmental sustainability and social well-being is one of the defining and most complex global challenges of our time. ETH Zurich established the World Food System Center in 2011 in order to play a leading role in addressing these challenges. We are honored and proud to have the Mercator Foundation Switzerland as one of the founding members of our partnership council since 2012.

In the coming decades, our food system will face unprecedented challenges in its ability to feed and nourish the world. Currently, there are nearly one billion hungry people on the planet and billions more suffering from malnutrition as a direct consequence of chronic lack of access to sufficient nutrients and vitamins. Additionally, the world faces high rates of overweight and obesity and the related consequences for human health. Food and agricultural production is facing strain from phenomena such as climate change, resource limitations, emerging pests as well as pathogens and deterioration of soil quality.

It is important to recognize that the current challenges cannot be solved by technical solutions alone but also need behavioral changes. Promising examples for such changes are a shift to plant-based diets, empowerment of all actors and inclusive and supportive economic and legal framework conditions. In order to enable sustainable food systems to develop and contribute to global food security, the current system has to change dramatically. Transformations in food systems are only possible if they are built on the best strategies, new knowledge, innovative approaches and most importantly, the capacity of change agents active in different areas of the food system.

In the 2018 report The Future of Food and Agriculture, the UN Food and Agriculture Organization (FAO) stated that to permanently and universally achieve the Sustainable Development Goals (SDGs) and guide food systems along an economically, socially and environmentally sustainable path, a global transformative process is required. We all face a collective responsibility to build the health and well-being of our global community and our shared planet. We believe that food systems require substantial investments in research, the development of new solutions and the implementation of innovative technologies. The ideas and innovations identified and developed need to be rooted in traditional knowledge and expertise and therefore adapted to local contexts and actors. The question of whether we will achieve the SDGs depends to a large extend on the actions of us all.

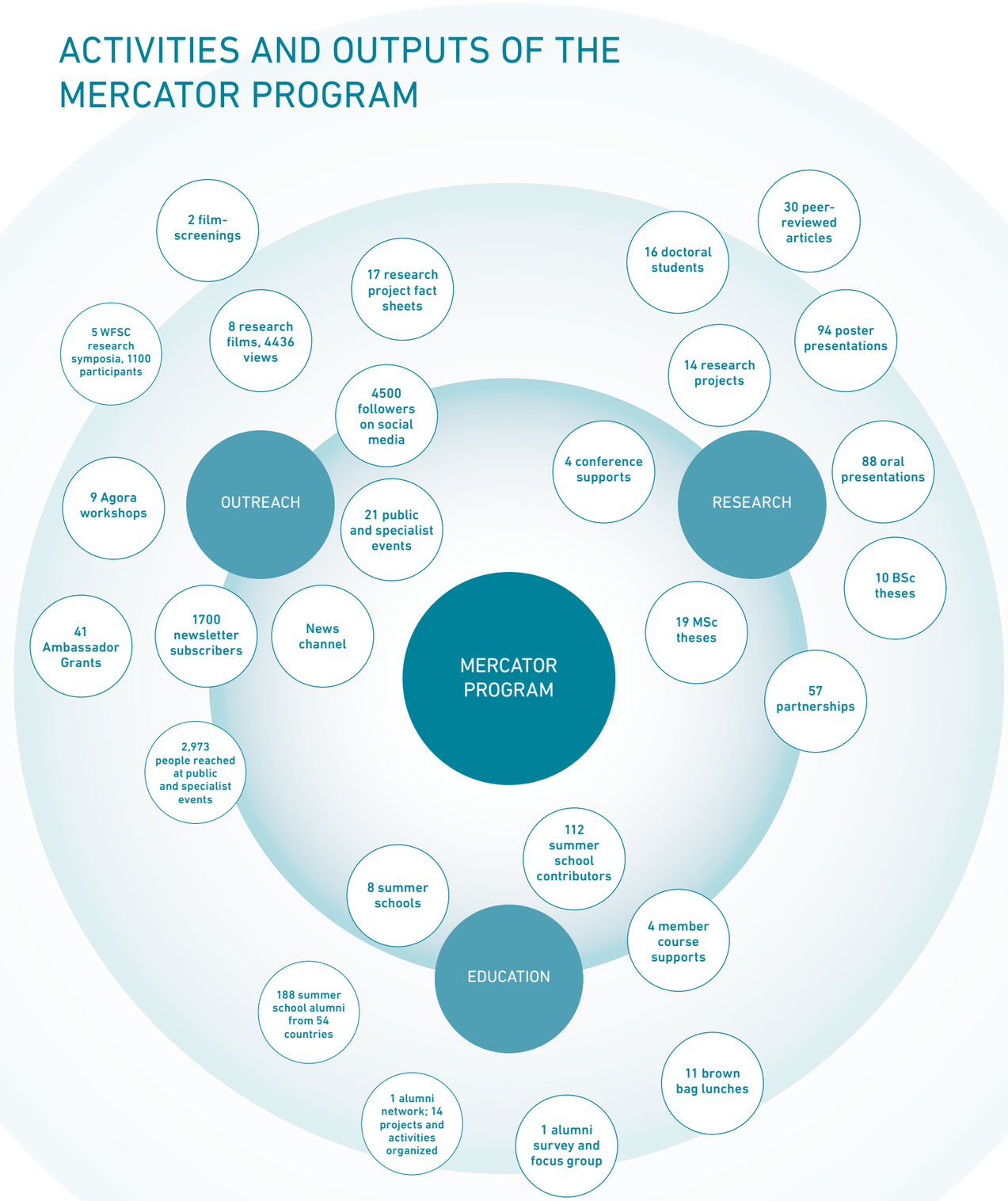
Against this backdrop, the vision of the Mercator Program was to support research that generates new scientific knowledge on the role of sustainable, organic and low input production systems to contribute to improved food security and sustainability in food systems. Research on sustainable food systems and agroecology is gaining importance at ETH Zurich and in the entire research landscape in Switzerland. This is a consequence of increased recognition of the potential of agroecology in science and policy-making but has also been supported by the Mercator Foundation Switzerland through this program. This increase of importance of agroecological research can be seen by the number of projects working on agroecology. Only at the Center around 15 projects conducted in the last years had a strong focus on agroecological practices, with many more conducted in the different research groups at ETH Zurich. Furthermore, over the last years three groups working targeted on agroecology (Sustainable Agroecosystems Group, Johan Six and Agricultural Ecology, Christian Schöb) have been established successfully or are planned to start this year (Agroecological Transitions, Johanna Jacoby).

With 5 million Swiss francs in funding, the Mercator Program was implemented to enable collaborative and cutting-edge interdisciplinary research, to train the next generation of food system decision makers and to facilitate outreach and dialogue activities between key stakeholders. The World Food System Center at ETH Zurich was responsible for conceptualizing, designing and implementing the full program. Without the Center and the expertise contained in the Executive Office, it would not have been possible to implement such a cross-cutting and interdisciplinary program at ETH Zurich.

In this final evaluation report, we highlight the projects and activities implemented and share exemplary stories that underline the impact, connections and synergies created by the Mercator Program.

We wish you an interesting and entertaining read.
The World Food System Center

ACTIVITIES AND OUTPUTS OF THE MERCATOR PROGRAM



*Does not include activities and outputs of 2021.

CONNECTING WITH DIFFERENT STAKEHOLDERS

The World Food System Center is based on the belief that real-world solutions needed to tackle the challenges facing our food system require collaboration and partnerships with global and local stakeholders. These partnerships are formed internally between different professorships and competence centers but also with a range of external organizations from both research and practice. The Mercator Program also relied on partners and stakeholder dialogue and supported a further building of partnerships. This partnership approach has been critical to the Center's and the Mercator Program's success. The approach is also noted as promising by others, with the Center being named as one of 21 initiatives showcased in the report "Beacons of Hope: Accelerating Transformations to Sustainable Food Systems" by the Global Alliance for the Future of Food. The initiatives profiled from across the world are working in diverse ways to achieve sustainable, equitable and secure food systems.

Mercator Research Program (MRP) projects involved partnerships with 57 different organizations in the academic sector and beyond. More than half of the project partners in the MRP projects were food system stakeholders from all around the world, from Switzerland to Germany, India and South Africa. Beyond partnerships between different researchers and other food system actors, the Center supports dialogue through targeted events linking researchers with implementing partners in companies and not-for-profit organizations. Public lectures on topics linked to organic agriculture, agroecology and sustainable food systems provided different platforms for such exchange. Another example is the annual research symposium, highlighting research conducted at ETH Zurich and enabled by the Center.

A number of important collaborations were established or strengthened through the Mercator Program. One such example are the many joint projects that were established with the Research Institute of Organic Agriculture (FiBL) during the course of the program. The FiBL was not only involved in different research projects, but also in public lectures and education activities. Another example is the partnership with the Stellenbosch University in South Africa that resulted in joint projects, such as the Mercator funded EcoInt project and a jointly organized summer school in 2017. Also, the collaboration with the International Potato Center (CIP) started with the Mercator funded ORMASP project and led to a joint public lecture organized at ETH Zurich.

Various research projects resulted in follow-up research and continued stakeholder dialogue, such as the Mercator funded NUFSOC project that led to the RUNRES project. The project is looking at the core elements of agroecology to establishing nutrient loops for a circular economy to improve city region food system resilience in the Democratic Republic of the Congo, Ethiopia, Rwanda and South Africa.

"I had a lot of interactions with professors and teachers at ETH Zurich. I visited several labs and later on ETH Zurich and the International Potato Center conducted a study on bioavailability of iron-rich sweet-potatoes in Malawi. It was a great collaboration that led to a publication. The student from ETH Zurich had a good time in Mozambique, interacted with other researchers and presented her research findings."

Dr. Maria Isabel Vaz Andrade,
International Potato Center, Mozambique

NEELAM DUTTA

Current position Managing director and founder of Pabhoi Greens
Discipline Organic farmer, trainer, social worker, wildlife activist and entrepreneur
Nationality Indian

Participant of the WFS Summer School 2015 in Rheinau

Recipient Ambassador Grant, to develop a seed initiative and build up the first organic seed bank in northeast India, 2018

Contributor to WFS Summer School in Rheinau, 2019

Recipient Ambassador Grant, to learn on organic and bio dynamic seed breeding at Sativa, 2016

Recipient Ambassador Grant, to study organic seed production and marketing strategies in Switzerland, Germany, the Netherlands and Austria, 2019

WFSC Alumni Network workhop at Pabhoi Greens 2020

Why did you apply for the WFS Summer School?

"One of my friends who works for the World Bank received a flyer about the WFS Summer School. He immediately took a picture and sent it to me via WhatsApp. I had been telling him since long that I need to broaden my horizon outside my village. I thought that it was very necessary to expose myself to new things and learn more about the complexity of the food system. And then I wrote the WFSC and that's how it all started. It's a life-changing story for me. So many insights and information that I got because of the summer school, the resulting WFSC Alumni Network and the Ambassador Grants. Being a farmer from Assam, it's nearly impossible to come to Europe to learn. This experience really changed the overall perspective of my life, the way I think and the way I work now. It was great to exchange with people that have the same wavelength and mindset of bringing change to the world."

What is the story of your farm Pabhoi Greens?

"I inherited our family farm in 2001 and since then, I dedicate my life to natural farming. I believe in organic farming that takes care of our environment and is the only way how we can face climate change which I can observe every day on the farm. But we do not only care about the environment, we also care about the people living and working on the farm. Hence, Pabhoi Greens supports for example the educational expenses of the farm workers' children, comes up for any health costs, and builds up the capacity and skills of local students and interns in organic farming."

What kind of projects and collaborations developed out of your Ambassador Grants?

"In particular the time at Sativa, but also the many interactions with the different seed breeders and specialists have had a huge impact! I became a more professional farmer and I started to produce my own seeds and became the first producer of organic seeds in northeast India. Even other farmers are now doing seed propagation and breeding trials on our behalf. Thanks to the Ambassador Grants I had the chance to learn so much from inspiring people and take the knowledge back to India and build up an alternative to hybrid seeds in my community."

Are you still in contact with other alumni of the WFS Summer School?

"Some alumni of the WFS Summer school came to my farm in January 2020 and I'm still in contact with them. They helped me to start a crowdfunding campaign to pay back the credit I took to start my seed production. Now, they are helping me to build my website."

"I want to show that organic farming cannot only feed the people, but also produce healthy and affordable food without harming the environment. I want to slowly raise awareness about how important organic farming and seed breeding is for food and seed sovereignty."

MONIKA M. MESSMER

Current position Group lead Plant Breeding at the Research Institute of Organic Agriculture (FiBL), Frick
Discipline Agrobiology and plant breeding
Nationality Swiss

Co-investigator of MRP project ResPEAct

Panelist of WFSC Panel Discussion "Plant breeding for global food security" 2020

Participant of WFSC Research Symposium 2016, 2017, 2018, 2019

What do you think was the impact of the collaboration with ETH Zurich?

"I think it is very important that there is a cross fertilization between different actors involved in organic agriculture like FiBL, Agroscope, HAFL and researchers of ETH Zürich mainly involved in basic research. For a transition towards more sustainable food systems we need the best approaches and strategies from basic and applied research. As the organic sector is very much vertically and horizontally interlinked, this knowledge can also help to initiate more inter- and transdisciplinary research at the ETH level. Because of the resPEAct project we had closer collaboration and exchange with Prof. Bruno Studer and his group of molecular plant breeding resulting in common future project ideas. For FiBL researchers this link was very fruitful."

What kind of projects developed out of your collaboration with ETH Zurich?

"Based on the initial funding of the resPEAct project, we could obtain co-funding from the Swiss Ministry of Agriculture and an EU funded project LIVESEED. We could achieve great competence in the field, resulting in organizing an European workshop on the topic in 2019. Due to successful fundraising of AGRIBIOME, FiBL could hire the PhD student directly after his thesis defense for a follow up project on pea microbiome analysis. Futher fundraising is ongoing."

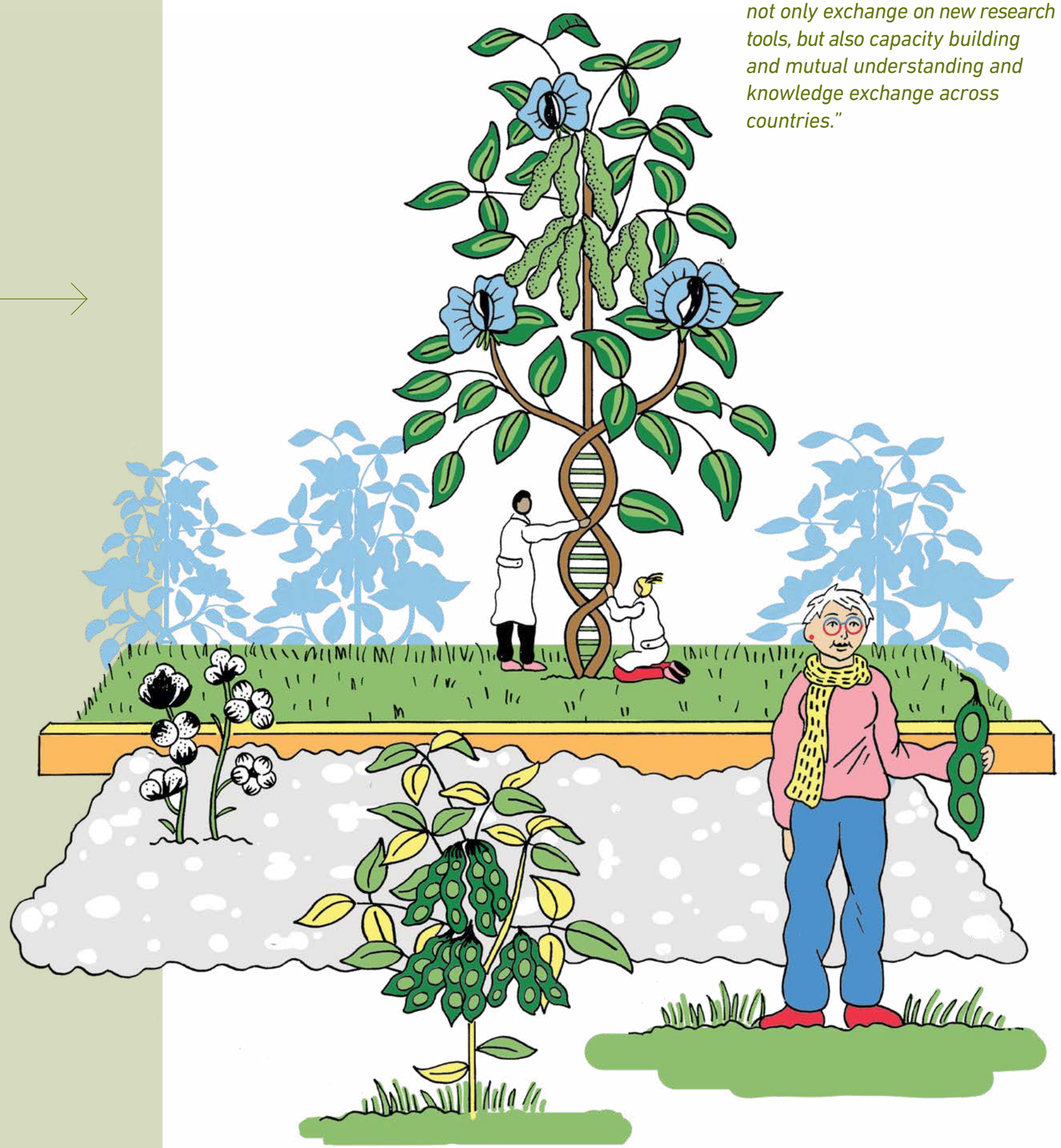
What kind of collaborations and networks developed out of your work within the Mercator Program?

"Due to the project ResPEAct and the following up projects, the FiBL could establish a good network with researchers, breeders and seed companies involved in organic farming and interested in more sustainable agriculture. Several organic research institutes (INRAe, France; IPC, Portugal; WUR, Netherlands) have initiated studies to explore the impact of genotype and farm management on the root and seed microbiome. A new working group on breeding for microbiome was established within the EUCARPIA section on organic and low input breeding in 2015 when the project proposal was under development. A whole session was dedicated on "Living Soil – plant Interaction" at the International EUCARPIA-LIVESEED-BRESOV-ECOBREED Conference 2021 which was moderated by Pierre Hohmann from FiBL."

What was the most significant change you experienced as a result of the Mercator Program?

"It is very difficult to obtain funding for research on organic agriculture, as its scientific contribution is still not everywhere acknowledged. It is also very difficult to obtain funding for participatory or more applied research, where the results are not as predictable and much more difficult to publish in high ranking journals, although the impact of the research is very big. Because of the Mercator Program we could realize our research plans and follow our strategy to look at plant breeding in a more holistic way. Based on this funding opportunity we could successfully acquire more research money. This allowed us to establish a research field to explore the potential of breeding for plant microbiome interactions to improve resilience of crop plants. Based on the case study of pea and root rot disease we were able to establish cutting edge knowledge and competences. Therefore, we are very grateful to the Mercator Program."

"Through the Mercator Program, international collaborations could be established. This enables not only exchange on new research tools, but also capacity building and mutual understanding and knowledge exchange across countries."



RESEARCH

The Mercator Program generated new scientific knowledge on organic production systems for global food security in a manner that supports real-world impact.

The World Food System Center strives to provide leadership and foresight on issues connected to food and nutrition security based on innovative solutions for pressing problems of the world food system. With its research activities, the Center contributes directly to many of the UN Agenda 2030 Sustainable Development Goals, including Zero Hunger, Sustainable Consumption and Production, and Good Health and Well-Being. From 2012 to 2021, the Mercator Research Program (MRP) contributed to these SDGs and engaged students and partners in finding solutions to issues in agriculture and food sciences around the world.

The MRP 'Organic Production Systems for Global Food Security' supported 14 research projects, each of three to four years in duration, aiming to explore the role and potential of certified and non-certified organic production systems to contribute to global food security. With 3.7 million Swiss francs in funding, the program supported 16 doctoral students to work in projects crossing disciplines, sectors and scales and engaging a broad range of stakeholders. The cross-disciplinary and solution-oriented projects spanned a large range of food system topics and involved around 57 partner organizations. The funding provided through the MRP enabled research projects that would have been difficult to fund through more traditional funding mechanisms due to their interdisciplinary nature and application focus. Furthermore, the program enabled an increase in research activities at ETH Zurich around organic production systems.

Novel and reliable scientific information on the contribution of organic and low input agriculture was generated and made accessible to key stakeholders concerned with food security and food systems at all levels. Results from the MRP have been published in 30 peer-reviewed articles (see appendix) and are thus available to the scientific community and interested stakeholders. Furthermore, findings from the MRP projects were highlighted in several newspaper, radio and TV features, emphasizing the societal relevance of the topics covered by the research done in the MRP (see appendix).

"The Mercator project funding changed my whole life trajectory. It allowed me to make a contribution to the important issue of nutrient cycling and engage with work that is fulfilling and impactful in the continuation project RUNRES."

Dr. Ben Wilde,
Sustainable Agroecosystems Group, ETH Zurich

Agroecological projects at farm level

Global organic agriculture: challenges and opportunities (GOA) 2016–2023

The GOA project team analyzes the current environmental performance of global organic agriculture on a high spatial resolution to identify improvement potentials and trade-offs of transforming conventional production to organic agriculture with respect to food supply and environmental impacts.

Find out more about the project here.

Assessing the role of organic value chains in enhancing food system resilience (OrRes) 2017–2021

Biophysical, social and economic shocks negatively affect all actors in food value chains from producers to processors to retailers. The OrRes project team is assessing and comparing the resilience to such shocks of organic value chains versus their conventional counterparts for cocoa in Ghana and bananas in the Dominican Republic.

Find out more about the project here.

Resilience of organic and conventional production systems to drought (RELOAD) 2017–2021

Drought is the most significant environmental stress in agriculture worldwide because of its adverse impact on agricultural productivity and sustainability and thus, resilient farming practices need to be developed to ensure food security. The RELOAD project team is comparing the response to simulated summer drought of the main Swiss arable farming systems.

Find out more about the project here.

Managing trade-offs in coffee agroforests (MOCA) 2012–2017

In the pursuit of increased short-term productivity, traditionally shaded coffee plantations are being increasingly intensified and converted to more open sun coffee systems. The MOCA project team aimed to understand how shade tree density and diversity management on organic and conventional farms contributes to more sustainable and resilient coffee production systems. The researchers found that maintaining a diverse native tree shade cover helps to preserve native tree diversity and additionally enhances coffee production and quality, pest management, soil fertility and resilience to climate change.

Find out more about the project here.

Agroecological projects on sustainable management practices

Biological control of soilborne insect pests using combinations of pseudomonads, nematodes and fungi (BeneComb) 2018–2022

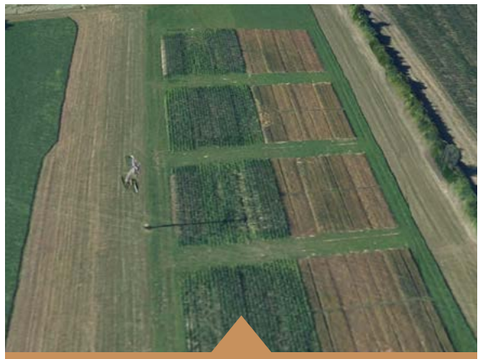
The BeneComb project team is developing a new approach for biological control of soil-dwelling pests compatible with organic production. This is done evaluating the potential of plant-beneficial fluorescent Pseudomonas bacteria with entomopathogenic activity for insect control and investigating whether below-ground insect biocontrol can be improved by combining these Pseudomonas with well-established biocontrol agents such as fungi and nematodes.

Find out more about the project here.

Ecological intensification of organic rooibos cultivation in South Africa (EcoInt) 2016–2019

Limited access to land and ongoing desertification threaten the sustainability of organic rooibos tea production in South Africa. The EcoInt project team explored the potential of microbial root symbioses to assist rooibos nutrition and growth. By uncovering the large diversity of beneficial microbes present in rooibos roots, the researchers could show that local, simple and low-cost soil management measures can increase the diversity of rhizobia in the soil and make the rooibos grow twice as big. Such an adapted management practice could contribute to improving rural livelihoods and environmental sustainability in the long run.

Find out more about the project here.



A comprehensive examination of nitrogen cycling and microbial communities within soil microenvironments in integrated organic farming systems in Switzerland (NORGS) 2014–2018

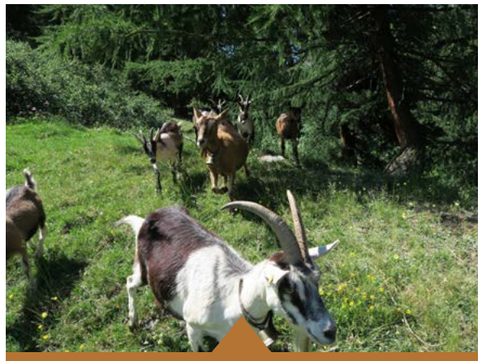
Traditionally, organic farming uses conventional tillage practices for weed control, even though tillage has numerous negative effects for the soil and promotes nitrogen losses. The objective of the NORGS project team was to improve understanding of management practices on soil structure, using a field trial combining organic and conventional crop management with different intensity levels of tillage. The researchers found that organic management combined with reduced tillage improved soil structure after a 4-year crop rotation. Furthermore, the use of a 2-year mixed grass-clover ley after the crop rotation improved soil structure under intensive tillage for both organic and conventional management practices.

Find out more about the project here.

Improving disease resistance of pea through selection at the plant-soil interface (ResPEAct) 2016–2020

Soil-borne diseases severely impede grain legume cultivation worldwide, limiting protein production. The overall goal of the ResPEAct project team was to improve the resistance of pea varieties against soil-borne diseases to allow higher frequencies of grain legumes in organic and sustainable production systems. The project outlined the potential to integrate information on plant-microbe interactions in plant breeding. Upcoming genetic analyses will provide further selection tools and provide first insights into loci/genes involved in resistance against pathogen complexes and the recruitment of a beneficial microbial community.

Find out more about the project here.



Extensive grazing on subalpine pastures: integrating biodiversity and the production of meat with special quality (EG4BM) 2015–2017

Marginal subalpine pastures offer much to society including animal-source food of special quality, unique biodiversity and recreational space with aesthetic value. The EG4BM project team aimed to quantify effects of shrub cover on vegetation in subalpine pastures, investigating how extensive grazing of cattle, sheep and goats on shrub-encroached pastures affects the composition of vegetation, growth, slaughter performance and meat quality. The researchers showed that extensive grazing systems utilizing robust breeds can add to conservation goals in Switzerland and sustain a viable meat production in marginal areas.

Find out more about the project here.

Greenhouse gas emissions of dairy production systems based on longevity and zero-concentrate strategy as compared to conventional systems (LLC) 2012–2017

Many dairy production systems focus on high-yielding cows and less on longevity and lifetime productivity. The LLC project team compared this high-yield strategy to a longevity approach that reduces the need for feed concentrates and extends the productive life of cows by several years, with a focus on both environmental aspects and economic performance. This project showed that increasing the length of the productive life of dairy cows is a valid strategy to make dairy production more sustainable, as it leads to a reduction in greenhouse gas emissions per unit of milk and to an increase in profitability of dairy production.

Find out more about the project here.

Agroecological projects at the interface of agriculture, nutrition and livelihoods

Nitrified urine as fertilizer: a trans-disciplinary approach to solutions-oriented community development (NUFSOC) 2016–2019

The NUFSOC project team continued testing the potential of a technology developed at Eawag to use N- and P-rich urine as a sustainably sourced natural fertilizer to close the agricultural nutrient cycle. The aim was to evaluate if nitrified urine can serve as a natural fertilizer that is effective, safe and well received by both farmers and consumers. The researchers found that from a biophysical perspective, nitrified human urine is an effective fertilizer. By working in coordination with a diverse stakeholder group within a participatory action research framework, the researchers were able to increase the level of trust and acceptance that smallholder farmers felt towards nitrified urine fertilizer.

Find out more about the project here.

Towards nutritional security through organic management of soil fertility in orange-fleshed sweet potato systems (ORMASP) 2015–2020

The ORMASP project team investigated the impacts of organic fertilizer sources on the maximization of productivity and nutritional value of orange-fleshed sweet potato, promoting soil health associated with an affordable agricultural production system for the smallholder farmers. The researchers found that poultry manure fertilization doubled production of orange-fleshed sweet potato while maintaining soil fertility. Moreover, they found that crop rotation and intercropping improve soil fertility and diversify produce while securing the same yield as continuous monoculture.

Find out more about the project here.

Zinc biofortification of wheat through organic matter management in sustainable agriculture (ZOMM) 2013–2018

Zinc deficiency is a global human malnutrition problem. An estimated sixth of the world's population is at risk of inadequate zinc intake. The ZOMM project team investigated how organic matter can be used best in agricultural soil management to enhance the nutritional quality of wheat grains with respect to zinc density, while at the same time promoting soil fertility. The researchers found that applying leguminous green manure is a promising approach for zinc biofortification of wheat. The findings of the project suggest that appropriate farm management can lead to competitive yields and improved zinc concentrations in wheat grains.

Find out more about the project here. ▶

Soldier Fly larvae reared on various substrates as novel protein source: Utility and constraints of use in the nutrition of organic laying hens and broilers (Hen and Fly) 2018–2021

The Hen and Fly project team is investigating and identifying ways and constraints of including insect material of different origin and composition into organic diets for growing and laying poultry. The project aims to address the influence of different substrates used for insect cultivation on feeding value, animal performance and contamination risk. Additionally, it will be determined how far the larval fat, the part of the larval material with the highest energy content, can be included into poultry diets.

Find out more about the project here. ▶

EDUCATION

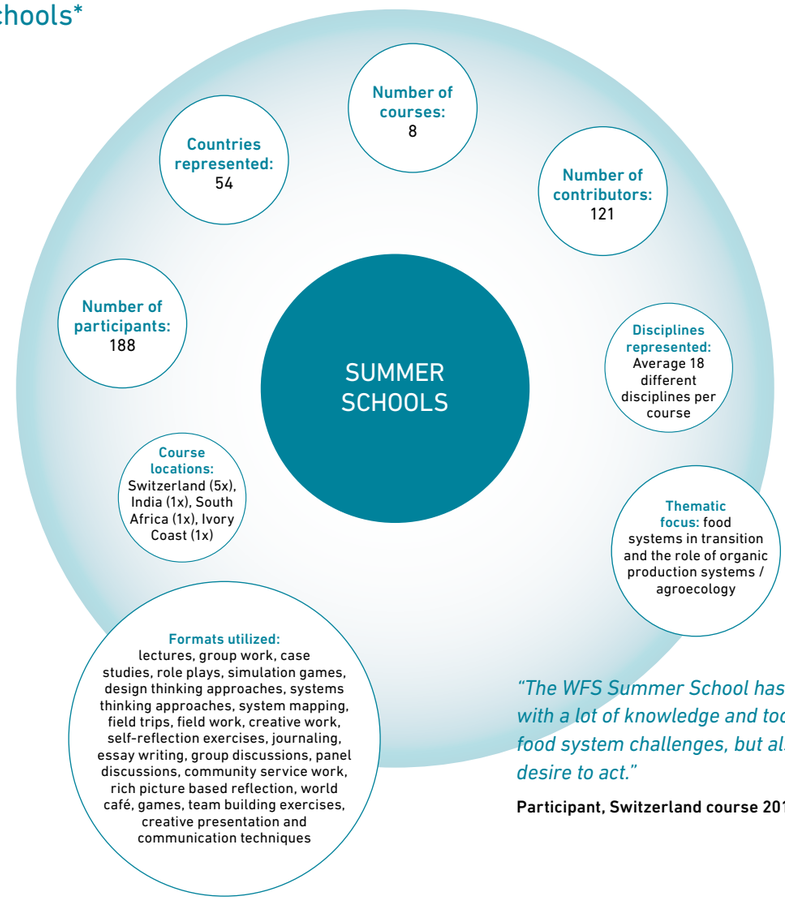
The Mercator Program built the capacity of 233 decision makers to provide leadership for the transformation to sustainable food systems.

The education activities of the World Food System Center aim to build capacity of the next generation of leaders to tackle complex food system challenges. The Mercator Program has enabled the Center to establish new and innovative education and training programs outside of the established curricular. This has provided unique training and development opportunities to an international network of over 188 students and young professionals, enabling them to explore the role and potential of organic and agroecological systems to tackle food system challenges.

All of the education activities that have been implemented through this program have a strong focus on enabling collaboration across traditional boundaries (disciplinary, cultural, sectorial) and in building the knowledge, skills and mindsets necessary to lead the transformation to a sustainable food system.

The educational activities have taken place through three main mechanisms – the summer school, the alumni network and through courses developed by the WFSC member groups.

Summer schools*



*two summer schools are still planned; numbers will increase until end of Mercator Program

"The WFS Summer School has not only provided me with a lot of knowledge and tools to address world food system challenges, but also reinstalled the desire to act."

Participant, Switzerland course 2015

WFS Summer School in Côte d'Ivoire 2018

The World Food System Summer School is as an innovative approach to education for sustainable food systems. The Center saw a need for an education program that would build the next generation of decision makers who could tackle complexity and have the knowledge, skills, network and motivation needed to engage with creating change. In particular, with a focus on the role and potential of organic and agroecological systems to provide solutions to food system and food security challenges.

The summer school was launched in 2013 with the aim to create a network of inspired participants from around the world who continue to collaborate and create impact after the course ends. Each course lasted for two weeks and brought on average 24 students from diverse backgrounds to live and work together in an intensive program setting in a location chosen for its relevance to the course content. The majority of the courses have been hosted in Switzerland at the Gut Rheinau, the largest organic farm in the country. This unique location allowed participants to connect theory with practice and engage with the topics of organic and agroecological production systems in a hands-on manner.

"The WFS summer school 2017 was one of the most diverse and vibrant group of people that I have ever worked alongside. The course helped me to take a systems approach when discussing concrete challenges and solutions – something that is sometimes forgotten when dealing with practical questions."

Participant, South Africa course 2017

DARIA REISCH

Current position Co-founder and CEO of Agrinorm
Discipline Business administration
Nationality Ukrainian

Participant of the WFS Summer School 2017 in South Africa

Recipient Ambassador Grant, to develop predictive quality analytics for organic blueberries, 2020

Contributor to WFS Summer School 2019 in Rheinau

How did you experience the WFS Summer School?

"For me, the participation in the WFS Summer School was a life-changing event. I met enthusiastic people who are fascinated by the same topics as I am. I learned a lot and could broaden my horizon. Most importantly, I understood that we can make this world a better place by putting our efforts together and start creating change wherever we can. After the summer school, I decided to take up a part-time job at the Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences (HAFL) as a scientific collaborator and project manager in the Sustainability Assessment group. In parallel, I started working on the development of my start-up in the agri-food sector."

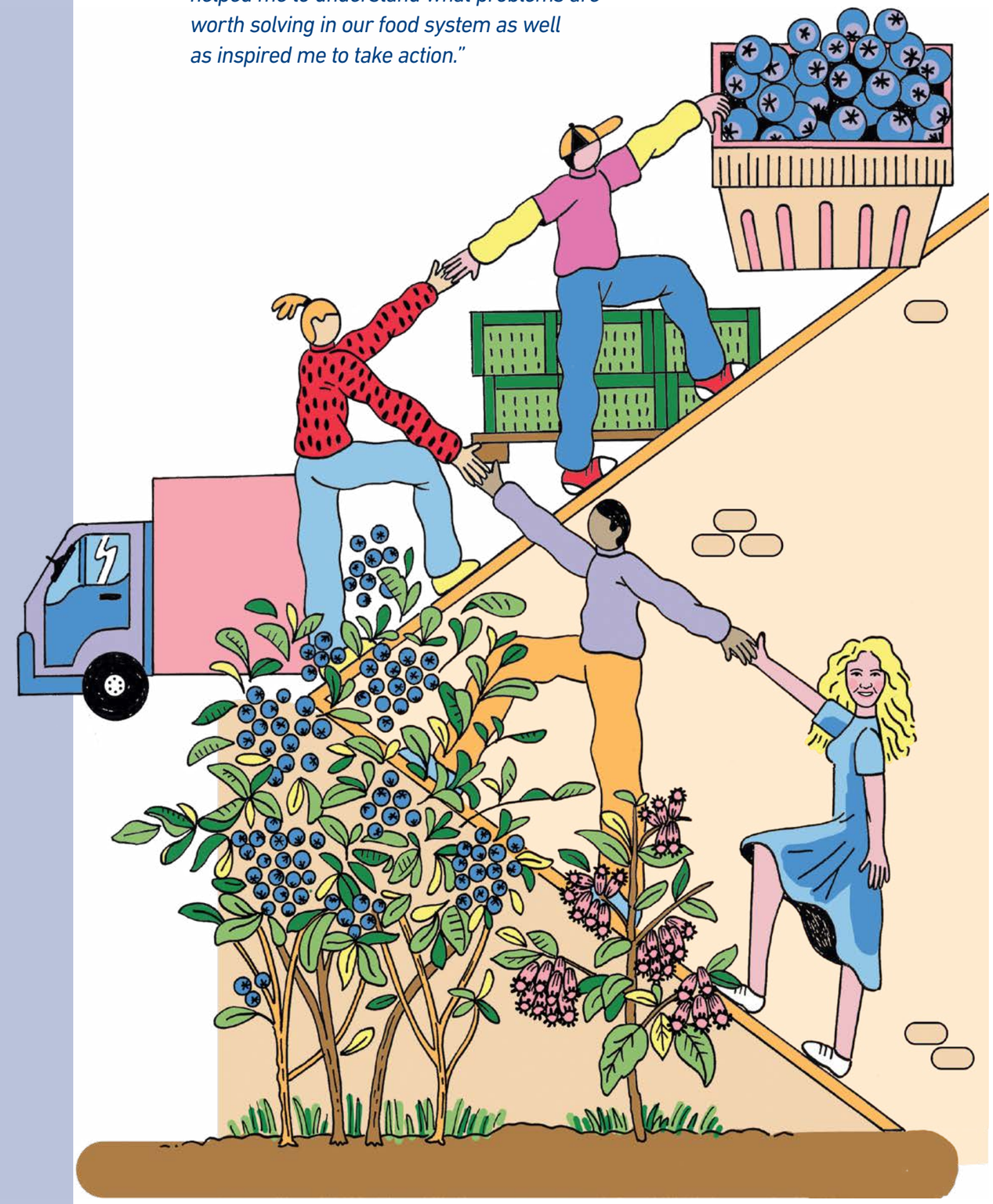
Are you still in contact with other alumni of the WFS Summer School?

"Since 2017, I enjoy being part of the WFSC Alumni Network and maintain a close friendship with some of the summer school participants. I find a lot of inspiration in exchange with people with a passion for the same topic. I also appreciate the diversity of our community, both in terms of geography and thematical coverage. For example, in the process of developing my start-up, I consulted a summer school participant from South Africa as he has in-depth knowledge from the country and sector of interest for me."

Can you tell us the story of your start-up Agrinorm?

"One can say that my start-up Agrinorm was to some extent inspired by the summer school and further supported with an Ambassador Grant. At Agrinorm, we are building a software for collaborative quality management of perishable produce. Today, up to 45% of all fruits and vegetables produced are wasted globally. We aim to change this while making fresh supply chains more efficient and transparent. Agrinorm successfully closed a Pre-Seed round in 2020, currently has 64.5 FTEs, has an ongoing Innosuisse-funded research collaboration with the University of Zürich and Agroscope, and aims to close a Seed round of up to CHF 2 million in 2021."

"I believe change happens in human minds and then finds a manifestation in human lives. Touch points with the Mercator Program helped me to understand what problems are worth solving in our food system as well as inspired me to take action."



The WFS Summer School design criteria:

Promotion of cross-cultural exchange and team work; awareness of context specificity of challenges and solutions; systems thinking approaches; interdisciplinary and cross-sectoral approaches; blend of experience, theory and skill acquisition; experimental approach to program design; exploration of agency and power of diverse actors; values-based approaches; appreciation of participants as producers and users of knowledge; diverse participant and faculty cohort; and holding the course in unique locations that offer first hand engagement with food system issues.

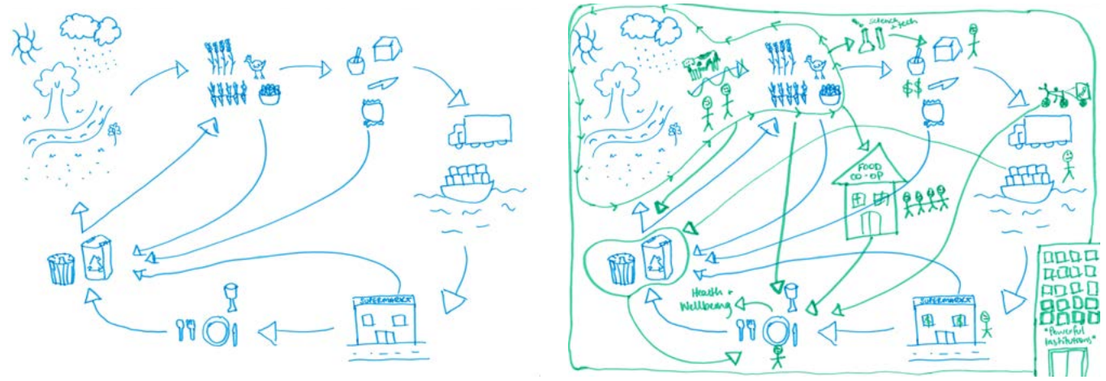
The course was built on the philosophy that learning is not only an individual process, but a social process and that an educational environment is most effective when it is enjoyable, sparks curiosity and motivates the participants to direct their own life-long learning. The beginning of the course always focused on building a learning community between participants, where they appreciate and respect their different backgrounds and what they can learn from one another. Setting such an inclusive learning environment is very important in ensuring that the program builds both hard and soft skills for participants and places effective collaboration amid disciplinary, socio-economic and cultural diversity at the center of the experience. Participants told that this helped them to learn about things they would otherwise not have had the chance to and to learn how to communicate and to work effectively despite differing perspectives.

"This course stands out from other courses, because of the quality, thoughtfulness and inclusivity of all activities and aspects. It is thought through in its smallest details (writing postcards to our future selves!) and us students were challenged and supported in every single moment. It further stands out, because I never doubted its importance, fruitfulness and particularity. Further, it managed to merge very technical with very human and social aspects - teaching feelings and emotions about food and one another to the tech-focused participants and introducing social scientists to the importance and fascination of tech-approaches. Many thanks!"

Participant, Switzerland course 2019

At the end of each course, participants completed a comprehensive evaluation and a knowledge pre- and post-course activity (using the rich picture method). Over the 8 courses held so far, the average response (on a course basis) to the question "Would you recommend this course to your peers" was 5.8 on a scale of 1- disagree to 6- strongly agree, with a very low variability between responses. Across all courses, participants consistently agreed that the learning objectives of the course (see appendix) were met and that they developed new knowledge, skills, networks and a better understanding of the roles they could play in building sustainable food systems. A mid-term survey and focus groups with alumni conducted in 2018, additionally indicated the important role the course played in supporting the participants' personal and professional development and in building their motivation and inspiration to engage with the food system.

The rich picture method was used as a tool to assess the knowledge gained by participants in a course ocused on complex systems. A recent study of the Center involved coding and comparing 51 pairs of pre- and post-course rich pictures of food systems from participants of three different course cohorts. The analysis clearly demonstrated new knowledge gained: The number of sub-categories drawn significantly increased from 11 to 19 in the post-course pictures, the largest increase occurred for environmental sustainability (57%).



Rich picture drawn by a participant of the summer school before and after the course

Publications:

Grant, M., Shreck, A., Buchmann, N. (2018) Tackling Food System Challenges through Experiential Education – Criteria for Optimal Course Design. GAIA. 27/1: 169-175.
Available at:
https://www.ingentaconnect.com/contentone/oekom/gaia/2018/00000027/00000001/art00015#

Grant, M., Gilgen, AK., Buchmann, N. (2019) The Rich Picture Method: A Simple Tool for Reflective Teaching and Learning about Sustainable Food Systems. Sustainability. 11(18), 4815.
Available at:
https://www.mdpi.com/2071-1050/11/18/4815/htm

"The course helped me to find myself in this topic, understand the complexity and the huge number of opportunities waiting outside for me to get engaged."

Participant, Switzerland course 2019

Alumni activities

After completing the summer school program, participants joined the course alumni community, called the World Food System Center Alumni Network (WFSCAN). In 2017, the Center took the steps to begin formalizing the alumni network and mobilizing it to create ongoing impact through continued exchange and joint projects between the global network. This process was catalyzed through a survey sent to all alumni 1+ years after completing the course. The insights gained from the survey were further enriched through a focus group held with a group of 12 alumni in Berlin in June 2018. This process reengaged a large number of alumni and gave motivation and momentum to strengthen the collaboration with one another. The focus group ended with an interim volunteer board who developed a strategy for the establishment of an alumni organization and the associated activities.

The alumni network is now a formalized platform coordinated by the alumni, with three board members establishing the organization, maintaining the online platform (www.wfscalumni.com) and coordinating learning and exchange activities both on- and offline. The vision of the organization is to cultivate a collaborative network that inspires and leads change towards sustainable food systems, with the mission to support alumni-driven initiatives that foster connecting, learning and contributing.

This is enabled via activities in the following areas:

- Online platform – The alumni have created their own online platform to interact with one another at www.wfscalumni.com
- Knowledge and exchange – The alumni organize a wide range of events and projects in different parts of the world to explore food system challenges and solution opportunities presented through agroecology
- Community building - The alumni actively foster the development and integration of the community. They have taken part in multiple community building trainings and implement these insights to create a strong connection between the individual members.

In recent years, the alumni have completed a total of 14 projects and events (see appendix).

The alumni also continue to contribute to the summer school. As they step into their careers, they are invited back to the course as faculty to share their practical experience and field of expertise. In the last course, this included training the students on the organic certification process in Switzerland and how social innovation is taking place in this field as well as entrepreneurship as a tool to tackle food system challenges. Alumni also make connections to their own organizations and networks. For example, the Center hosted a two-week learning journey on organic production systems for 20 university students from Assam Agricultural University in India in 2019. This link was established through an alumnus of the summer school who wanted students from his own country to experience this unique learning opportunity. Organizing the study tour also was a great opportunity to further share the knowledge and expertise of the MRP projects, strengthen partnerships and build capacity of the next generation of decision makers to provide leadership for sustainable food systems issues.

Member Course Support

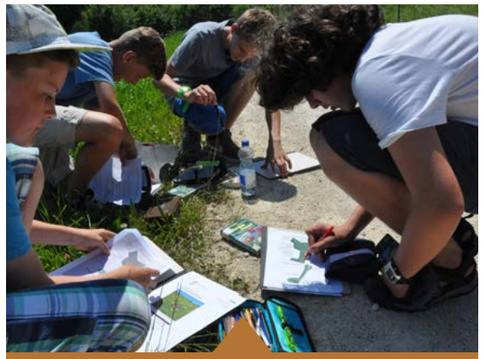
This funding instrument was set up to support new and innovative course formats developed by WFSC member groups. The funds are designated to courses that have a clear component focusing on aspects of organic food value chains and production and that take place within an engaging, interactive learning environment that encourages systemic thinking across scales, disciplines, sectors and cultures.

Four very diverse courses for different target audiences could be co-funded with the Member Course Support.

Field project "Tropical cropping systems, soils and livelihoods" 2016

The field project "Tropical cropping systems, soils and livelihoods" offered each year around 12 ETH students the opportunity to immerse into tropical agroecosystems, guided by a number of experienced researchers and educators from three collaborating universities (Arba Minch University, Ethiopia or University of Eldoret, Kenya; KU Leuven, Belgium; and ETH Zurich, Switzerland). Developed by the group of Prof. Johan Six, the course was first implemented in the fall term 2016 (co-funded through the Mercator Program) and integrated into the regular ETH curriculum in the fall term 2017.

You can read more about the experiences in Western Kenya of the participants 2018 here ▶ and of the participants 2019 here. ▶



Young scientist course on science outreach in agriculture 2017

The "Young scientist course on science outreach in agriculture" aimed to tackle challenges of climate change and biodiversity for agriculture. Developed by the group of Prof. Nina Buchmann, the courses enabled 16 master, doctoral and post-doctoral students to coach 800 school children gaining experiences with experiments on 22 organic farms in German-speaking Switzerland. The young scientists learned to coach school children and gained experiences in supervising school classes during different learning activities, from classroom activities to hands-on experiments on organic farms.

You can read more about the experiences of a participant here. ▶

Teaching the principles of sustainable food systems through scientific tourism 2020

The educational activity "Teaching the principles of sustainable food systems through scientific tourism" provided hands-on experience for children and adults in knowledge creation, application and exchange about sustainable food systems and agroecology. Developed by Prof. Christian Schöb, the course included a combination of agrotourism and scientific tourism and was carried out in Las Corchuelas, Torrejón el Rubio, Spain. The goal of the course was to raise awareness on food system-related topics, such as agroecological research including intercropping and agroforestry; organic agricultural production; food processing; food consumption including nutrition and health and organic waste recycling.

Stable isotope learning activity and workshop 2021

The "Stable isotope learning activity and workshop" highlights the agroecological context of agricultural food production and food consumption and their impact on the environment. Developed by the group of Prof. Nina Buchmann, the action and problem-oriented workshop targets high-school students. The method of stable isotope detection by mass spectrometry can, among other things, reveal different production methods of agricultural goods (e.g. organic, conventional, place of origin) and can be incorporated into our body and used as natural markers to uncover changes in our diet. Pupils learn how both farming methods and feeding lead to a different isotopic signature of food, using milk as an example.

BENJAMIN GRÄUB

Current position Expert on digital trainings for farmers at the Research Institute of Organic Agriculture (FiBL), Frick; Co-CEO and Co-founder of farmbetter Ltd.
Discipline International affairs & international management
Nationality Swiss

Participant of the WFS Summer School 2014 in India

Speaker at Academia Engelberg Forum on Food Security in 2014

Recipient Ambassador Grant, to test the Google SPRINT method for an idea around an app for farmers, 2018

Recipient Ambassador Grant, to carry out a rapid prototype testing with farmers in Kenya on learning materials for farmers, 2018

Recipient Ambassador Grant, to develop and test a training module on agrofo restry together with Kijani Forestry in Gulu, Northern Uganda, 2020

What kind of projects and collaborations developed out of your Ambassador Grants?

"The Ambassador Grants were an incredible springboard to test innovative methods in real life and figure out which ideas could be useful to create a positive impact in the food system. Out of the work I started with the Ambassador Grants, a social enterprise has since been built – farmbetter.io. farmbetter connects farmers with relevant, tailored knowledge to improve their livelihoods and climate resilience. It will be active in 7 countries across two continents in 2021 – thanks also to the very competitive research for development grant that our consortium (incl. University of Berne/WOCAT, Grameen Foundation and icipe) won. The Ambassador Grants happened over a year before farmbetter was incorporated but it allowed me to go from unstructured discussions to a small prototype as well as building the groundwork for the current farmbetter team."

How did the Mercator Program have an impact on your career?

"Both the summer school and the grants deepened my practical knowledge on the food system and its challenges, organic agriculture as well as using innovative facilitation and presentation methods. Through that, I was prepared and enabled for both of my current positions. I think it's safe to say that the grants and summer school have had a decisive impact on getting me to where I am professionally at right now."

What was the most significant change you experienced as a result of the different touch points with the Mercator Program?

"Support from the Ambassador Grants really took me from thinking about what I can do, to actually doing it. While that sounds simple – it's a big step and has made all the difference and changed my actions and attitudes. Lastly, the network that the summer school (and to some extent the grants) opened up to me has been key in moving forward my work."

"The WFS Summer School was one of the best organized and transparent programs I've attended with an incredible mix of practice, theory and a strong focus on sustainability and the food system as a whole."

NORA BARTOLOMÉ GUTIÉRREZ

Current position Researcher at Empa – Swiss Federal Laboratories for Materials Science and Technology, St. Gallen
Discipline Environmental chemistry
Nationality Spanish

Participant of the World Food System Film Series, 2014

Recipient Ambassador Grant, to compare pesticide concentrations in soils of conventional and organic production systems in Costa Rica, 2018

Participant of the WFS Summer School 2015 in Rheinau

Community Coordinator WFSC Alumni Network, 2019–2021

Why did you apply for the World WFS Summer School?

"After attending various events and reading about all the different activities that the WFSC was doing, I realized that the WFSC has a unique vision of seeing science from a systems perspective. In addition, my motivation to learn more about the complex topic of sustainable food systems with a broad perspective fit perfectly."

How did the involvement in the Mercator Program impact your career?

"The Ambassador Grant allowed me to work on one of my favourite topics: the use of pesticides in a complex geopolitical setting, the case of Costa Rica. This was an amazing experience where I could learn about the topic not only from an environmental chemistry perspective but also learn how the Universidad Nacional in Costa Rica is tackling this problem: making guidelines, organizing workshops and discussions with farmers about how to improve good agriculture practices. This has really opened new avenues in my career. I could professionally move towards the topic of pesticides in soils and keep using my experiences in working in an international setting that I gained during my Ambassador Grant and my role as Community Coordinator of the WFSC Alumni Network."

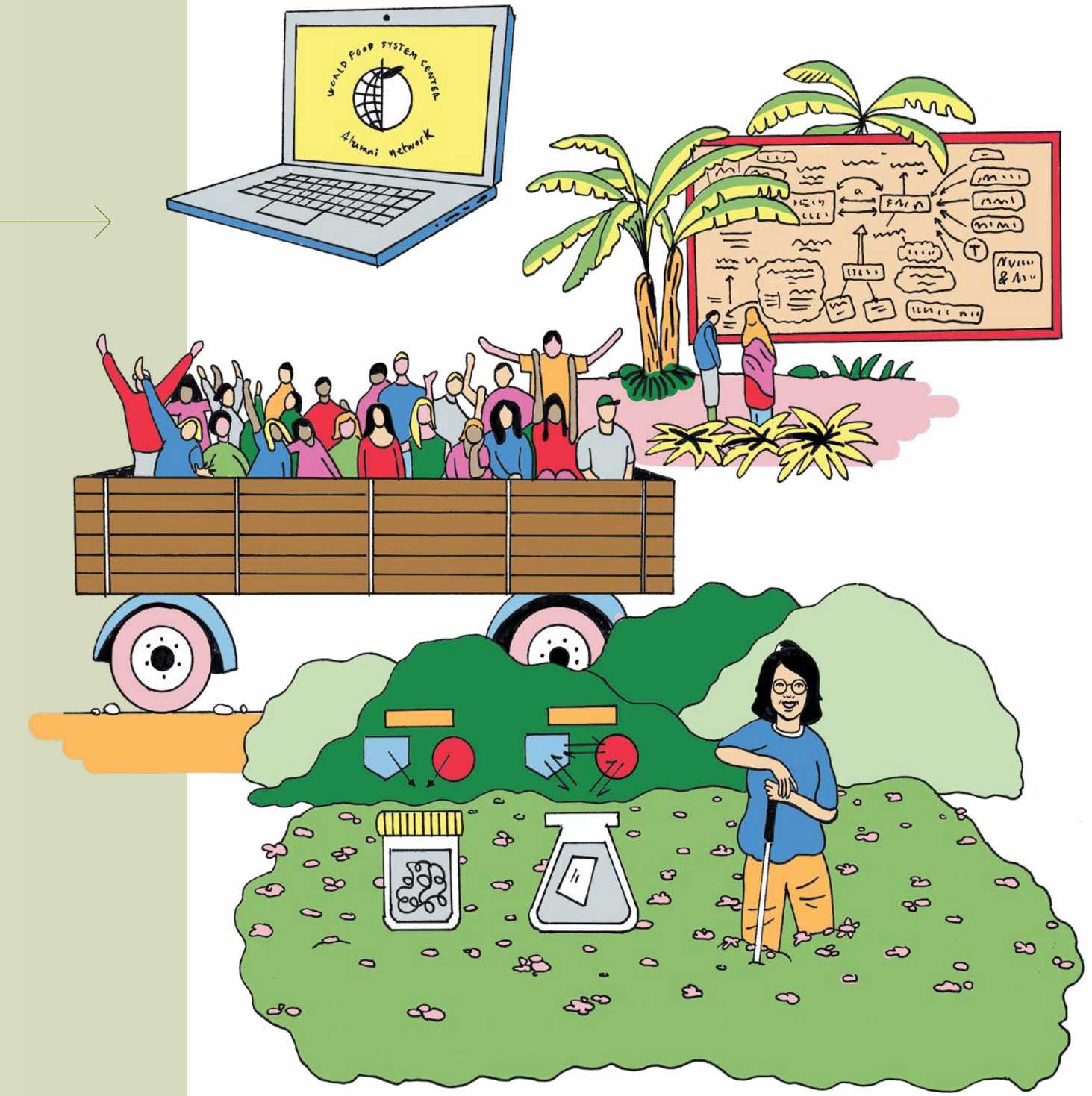
What was the most significant change you experienced as a result of the different touch points with the Mercator Program?

"The fascinating touch points with the WFSC and the Mercator Program affected me professionally and personally in my daily life. I started to analyze all projects I work with or my daily routines taking into account a broader picture. So now, I analyze food systems and other value chains in a more holistic way including not only the environment, but also social or cultural aspects."

What is the WFSC Alumni Network for you?

"The WFSCAN is a lab where we can experiment with real problems or questions. It is a project where we have an amazing freedom to try things out and receive the support to explore new topics. This freedom and support really foster creativity and is something very unique in the academic world. It is a grassroot type of collaboration, where every voice counts and everyone wants to listen and contribute with their experience or opinion. The alumni community is a group of experts that collaborate, support each other and want to keep learning about sustainable food systems."

"The discussions I have been having with my alumni colleagues over the past years were all about sustainable food value chains. However, the concepts I learned during the summer school, can also be extrapolated to other value chains and products we consume, e.g textiles and electronic devices."



OUTREACH

Through the Mercator Program, the Center engaged with a broad audience to increase awareness about challenges in the world food system and the approaches agroecology and organic production offer to creating solutions.

The World Food System Center strives to create actionable knowledge to be shared in dialogue with a wide audience. Such dialogue is necessary to accelerate the transformation of food systems and thereby support the achievement of the SDGs. A wide range of interested stakeholders in Switzerland and abroad was reached through diverse outreach activities, ranging from public events and lectures, webinars, factsheets and videos and direct discussions. Through this breathe of voices and formats, a basis for more informed decision-making for the public was supported.

In total, the Center held 50 public and specialist events reaching 23,292 people from 2012-2021. Many events were jointly organized with WFSC members and partner institutions. Many of these events (21) were supported by the Mercator Program, reaching over 2,973 people. The participation of high-level presenters and guests helped to anchor the Center in important international and national networks. Further dialogue was achieved with the public through research communications in the form of fact sheets and videos; with young students through the Edible Research Agora project; and with young changemakers through the Ambassador Program. The Center aims to consistently revamp and try new channels and products for an ever-changing media and user landscape.

Making of research films 2020

Research communications

Since the establishment of the Center, a set of tools were developed to communicate with broad audiences about food system topics and to translate research findings into accessible formats for key stakeholders. Current communication channels and products include the World Food System Center website, reports, newsletters, and social media (Twitter, Linkedin, Facebook). Through the Mercator Program, the number and visibility of research projects supported by the Center has significantly increased. A total of 17 fact sheets and eight videos have been produced so far, with the intention of clearly and succinctly communicating the findings of the research projects. In addition, the Center hosts consistently updated project webpages and a YouTube channel, which aim to share these products with stakeholders and the informed public. The research videos were also featured at the Center's exhibit at ETH Zurich and University of Zurich Science Days (Scientifica) in September 2018, where 500 people visited, or at the exhibition 'zu Tisch' in the Vögele Kulturzentrum in Pfäffikon. So far, a total of 4,436 views have been achieved. The new videos produced in 2020/21 were released at a premiere event in May 2021. The results of the research projects have also regularly been highlighted in news items and newsletters. For example, in March 2018, a new publication from the project Greenhouse Gas Emissions of Dairy Production Systems was featured in a news item. In January 2017, an interview with researcher Rafaela Feola Conz, doctoral fellow on the project 'Towards nutritional security through organic management of soil fertility in orange-fleshed sweet potato systems' was published.

Stills from the produced videos in 2020/2021

Public lectures and events

The Center organized several public outreach events funded by the Mercator Program with the aim to make contemporary food system research accessible to a wider audience. A total of 21 events took place from 2012–2020 (see Appendix) that shed light on the role of agroecological, organic and low input production systems in tackling world food system challenges. These events headlined leading experts and scientists and reached over 2,973 interested stakeholders. News from all events is available on the WFSC website: https://worldfoodsystem.ethz.ch/outreach-and-events/public-and-scientific-events.html.

A public event and lecture series on topics such as food system diversification, tackling malnutrition with biofortification, fraud in organic food and pesticide effects was held at ETH Zurich. In 2020, the Center organized an online cooking event focused on social and environmental challenges in the food system, with a seasonal menu created by TasteLab, an ETH Zurich spin-off.

March 2014

Agricultural intensification: balancing production, environment and livelihoods

Pedro Sanchez, Cheryl Palm

ETH Zurich, The Earth Institute of Columbia University

March 2016

Tackling food system challenges through Innovation: sustainable proteins of the future

Alexander Mathys

ETH Zurich

September 2017

Tackling malnutrition with biofortification

Maria Andrade, World Food Prize winner

ETH Zurich, International Potato Center, Mozambique

April 2019

Pesticides – what does science say?

Robert Finger, Lothar Aicher and Philipp Staudacher

ETH Zurich, Swiss Center for Applied Human Toxicology, Eawag

April 2015

Food systems resilience in theory and practice: organic agriculture as a prototype?

Frank Eyhorn, Johan Six

ETH Zurich, HELVETAS Swiss Intercooperation

October 2016

Beyond organic: diversification in food systems

Emile Frison

ETH Zurich, International Panel of Experts on Sustainable Food Systems

April 2018

Fraud in organic food: a discussion about why we should all be worried

Chris Elliott

ETH Zurich, Queens University Belfast

November 2020

Changing the food system, one meal at a time

Michelle Grant, Linn Borgen Nilsen, Akanksha Singh, Susanne Tobler

ETH Zurich, Taste Lab

Public lectures funded by the Mercator Program

left: WFSC Annual Symposium 2018, right: WFSC Annual Symposium 2019

WFSC Annual Symposium

In 2016, the Center established an annual research symposium to highlight food system research at ETH Zurich and to feature presentations from concluding research projects supported by the Center's Research Programs, including the Mercator Research Program. So far, five annual events have been organized, with a total of 24 presentations, 232 scientific posters and over 1,100 participants. All the events were co-funded by the Mercator Program.

The diverse audience, each year from over 50 organizations, provides a unique opportunity for the young researchers to share their findings to a multitude of stakeholders, including the general public and university students. Executive Office staff provided presentation preparation assistance to make sure the presentations were appropriate for this public audience. Feedback on this event (podium presentation and networking poster session) that brings research from across the span of the food system together was continually positive.

In 2020, the event was moved online due to the Covid-19 pandemic, with the presentations of young researchers being paired with a panel discussion on plant breeding for global food security. The poster session was displayed on Twitter #ETHFoodDays and the Center's website before the interactive webinar event, where 15 poster finalists were invited to present. This event allowed for sharing and connection between stakeholders around key food system topics being discussed at the upcoming United Nations Food Systems Summit.

"It's fascinating to see all these young people doing research on so many important questions we have on this planet."

Simon Zbinden, Co-Head SDC's Global Program Food Security Division

LUKAS WILLE

Current position Researcher at the Research Institute of Organic Agriculture (FiBL), Frick
Discipline Biology
Nationality Swiss

Doctoral student MRP project ResPEAct

Participant of WFSC Research Symposia 2016, 2017, 2018, 2019

Mercator Poster Prize Winner 2018

Blog entry Food System Stories (use of money from poster prize)

Participant of the WFS Summer School 2018 in Côte d'Ivoire

Presenter at WFSC Kanti Stadelhofen Besuchstag 2018

Keynote speaker of WFSC Panel Discussion "Plant breeding for global food security" 2020

Higgs.ch Scientist Takeover 2019

Why did you apply for the PhD position in the resPEAct project?

"First of all, there was my personal motivation to get education and training in research centering around biology, agronomy and sustainability. The resPEAct project combined all of this: It is based on a real-world agricultural challenge, pea root diseases, and aims at finding sustainable solutions by working in a fascinating field of biological research - plant-microbe interactions. Also, and very important to me, the project involved many different technical aspects, from field trials to molecular biological work in the lab."

Why did you participate in all the WFSC Research Symposia?

"The WFSC really knows how to setup environments where exchange between different researchers, but also among non-researchers and researchers is possible. For instance, the annual research symposium is open to a wider public and there is room and time for interaction during the poster session. To me, the symposium was a perfect mix of a meeting among research friends and exchange with different people. I even invited friends and family once, and they could get a nice overview of food system research."

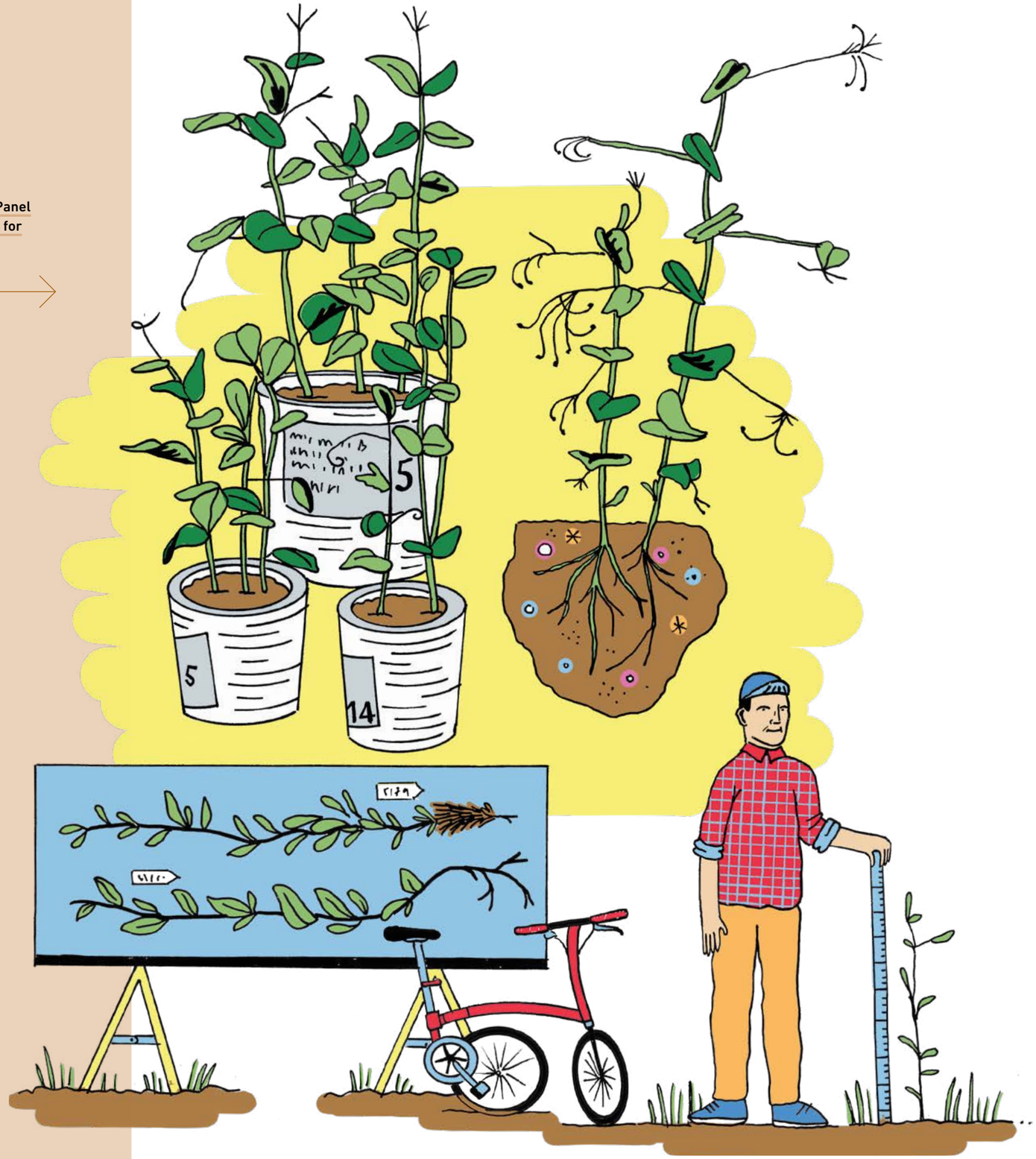
What kind of projects and collaborations developed out of your PhD?

"The Mercator funded project resPEAct allowed to set a basis for research on plant-microbe interactions that has become a pillar of the research portfolio of the Plant Breeding group at the Research Institute of Organic Agriculture FiBL. Knowledge and technical expertise acquired in this project have been applied in other projects, for instance in research on mixed-cropping and seed health. The project allowed to establish and tighten various research collaborations, first of all between ETH and FiBL, then, in the course of the project, with many international research groups working either on pea resistance breeding or plant-microbe interactions. It has also allowed to tighten the collaboration with the breeding company gzpk in Feldbach: At present, quarterly meetings are held to coordinate common work and joint webinar trainings are organized. Finally, the resPEAct project has allowed to access new funding opportunities, as for instance, the AGRIBIOME project funded by the Gebert-Rüf Stiftung where the work on pea resistance is continued."

How did the Mercator Program impact your career?

"Quite considerably! The program allowed me to obtain a doctoral degree of ETH Zurich and then to get a permanent position as a researcher at the FiBL. It has also allowed me to establish personal contacts with various researchers in the fields of pea pathogen complex, resistance breeding and plant-microbe interactions."

"With the re-emerging crop pea, literally at the center of resPEAct, this project made a contribution to agro-research and sustainable agriculture."



JOHAN SIX

Current position Professor of Sustainable Agroecosystems, ETH Zurich
Discipline Soil science and tropical agriculture
Nationality Belgium

Supervisor MRP projects OrRes, NUFSOC, ORMASP and NORGS

Supervisor of Ambassador Grant recipients

Contributor to 4 WFS Summer Schools (Côte d'Ivoire 2018, Rheinau 2016, 2015 and 2014)

Contributor to WFSC Short Course 2020: Designing for food systems resilience: a circular approach

Supervisor of 11 WFS Summer School participants

Recipient Member Course Support: Tropical cropping systems, soils and livelihoods

Contributor and participant of WFSC Research Symposia 2016, 2017, 2018, 2019

What kind of projects could you carry out through the Mercator Program?

"My collaboration with the WFSC has been quite intensive and very fruitful. I have worked with the WFSC on research, teaching and outreach activities. Several of the international PhD projects on sustainable agriculture and resilient food systems in my group would have been difficult to get funded without the Mercator Program and the research platform of the WFSC. Some of the more innovative teaching within my group was facilitated or in collaboration with the WFSC. And last but not least, many outreach activities to disseminate our research findings were done in close collaboration with the WFSC; for example, we were successful in obtaining an AGORA project for outreach to Swiss high school teachers and students together with the WFSC."

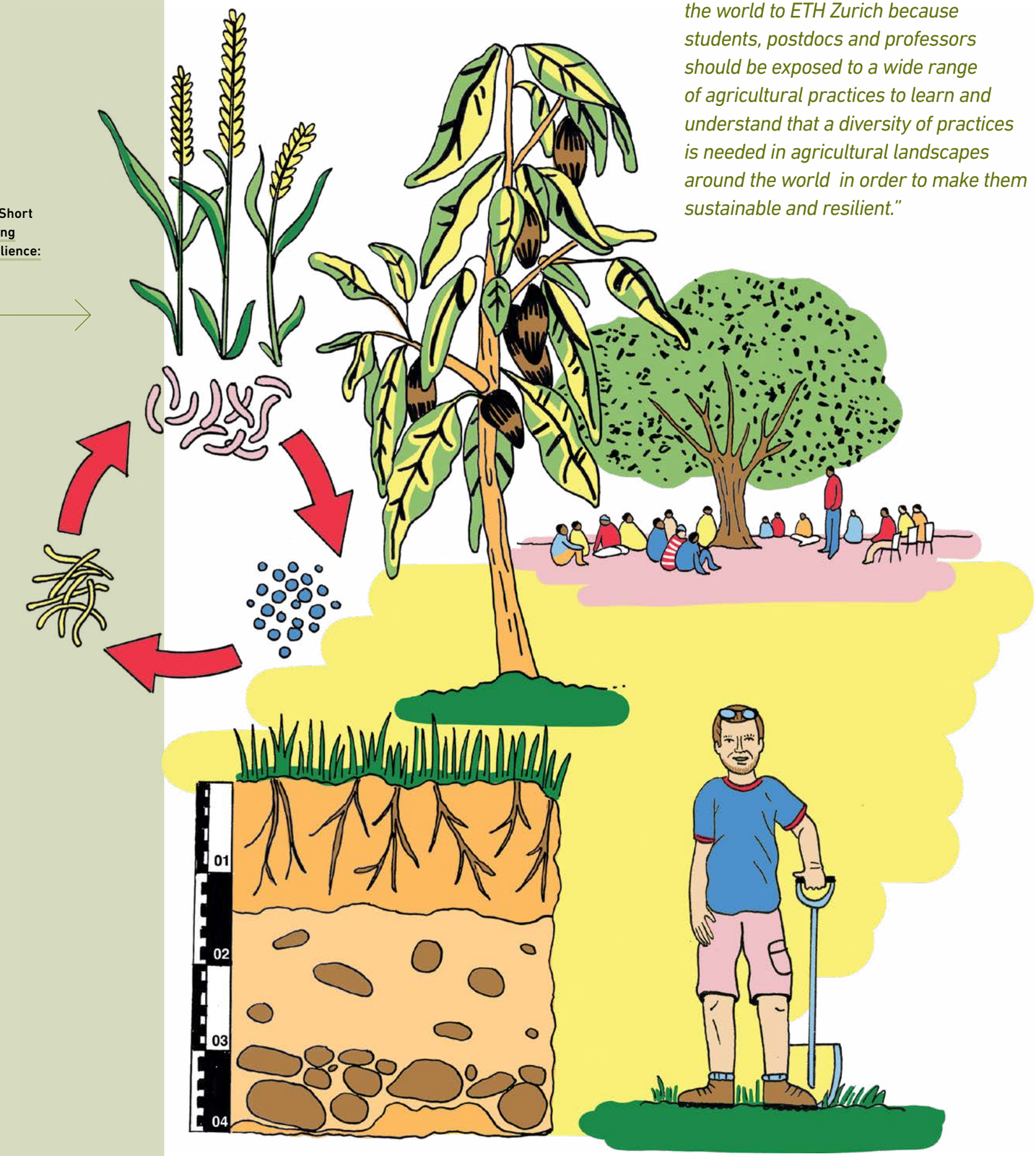
How do you estimate the overall impact of the Mercator Program?

"The overall impact on students and researchers in my group cannot be underestimated. The Mercator Program has really allowed for a lot of research, education and outreach activities around agroecology in Switzerland and especially abroad. It really allowed me to setup a vibrant international program, especially in Africa."

What kind of follow-up projects developed out of the Mercator funded projects?

"Several projects have been directly and indirectly developed out of the Mercator funded projects, most notably the RUNRES project, where different components (resilience, human waste derived fertilizer, compost use, etc.) from different projects (OrRes, NUFSOC, ORMASP) are integrated to set up nutrient-based circular economies in Sub-Saharan African city regions for resilient food systems."

"I think it is very important to bring research on agroecology from around the world to ETH Zurich because students, postdocs and professors should be exposed to a wide range of agricultural practices to learn and understand that a diversity of practices is needed in agricultural landscapes around the world in order to make them sustainable and resilient."



Conference “Tackling world food system challenges: across disciplines, sectors and scales”

In June 2015, the Center successfully organized and hosted an academic conference at the Congressi Stefano Franscini in Monte Verità. The conference was co-funded by the Mercator Program and brought together over 100 participants from 24 countries, allowing researchers to exchange with colleagues from international organizations such as the UN FAO and the International Food Policy Research Institute (IFPRI), Swiss institutions such as the FOAG, Agroscope and the (Swiss) Research Institute for Organic Agriculture (FiBL) as well as industry. The focus of the conference was on cross-disciplinary and cross-sector collaboration, learning from one another about viable solutions and identifying emerging topics that need increased attention to address food system challenges.

The 5-day conference included traditional and non-traditional formats, with the aim of truly engaging the participants to exchange with one another and build up new collaborations. For this reason, the conference size was capped at 100 participants. The 21 different sessions held over the course of the week covered a broad range of disciplinary fields and encouraged cross-disciplinary collaboration through short, targeted presentations, panel discussions led by audience questions and a cross-cutting workshop on designing resilience in food systems that ran over several days of the conference.

The feedback received from the conference participants through the post conference evaluation was overwhelmingly positive. The vast majority of conference attendees indicated that they would be interested to participate in a future conference, with 87% reporting they are ‘very interested’ and 13% reporting they are ‘somewhat interested’.

Participants interacting at the WFS Conference

“I was impressed by the recent WFSC conference at Monte Verità. I appreciate the thought, organization and flexibility required to put such an event together and would like to congratulate you on the quality of this event. The group you brought together was relevantly diverse, the content was thought provoking, generally well delivered and interesting and the format with short sharp presentations with questions and discussions worked very well. I was also surprised how productive the workshops were. This event is a very good starting point in positioning the WFSC not only as a thought leader and convener, but also as having the capability to drive change.”

Ian Roberts, CTO Bühler

Ambassador Program

The WFSC Ambassador Program funded through the Mercator Program provided opportunities for ETH Zurich students and young researchers, as well as alumni from the World Food System Summer School, to participate in short-term travel or study programs, internships, or similar activities to further their education on food system issues and support their capacity to be changemakers in this field. The program offered a chance for participants to explore new opportunities and share their learnings through education and outreach activities to a broader audience. The program supported activities that are concerned with the role and potential of agroecology and organic production systems (certified and non-certified) to contribute to global food security. In the period 2012–2020 a total of 41 grants have been provided to awardees from projects and initiatives in 19 different countries (see appendix).

The Ambassador Program offered a rich opportunity for food system change agents to continue their engagement with the Center and to broaden the impact of the work. The Ambassador Grant was often the starting point for students and young researchers from the member groups to get in contact with the Center. This often kickstarted an ongoing engagement through attending the summer school, various events at the Center or applying for research funding. Likewise, the grants allowed alumni from the summer school to continue to expand their learning and development after the course had finished and to then create an impact for others in their communities.

Below, five projects are outlined in more detail.

Charlotte Decock (2014): Research on organic basmati rice production in Uttarakhand, India

Charlotte Decock travelled to Uttarakhand, India, to collect data related to sustainable production of organic and fair-trade Basmati rice. Her research was situated in the context of an agricultural development project, which was initiated three years earlier by Helvetas Swiss Intercooperation and Intercooperation India. Farmers that enrolled in the project switched from conventional hybrid paddy rice production to organic Basmati rice production and were connected to markets where they received a fair price and organic premium. In Uttarakhand, Charlotte assessed the sustainability of different variations of organic management of these rice systems in order to identify which suite of organic practices is most sensible from a social, economic and environmental point of view. The project gave her the opportunity to develop a research proposal and supported the development of a professional collaboration that then resulted in a full research project in collaboration with Helvetas and FiBL funded by the COOP Research Program.

Noémie Graas (2015): Agroforestry and the indigenous association of LakaMalecu, Costa Rica

In early 2016, Noémie Graas was able to travel to northern Costa Rica to support the indigenous Maleku people with the establishment of their own sustainable species-rich cocoa agroforest. Together with the Maleku people, they planted the first 300 cocoa trees and were thereafter researching endangered and neglected plant species that can be integrated into the agroforestry system. The Maleku are one of the smallest and poorest indigenous communities in Costa Rica with around 800 people that live in three little towns, called “palenques”. Noémie was welcomed with open arms in the territory; the Maleku were proud to share with her their home, their stories and indigenous foods. Moreover, they allowed a glimpse of their vast medicinal plant knowledge.

During her internship, Noémie learned that the Maleku face serious problems with their land rights and are deeply concerned about Caño Negro, one of Central America’s largest wetland systems located at the north of their original territory close to the border of Nicaragua. The main driving force behind the destruction of this fragile ecosystem comes from the pineapple, whose production in Costa Rica has virtually exploded in the past years.

Read more here.

Philipp Staudacher (2017): Research on biopesticide practices in Kampala, Uganda

From his PhD research on negative effects of synthetic pesticides in tropical smallholder agriculture, Philipp Staudacher learned that many farmers would like to not use synthetic pesticides, but do not know about alternatives, or cannot afford them. Therefore, his project funded through the Ambassador Program looked first at understanding indigenous knowledge of small-scale organic farms on how they protect their crops in the surroundings of the capital city of Kampala in Uganda. Secondly, the collected information was laid out in a comprehensible format to foster the exchange of information between local farmers. And finally, Philipp evaluated the potential of these local practices for upscaled production and business potential for local as well as export markets in collaboration with local farmers.

Miriam Leimgruber (2020): Lecture series "Our food system in times of climate change"

To raise awareness about the environmental impact of our food system, Miriam Leimgruber and her fellow student Elena Kost organized a public lecture series in 2020. They planned six evenings with each a specific topic that was presented by two invited experts. The series addressed issues such as seasonality and food waste, plant protection products, or the climate impact of meat consumption. As with almost everything else in 2020, the lecture series was affected by the Covid-19 pandemic and Miriam and Elena had to prove their flexibility. During the series, they adapted successfully from live events to live-streams and, eventually, to a fully online lecture for the conclusion of the series in November. As a result of the lecture series, a «Verein» was funded that will take on further projects trying to raise awareness about the impacts of our food system on the climate crisis.

Read more here. ▶

Neelam Dutta (2016/2019): On how seed breeding can promote food and seed sovereignty

Attending the WFS Summer School in 2015, Neelam Dutta met Mr. Friedmann, a seed breeder at Sativa at Gut Rheinau, Switzerland. Having his own farm Pabhoi Greens in Assam, India, he decided to learn how to breed organic seeds himself. Therefore, in 2016 he conducted an internship at Sativa in Switzerland through an Ambassador Grant and he revisited Sativa in 2017 on his own behalf. Then, in 2019 Neelam enrolled in the Ambassador Program again to learn even more about seed breeding from institutions around Europe, such as Reinsaat in Austria or Bingenheimer Saatgut in Germany.

Neelam's farm Pabhoi Greens is about 12ha and around 40 people work on the farm. He turned the conventional farm inherited from his family into an organic agricultural site in 2003. Thanks to his travels and learning experiences at Sativa, Neelam was able to establish his own organic seed breeding successfully and, more importantly, he is supporting the local farm community in Assam by sharing his knowledge and experience. Through his work, he is aiming to raise awareness about how important organic farming and seed breeding is for food and seed sovereignty.

Read more here. ▶

Edible Research

From 2016 to 2018, the Edible Research project facilitated dialogue on research for sustainable food systems between teenagers, teachers, agricultural science students and scientists. This project was co-funded by the SNSF Agora program and the Mercator Program and was led by the Center and the ETH Zurich Sustainable Agroecosystems Group.

The project offered a total of 9 workshops for teenagers aged 12 to 15 from lower secondary schools in Zurich to open a window to the world of agricultural ecosystems and their tasty products. All workshop contents were related to ongoing agroecosystem research projects and linked to learning objectives in the curriculum for Swiss primary and secondary schools, "Lehrplan 21". The overall focus of the workshops was to better understand how basic principles of agroecology and organic farming can help to produce food in a more sustainable way. The learning environment was a unique greenhouse right in the city of Zurich, within walking distance of the ETH main building. Content development and curriculum integration were supported by participatory teacher workshops. Read more here.

above: Learning about agroecology and organic farming in the greenhouse of the Sustainable Agroecosystems Group
below: All set up to play the burger game in the Kantonsschule Stadelhofen

Role-playing games

Two Master's students developed role-playing games to be used as teaching materials for secondary school students as a part of their theses. Manuel Stamm adapted a role-play to understand stakeholder decisions in the palm oil value chain that was developed in the ETH Zurich Forest Management & Development Group to use in the Agora workshops. This adaption for educational purposes and subsequent evaluation of how well the game worked in a school setting and how it supported student's learning about palm oil and issues related to it was the core work of his thesis. Thanks to contacts established in the teacher workshop, Manuel was able to test the game with five school classes. His game won the third place of the German Simulation Game Award in June 2019. Read more about the game here.

Luna Urio wanted to make young consumers more familiar with the relationship between climate change and food consumption. For her Master's thesis, she designed a role-playing game where students can "buy" ingredients to prepare the environmentally friendliest burger. The game is played in the form of a debate, with three different roles: consumers, producers and the environment. The game was played in several high school classes in Ticino and results showed that the intervention was successful in significantly increasing knowledge about the topic. Luna also took the game to Kantonsschule Stadelhofen in Zurich in December 2019, during a thematic week focused on sustainable food. Read more about the game here.

In August 2018, the two developed role-playing games for use as teaching materials on sustainable food systems (palm oil and burger) were successfully packaged and delivered to the Zurich University of Teacher Education (PHZ). Monika Albrecht, head of Sports, Home Economics and Health at PHZ, used the game material during a continuing education workshop with lecturers from several Swiss universities of teacher education. She and her colleagues implemented the games in their classes with future teachers, who will, hopefully, further share their experiences in their own classrooms. The game boxes will stay at PHZ, becoming part of the PHZ library catalog and teachers will be able to borrow the game materials, proving a long-lasting effect from this outstanding project.

Arising Opportunities

This funding mechanism was set up to support special outreach opportunities and enable the Center and its member groups to participate in activities relevant to organic farming, agroecology and sustainable food systems.

World Biodiversity Forum

At the session "Enhancing Biodiversity to Support Sustainable Crop Production" at The World Biodiversity Forum held on 28 February 2020 in Davos, policy-makers, scientists and practitioners shared the current state-of-the-art and challenges of intercropping. The session was organized by WFSC members Prof. Christian Schöb and Prof. Johan Six and Rob W. Brooker form The James Hutton Institute and co-funded by the Mercator Program. The session demonstrated that diverse cropping such as intercropping and agroforestry are valuable and promising methods to achieve a sustainable production of food and a potential way forward to achieve a win-win situation: promoting biodiversity conservation while at the same time improve rural livelihoods and wellbeing.

Find more information about the session here.

Zürich isst

"Zürich isst" was a month-long public festival on food, nutrition, environment and consumption jointly organized by the Mercator Foundation Switzerland and the City of Zurich. The Center was one of the partners for this event, sitting on the advisory board, contributing to the concept development and hosting a number of public science events. These events included two film screenings, a "Science on your Plate"-lunch event and hosting a symposium of Helvetas Swiss Intercooperation at ETH Zurich. Through these events the Center facilitated discussions with the public around food system challenges and the contribution of scientific research done at ETH Zurich.

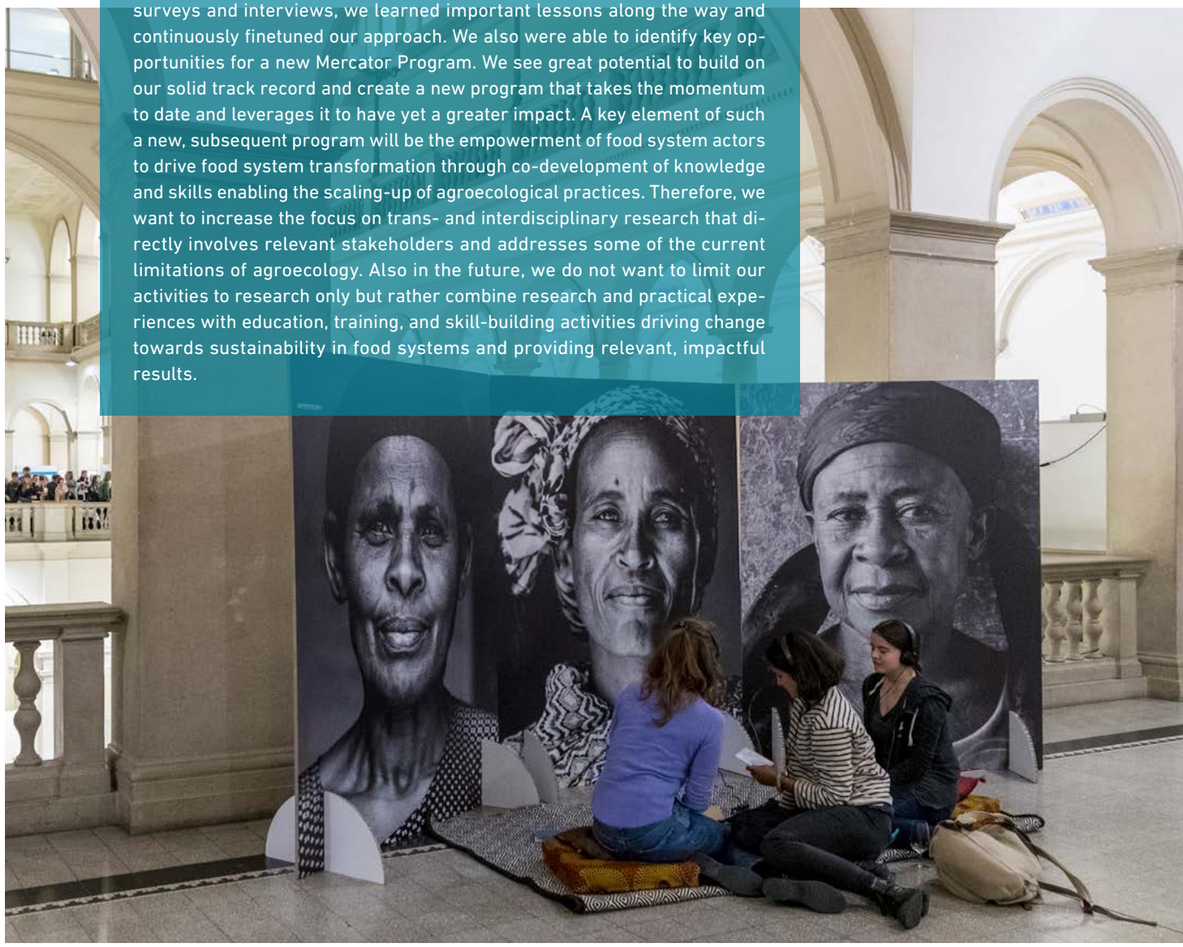
The two film screenings took place at the Riffraff cinema in Zurich and featured the films '10 Milliarden: wie werden wir alle satt?' and 'Food Chains'. The film screenings were both followed by a panel discussion with food system experts and the film director. Read more here.

The Science on Your Plate Apéro was created to connect insights from science directly with the food ingredients guest had on their plates. In short presentations, the researchers talked about their research and thereby delivered the "knowledge behind the food". The "dishes" were chosen in such a way that ingredients represent current research by WFSC members.

During the symposium organized by Helvetas Swiss Intercooperation stakeholders from science, civil society, the public and private sector discussed the topic "pesticide reduction in agriculture – what action is needed". The symposium explored strategies to reduce pesticides in agriculture – both in Switzerland and at a global level.

OUTLOOK

The Mercator Program has allowed the Center and its members to build a vibrant community of students, researchers and professionals working on organic food systems and agroecology. The experiences and impact of the Mercator Program have been extremely positive and the program was a great success. In this report, we wanted to show how the program has inspired and supported some key people to develop ideas and turn them into concrete projects and activities. Some of these projects have the potential to advance the sustainable development of food systems on a local but also global level. Furthermore, the research projects in this project have shown how agroecological practices can be implemented in concrete ways. These success stories and shining examples clearly demonstrate that we want to build on this experience and further develop the program. Through working with a diverse group of people and listening to their needs, using discussions, focus groups, surveys and interviews, we learned important lessons along the way and continuously finetuned our approach. We also were able to identify key opportunities for a new Mercator Program. We see great potential to build on our solid track record and create a new program that takes the momentum to date and leverages it to have yet a greater impact. A key element of such a new, subsequent program will be the empowerment of food system actors to drive food system transformation through co-development of knowledge and skills enabling the scaling-up of agroecological practices. Therefore, we want to increase the focus on trans- and interdisciplinary research that directly involves relevant stakeholders and addresses some of the current limitations of agroecology. Also in the future, we do not want to limit our activities to research only but rather combine research and practical experiences with education, training, and skill-building activities driving change towards sustainability in food systems and providing relevant, impactful results.



APPENDIX

Peer-reviewed publications

Cagnarini, C.; Renella, G.; Mayer, J.; Hirte, J.; Schulin, R.; Costerousse, B.; Della Marta, A.; Orlandini, S.; Menichetti, L. (2019) Multiobjective calibration of RothC using measured carbon stocks and auxiliary data of a long-term experiment in Switzerland European Journal of Soil Science 70:819.

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World Food System Summer School learning objectives

Understand	the elements of a food system, the drivers of change, the desired outcomes and challenges the system faces
Discuss	potentials and challenges of organic agriculture to contribute to global food and nutrition security
Analyze	food systems challenges using a food systems approach that considers multiple perspectives, trade-offs, feedback loops and unintended consequences
Explain	how my disciplinary knowledge relates to a broader food systems context
Incorporate	new knowledge from other disciplines
Interpret	how my knowledge is situated within a diversity of contexts (e.g., disciplinary training, culture, religion, values, etc.)
Examine	the complexities of food systems in transition
Evaluate	solutions and solution approaches to complex challenges using a food systems framework
Collaborate	productively in diverse groups to complete a group task
Apply	methods and tools for problem framing and designing solutions
Examine	my multiple roles in the food system
Identify	my peers as a resource and professional network
Map	food system stakeholders and their relationships to each other
Formulate	arguments and participate in discussions about food system topics in an informed manner

Events and projects WFSC Alumni Network

Date	Project/Event	Location	Participants
November 2019	Learning Trip to Naturkraftwerke	Aathal, Switzerland	9
January 2020	Workshop India Pabhoi Greens: A study tour and solution design workshop at an organic farm and seed production facility in Assam India	Pabhoi Greens, Assam, India	8
January – March 2020	Participation in the food systems vision prize to design a sustainable regional food network in Mértola, Portugal	Mértola, Portugal	7
January 2020 onwards	Community Garden Zurich: The establishment of a Community Garden in Zurich where alumni also host workshops	Zurich, Switzerland	1-10
February and March 2020	Kino Dialog: A film series on food system challenges followed by panel discussions with experts	Agroscope, Zurich	15–25
March – December 2020	Working group on the impacts of Covid-19 Impacts on food systems	on- and offline	10
March 2020 onwards	Working group on food justice and gender equity and equality as a requirement for sustainable food systems; Development of a podcast and public exhibition	on- and offline	5
June – December 2020	Crowdfunding Campaign Seed Sovereignty: Successful crowd funding campaign to raise 50k CHF to support the organic seed organization in Assam	online	6
July – October 2020	Professional Skills Courses: A series of professional skills workshops to support the professional development of alumni on themes such as time management, mindfulness and career and CV development	online	5–15
October 2020	Workshop about edible plants in the city	Zurich, Switzerland	5
November 2020	Fermentation workshop	online	6
January 2021	WFSCAN New Year's Dinner	online	17
January 2021 onwards	Working group on the transition to an association	online	8
March 2021	Permaculture and regenerative agriculture course for Kenyan alumni	Timanu, Kenya	3

Public and specialist events 2012–2020

Event	Year	Location	Participants	Speakers	Organizations
Landesa lunch talk	2013	ETH Zurich	15	Amanda Richardson	WFSC; Landesa
IFPRI lunch talk	2014	ETH Zurich	30	Karen Brooks	WFSC; CGIAR
Public lecture: Agricultural intensification: balancing production, environment and livelihoods	2014	ETH Zurich	100	Cheryl Palm, Pedro Sanchez	WFSC; Food Security Center, Columbia University
Public lecture: Food systems resilience in theory and practice: organic agriculture as a prototype?	2015	ETH Zurich	200	Frank Eyhorn, Johan Six	WFSC; Helvetas Swiss Intercooperation
WFS Conference	2015	CSF Monte Verità	100	Jaboury Ghazoul, Diego Moretti, Johan Six; Howard-Yana Shapiro, Erick Boy, Saru Jayaraman, Peter Messerli, Tom Tomich, Roseline Remans, Sarah Ruth Sippel, Sandy Brown, Pete Smith, Ian Roberts, Charlotte de Fraiture, Fusuo Zhang, Jessica Fanzo, Valerie Schuster, John Ingram, Urs Niggli, Alida Melse-Boonstra, Pablo Tittonell	WFSC; Agro Food Innovation Park; Mars Inc.; Harvest Plus; Food Labor Research Center, University of California; Center for Development and Environment, University of Bern; Agricultural Sustainability Institute, University of California; Earth Institute, Columbia University; University of Leipzig, University of San Francisco; Institute of Biological and Environmental Sciences and Climate Change, University of Aberdeen; Bühler Group; UNESCO-IHE; Chinese Agricultural University; Institute of Human Nutrition, Columbia University; GAIN; Environmental Change Institute, Oxford University; FiBL; Human Nutrition, Wageningen University; Farming Systems Ecology, Wageningen University
"Zürich isst" Film panel and apero	2015	Cinema Riff Raff, Zurich	280 (projected)	Valentin Thurn, Michael Kreuzer, Peter Braun, Astrid Oberson Dräyer, Aimee Shreck	WFSC; Swiss Food Research
"Zürich isst" Science on your plate apero	2015	Stadtgärtnerei Zürich, Zurich	100 (projected)	Christina Engels, Ariani Wartenberg, Eduardo Pérez, Florian Grandl, Maike Nesper, Philipp Stierand	WFSC, speiseräume.de

Reducing pesticides in agriculture	2015	ETH Zurich	200 (projected)	Laurianne Altwegg, Sibyl Anwander, Otto Daniel, Wilhelm Gruissem, Daniela Hoffman, Bernard Lehmann, André Leu, Francesca Mancini, François Meienberg, Urs Niggli, Raphael Schilling, Simon van der Veer, Inge Werner, Stephanie Williamson	WFSC; Federation Romande des Consommateurs; BAFU; Ecotoxicology, Agroscope; WWF; Federal Office for Agriculture; IFOAM-Organics; FAO; Berne Declaration; FiBL; Sustainability, Coop; Ecotox Centre, Eawag-EPFL; PAN-UK
Public lecture: Tackling food system challenges through innovation: sustainable proteins of the future	2016	ETH Zurich	100	Alexander Mathys, Bêatrice Conde-Petit, Matthew Robin, Urs Fanger	WFSC; Bühler Group; Elsa-Mifroma Groupe, Entomeal
Public lecture: Beyond organic: diversification in food systems	2016	ETH Zurich	100	Emile Frison, Nina Buchmann	WFSC; International Panel of Experts on Sustainable Food Systems
World Food System Center Research Symposium	2016	ETH Zurich	200	Florian Grandl, Maike Nesper, Benjamin Costerousse and Roman Grüter, Eduardo Pérez, Anja Gramlich, Anna Greppi	WFSC
Public lecture: Tackling malnutrition with biofortification	2017	ETH Zurich	70	Maria Isabel Andrade, Michelle Grant, Engil Isadora Pujol Pereira, Diego Moretti	WFSC; International Potato Center
World Food System Center Research Symposium	2017	ETH Zurich	272	Charlotte Decock, Wentao Wu, Isabelle Gangnat, Mike Ruckle, Viviana Loaiza, Tobias Zehnder, Alexander Mathys, Eduardo Pérez, Jonas Joerin	WFSC
Public lecture: Fraud in organic food	2018	ETH Zurich	100	Chris Elliott, Hans Ramseler, Pat- rik Aebi, Martijn Sonnevelt	WFSC; Institute for Global Food Security, Queen's University Belfast
World Food System Center Research Symposium	2018	ETH Zurich	300	Miachael Siegrist, Martijn Sonnevelt, Olivia van der Reijden, Markus Schuppler, Leonie van't Hag, Chris Kettle, Michelle Grant, Jonna Cohen	WFSC
Public event: Pesticides- what does science say?	2019	ETH Zurich	110	Michelle Grant, Robert Finger, Lothar Aicher, Philipp Staudacher	WFSC; Swiss Center for Applied Human Toxicology, Eawag
World Food System Center Research Symposium	2019	ETH Zurich	240	Detlef Günther, Leandro Buchmann, Anna Greppi, Rafaela Feola Conz, Josep Ramoneda, Ben Wilde	WFSC
Climate change and nutrition – Burger game at the Kantonsschule Stadelhofen	2019	Zurich	16	Braida Thom, Luna Urio	WFSC; Kantonsschule Stadelhofen
Public event: Changing the food system, one meal at a time	2020	Webinar, online cooking event	280	Michelle Grant, Linn Borgen Nilsen, Akanksha Singh, Susanne Tobler	WFSC, NADEL Center for Development Cooperation, TASTELAB
World Food System Center Research Symposium: Plant breeding for global food security webinar	2020	Webinar, presentations and panel discussion	142	Lukas Wille, Beat Keller, Monika Messme, Bruno Studer, Clare Mugisha Mukankusi, Robert Santiago Andrade, Martijn Sonnevelt	WFSC
World Food System Center Research Symposium: Poster session and networking event	2020	Online, presentations, discussions and networking	95	15 research presentations in 5 moderated themed-rooms	WFSC

Ambassador Grant projects 2014–2020

Year	Project Title	Country	Supported Student	Amount Granted (CHF)
2014	Conference on Phosphorus in Soils and Plants - Organic Production Systems	France	Gina Garland	1,565
2014	Evaluation of various organic farming practices in Basmati rice production in Uttarakhand, India	India	Charlotte Decock	4,000
2014	Improving the capacity and applicability of GIS-based EPIC (GEPIC) crop model for the simulation of major processes of soil-crop dynamics under organic farming conditions	Switzerland	Wenfeng Liu	2,950
2014	Our Common Food Start Up Programme - Organic Insects for Human Food	Switzerland	Mr. Stefan Schultze	4,000
2014	Internship with DRIFT in Rotterdam	Netherlands	Keighley McFarland	1,995
2014	Sustainable Phosphorus Summit 2014 - Phosphorus in Organic Agriculture	France	Gregor Meyer	745
2014	Participation in Organic World Congress in Istanbul	Turkey	Mr. Jesper Overgård Lehmann	1,377
2014	Organic production empowered by low cost dwellings	South Africa	Ms. Meloek Mlihi	1,650
2015	Our Common Food Start Up Programme - Our Common Farm	Switzerland	Kristina Kuznetsova	3,200
2015	Making Organic Mainstream in Zimbabwe – A Media Project	Zimbabwe	Maphrida Forichi	2,500
2015	Internship at the indigenous association of LakaMalecu, Costa Rica	Costa Rica	Noémie Graas	3,700
2015	Course Participation: Conservation and development in complex landscapes	Belize	Benjamin Costerousse	2,200
2016	Species collection for integration into the cocoa agroforest in the Maleku territory, Costa Rica	Costa Rica	Jorge Caldrón	1,223
2016	The economic potential of organic dairy products in the Albanian mountain areas and the impact of organic farming in the national food security issues. What challenges and prospects	Albania	Florjan Bombaj	3,853
2016	Stakeholder transparency: in pursuit of the Swiss organic bread supply chain	Switzerland	Wendy Gu	2,930
2016	Development of Organic Seed Bank and farmers Cooperative in North East India	India	Neelam Dutta	3,000
2016	Workshop in molecular methods applied to soil microbiology	Brazil	Viviana Loaiza	3,895
2016	Reforestation of 2 ha diversified cocoa agroforest (Amendment)	Costa Rica	Jorge Caldrón	1,329
2016	Accounting for organic produce in environmental footprinting – A short term visit for workshops in Zurich, Switzerland	Switzerland	Dana Kapitulčinová	1,274
2016	Tracking the Ecological Chocolate Value Chain from Fork to Field	Ghana	Eva Maria Kraus	2,843
2016	Assessing the motivation for organic production in rural Kenya	Kenya	Elizabeth Verhoeven	2,010
2017	Validating the Sustainable Regional Food Network (SRFN) Model	Nepal	Fernando Casillas	2,141
2017	Crillo Cacao varieties collection and reproduction	Costa Rica	Jorge Caderón Chaves	2,475
2017	Pest management through (plant derived) pesticides in tropical, organic smallholder agriculture and its potential for large scale production	Uganda	Philipp Staudacher	4,000
2018	Design Sprint	England	Benjamin Gräub	3,500
2018	Testing FarmBetter with smallholder farmers in Kenya	Kenya	Benjamin Gräub	4,000
2018	Bioavailable concentrations of pesticides in Costa Rica soils: Comparison of impacts from conventional and organic agriculture	Costa Rica	Nora Bartolomé	3,940
2018	Development of Organic Seed Bank and farmers Cooperative in North East India	India	Neelam Dutta	1,165
2019	On Field...	Switzerland	Kenza Benabderrazik	1,460
2019	Study organic seed production and marketing strategies and farmers' cooperative management systems	India	Neelam Dutta	3,930

2019	An analysis of a farm system in Assam, India, Sustainability Challenges and Potential Solutions co-created by WFSC Alumni	India	Milena Wiget	4,000
2019	Predictive quality analytics for organic blueberries	Switzerland	Daria Rleisch	4,000
2020	Food futures for 2050 - study trip to Mértola	Portugal	Juha-Pekka Järvinen Taylor Early	1,665
2020	Investigation of new plant based bio-pesticides for use in organic agriculture	India	Naveen Hiremath	3,750
2020	Lecture Series: Our Food System in Times of Climate Change	Switzerland	Miriam Leimgruber	4,000
2020	New project (Covid) – self development	Switzerland / England	Anna Siegert	3,356
2020	Understanding Food Systems in agroecological farms along the U.S	US	Maria Franco	3,971
2020	Participatory Digital Training Creation for Farmers in Uganda	Uganda	Benjamin Gräub	4,000
2020	Tough but not impossible: the Mexican small farmers' way to contribute to their food security	Switzerland	Marianna Fenzi	4,000
2020	Alpine hunting in the 21st century – A glance through the agroecology-scope on a traditional food system with potential for innovation	Switzerland	Philipp Staudacher	4,000
2020	Film Screening of 'Gather' and panel discussion	Switzerland	Grace M. Crain	3,000

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