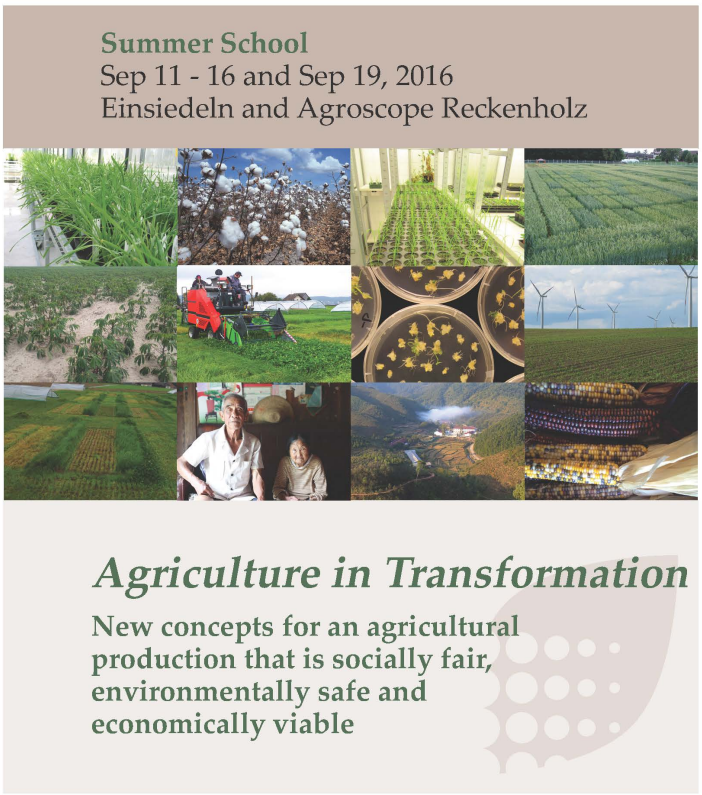
PSC Summer School 2016
Agriculture in Transformation – New Concepts for an Agriculture Production that is Socially Fair, Environmentally Safe and Economically Viable

SMART Summer School „Agriculture & Society“
11 – 16 September 2016, Einsiedeln, 19 September 2016, Agroscope Reckenholz
Draft, full program available 01.09.2016



Organization:
Dr. Melanie Paschke, Zurich-Basel Plant Science Center (PSC) (Scientific Organization), Carole Rapo, PhD (PSC) (Coordination Summer School), Dr. Liselotte Selter (PSC), Dr. Debra Zuppinger (PhD Program Ecology)

For any questions regarding the summer school, please don't hesitate to contact Carole: carole.rapo@usys.ethz.ch

Future demand in agricultural output is supposed to match the needs of 9-billion people with less input of resources. Can we transform our agricultural practices and move behind existing paradigms to develop innovative and sustainable agriculture production systems?

The aim of the 2016 summer school is to facilitate an intensive interaction between students and stakeholders from federal agencies, non-governmental organizations, scientists and industry to discuss ideas, concepts, and trends and share opinions on how different sustainable agriculture productions systems might develop. We will explore how current examples of a transition towards a sustainable agriculture production system on different scales can be assessed in the dimensions of "socially fair", "environmentally safe" and "economically viable".

The summer school integrates lectures, workshops and case studies based on an open social inquiry approach to understand the values, beliefs, interests and conflicts in our society when discussing about sustainable agriculture. Use cases for group work are from international and Swiss agricultural policy and farming practice.

Invited speakers will make presentations, take part in plenary discussions, and act as mentors in interactive workshops.

Benefits

Participants will:

- Be guided to gain in-depth knowledge about global trends at the nexus of agriculture and society through keynote lectures, plenary discussions and workshop exercises.
- Build skills in analyzing and evaluating trends and concepts of sustainable agriculture.
- Learn about components of a sustainable agricultural farming system applying system thinking.
- Reflect on the value systems that are behind different agricultural systems.
- Learn about scenarios and design-based approaches for a transition to sustainable agriculture.
- Discuss governance, policy and economic needs of a sustainable agricultural system.
- Develop a stance about different options how a sustainable agriculture system should look like and write and present a position statement.
- Develop network contacts with stakeholders from science, policy and industry.

Outcomes

Students will be put in groups of 4-5 persons at the start of the summer school according to their preferred case study, working in this group throughout the week. The case studies serve to apply the newly acquired skills and tools. Outcome is a summary with a description of the problem and of the different steps applied.

2 Sessions

- **Monday 12.09.16 Session 1: Concepts, Best-practice Examples and Assessment of Agroecological Farming Systems**
  - Prof. Hans Herren, The Millennium Institute, Washington (US); **Talk: Transforming Agriculture and the Food Systems: The Agroecology approach for a holistic transformation**
  - Franziska Stössel, Institute for Environmental Engineering, ETH Zurich (CH); **Talk: Assessment of Sustainability of Agricultural Production by using the Life Cycle Assessment Method**
    Workshop: How can we assess the sustainability of the production of 1kg of wheat from cradle to farm gate with LCA?

- **Tuesday 13.09.16 Session 2: Concepts for Sustainable Dimensions in Food System**
  - Dr. John Ingram, University of Oxford (UK)**; Talk: Towards a resource-smart food system**
  - Dr. Gurbir Bhullar, Research Institute of Organic Agriculture, Frick (CH)**; Talk: Contribution of organic agriculture to sustainable development in the tropics**
  - Dr. Michael Meissle, Agroscrope Reckenholz, Zurich (CH)**; Talk: Genetically engineered plants and Integrated Production**
    Afternoon: Workshop 1: Practical Scenario playing and policy analysis (Prof. Hans Herren & Gunda Zuellich, Biovision, Switzerland)
    Afternoon: Workshop 2: Perspectives for Crop Science across the Food System (Dr. Jon Ingram)

- **Wednesday 14.09.16 Session 3a: Governance of Sustainable Intensification (Buckwell) / Session 3b: Sustainable Access to Plant Breeding Material (Meienberg) / Session 3c: Ethics and Agriculture (Paschke)**
  - Emeritus Prof. Allan Buckwell, Institute for European Environmental Policy, London and Brussels (UK & Belgium)**; Talk: Evolution of the CAP as a policy for sustainable intensification of EU agriculture**
  - François Meienberg, Public Eye (CH)**; Talk: Sustainable Access to Plant Breeding Material**
  - Dr. Melanie Paschke, Zurich-Basel Plant Science Center, ETH Zurich (CH)
    Workshop: Moral decision Making in Sustainable Agriculture

- **Thursday 15.09.16 Session 4: Frameworks to Protect and Improve Rural Livelihoods, Equity and Social well-being**
  - Dr. Philipp Aerni, Center for Corporate Responsibility and Sustainability, University of Zurich (CH); **Talk: Human rights, entrepreneurship and sustainable agriculture**
    Workshop: Questioning implicit baseline assumptions of sustainable agriculture in the Global North
  - Martin Schmid, HEKS/EPER, Swiss Church Aid (CH); **Talk: Secured access to land as prerequisite for development**

- **Friday 16.09.16 Session 5: Transition to Sustainable Agriculture**
  - Dr. Markus Frank, BASF Crop Protection, Limburgerhof (Germany); **Talk: Measuring sustainability in the agri-food sector: AgBalance™**
    Workshop: Apply the concept of trade offs in sustainable agriculture management decisions at the farm level through the AgBalance simulation
  - Dr. José Vogelezang – Wageningen UR (The Netherlands); **Talk: Three methodologies for designing New Concepts for an Agriculture Production**
    Workshop: Designing New Concepts for an Agriculture Production

- **Day 6 (Monday 19.09.16) Follow-Up Symposium (Agroscope Reckenholz, Zurich)**
  Marcel van der Heijden, PhD, Agroscope Reckenholz, Zurich (CH)**; Talk: A comparison of the main Swiss arable production systems: an agronomic, environmental and ecological evaluation**

3 Speakers (Biography, Description Talk & Workshop Content)

Monday 12.09.16

Prof. HANS R. HERREN (Millennium Institute, Washington, US)

Hans Herren is a pioneer in the field of biological pest control and was the first Swiss to receive the World Food Price in 1995. He is the President and CEO of the Washington-based Millennium Institute and Co-Founder and President of the Swiss foundation Biovision. He is an outspoken proponent of agro-ecological farming systems, organic and other forms of sustainable agriculture. Based on his extensive experience in biological pest control, sustainable agriculture and rural development, he will be able to convey a visionary perspective to the students.

Talk: Transforming Agriculture and the Food Systems: The Agroecology approach for a holistic transformation

From the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) report commissioned by six UN agencies and the World Bank, published in 2009, it was clear that agriculture and food systems need a radical transformation to address the challenges ahead, from increased demand to climate change. In particular, the issues that the 400 authors of the global and five regional reports did highlight, covered the need to address agriculture and food system in all three dimensions of sustainable development: environment, society and economy. The main message was that "business as usual (BAU) is not an option". BAU means both the green revolution / industrial high input agriculture and the traditional agriculture, none of these having the characteristics needed to satisfy the sustainability goals. It was recommended that new policies should be in support of agroecological and regenerative types of agriculture, with an emphasis being given to a systemic and holistic approach to the food system. The lecture will explain, with examples at hand, why we need a transformation of agriculture and the food systems, how we should do it, where and who, as well as with what means, from know-how to finances.

Workshop: Practical scenario playing and policy analysis (Note: this workshop will be conveyed on Tuesday 13.09.16)

In this workshop students will get to know and work the integrated simulation tool, T21 iSDG (www.isdgs.org.). With help of the model they will play the scenarios and come up with policies to meet targets for a sustainable development that they have been defined for their case studies as part of the workshop. An integrated analysis is required to successfully address complex development issues that balance social, economic, and environmental development. By bringing together the three dimensions of sustainable development into one framework, the iSDG model enables broad, cross-sector and long-term analyses of the impacts of alternative policies in transforming to agroecological and regenerative types of agriculture. The model simulates the fundamental trends for Sustainable Development Goals until 2030 under a business-as-usual scenario, and supports the analysis of relevant alternative scenarios. It also traces the trends beyond the SDGs' time span to 2050. The iSDG model is especially useful both in the early stages of policy design, to support scenario exploration, and in its advanced stage, when specific interventions designed for various sectors can be jointly simulated to assess their combined effect.

Prerequisites: Bring your own laptop with the distribution package for the iSDG model downloaded from the following link:
https://drive.google.com/drive/folders/0BzGztZiBHH1XLWg5WnJ6Y2pVMnc

Literature:

Foundation Earth & Watershed Media, Biosphere SMART Agriculture in a true cost economy – Policy Recommendations to the World Bank. 32 pages

(iSDG documentation): MI (Millennium Institute) (2016) Threshold 21 (T21): iSDG Model documentation (Washington D.C.: Millennium Institute).

(Paper on CCGA results): Zuellich, Dianati, Arquitt, Pedercini (2015): Integrated simulation models for sustainable agriculture policy design - Cross-country analysis of Competing agricultural paradigms. Paper presented at the Global Development Network conference 2015.

Monday 12.09.16 (continued)

FRANZISKA STÖSSEL (Institute for Environmental Engineering, ETH Zurich, CH)

Franziska Stössel is currently PhD candidate at Chair of Ecological Systems Design (ESD), ETH Zurich (Switzerland). Her research focuses on modeling, analyzing and assessing the life cycles of agricultural products and production methods. In addition she investigates the life cycle impact assessment of soil quality aspects. Franziska Stössel will explain the students, what types of research tools exist, in order to assess whether agricultural productions systems are designed in an ecologically sustainable way.

Talk: Assessment of Sustainability of Agricultural Production by using the Life Cycle Assessment Method
Life Cycle Assessment (LCA) is a technique to assess the environmental impacts of products and services from cradle to grave. It is carried out in four steps: Goal and scope definition, life cycle inventory analysis, life cycle impact assessment and the interpretation. Life cycle assessment is one pillar of a sustainability analysis. More and more effort is put on the integration and development of Life Cycle Costing (LCC) analysis and Social LCA (S-LCA). Examples from the agricultural field will illustrate the theoretical part of the presentation.

Workshop: How can we assess the sustainability of the production of 1kg of wheat from cradle to farm gate with LCA?
How can we assess the sustainability of the production of 1kg of wheat from cradle to farm gate and under different agricultural farming systems? Together participants will implement and carry out a LCA for the above question. They will

- Define the goal and scope of the LCA
- Establish a Life Cycle inventory in groups
- Do the Life Cycle impact assessment
- Execute a life cycle impact assessment using impact categories such as carbon footprint and maybe toxicity
- Present the results

Learning Objectives:
Execution of a Life Cycle Assessment and application of one commercially available software.

Prerequisites:
Bring your own laptop with the software SimaPro installed: https://www.pre-sustainability.com/simapro-installation (the license key will be sent to you at the beginning of week 36)

Literature:
Achten WMJ, Van Acker K (2016) EU-Average Impacts of Wheat Production: A Meta-Analysis of Life Cycle Assessments Journal of Industrial Ecology 20:132-144 doi:10.1111/jiec.12278
Hellweg S, Canals LMI (2014) Emerging approaches, challenges and opportunities in life cycle assessment Science 344:1109-1113

(1) **Case Study Work:** During the whole afternoon I'm available for advices for the establishing of a LCA in the groups own case studies. If possible students do integrate their own research in a Life Cycle Assessment or do illustrate part of their ideas with results from small LCAs. Students then discuss the results and present them as part of their presentation of case studies on Monday.

Tuesday 13.09.16

Dr. JOHN INGRAM (ECI Food Systems Programme Leader, University of Oxford, UK)

John's interests are in the conceptual framing of food systems, the interactions among the many actors involved and their varied activities, and the outcomes of their activities for food security, livelihoods and environment. He has designed and led regional research projects around the world on the links between food security and environment through the analysis of food systems. He has had substantial interaction with international organizations, with national government departments and agencies, and with NGOs and businesses in the food sector.

Talk: Towards a resource-smart food system
This presentation discusses the two-way interactions between human activities related to food and nutrition security (FNS: in the context of the 'food system'), and environmental change (in the context of 'planetary boundaries'). It will also introduce some of the impacts of crossing these boundaries for FNS. The presentation will then discuss the current and anticipated food security status and factors that determine consumption patterns. This will be discussed in relation to the multiple roles in the 'food chain'. The presentation will conclude with some options for moving towards a resource-smart food system to both adapt to inevitable change and mitigate further change.

Workshop: Perspectives for Crop Science across the Food system
In this workshop students will explore the various ways in which crop science can contribute to food security. It will cover options to increase food production per unit land area (intensification) by designing better cropping systems to use water, nutrients and sunlight more efficiently. Crops could also be modified to increase the efficiency of post-farm-gate food chain activities, such as food processing and storage. It could also include crop development to address consumer preferences for fresh produce. Students will work in groups to produce a short verbal presentation at the end of the workshop.

Learning Objectives:

1. Understand the dynamic nature of food systems and the various drivers acting upon them.
2. Understand the range of food system outcomes and trade-offs between them
3. Understand the role plant and agricultural sciences play in food systems.
4. Consider options for crop science to improve food system efficiency and outcomes.

Literature:

Foley, J.A., et al. (2011) Solutions for a cultivated planet. *Nature* **478**, 337-342.
IFPRI Global Nutrition Report 2016. http://globalnutritionreport.org/the-report/
Ingram, J.S.I. (2011) A food systems approach to researching food security and its interactions with global environmental change. *Food Security* **3**, 417-431.
Ingram J.S.I. and Porter J.R. (2015) Plant science and the food security agenda. *Nature Plants* **1**: 15973.
Porter, J.R., L. Xie, A.J. Challinor, K. Cochrane, S.M. Howden, M.M. Iqbal, et al. 2014. IPCC Chapter 7: Food Security and Food Production Systems. Cambridge University Press.
Tilman, D. and M. Clark. 2014. Global diets link environmental sustainability and human health. *Nature* **515**: 518-522.

Tuesday 13.09.16 (Continued)

Dr. GURBIR BHULLAR (Research Institute of Organic Agriculture, CH)

Dr. Bhullar is a Senior Scientist at the 'Research Institute of Organic Agriculture (FiBL), Switzerland', where he is leading the 'Long-term Farming Systems Comparison in the Tropics –SysCom Program'. His research focusses on development of sustainable farming practices, which are economically viable and practically adoptable. Engagement with important stakeholders using participatory on-farm research methods is of high importance in his research projects. In recognition of the innovativeness and research excellence in one of his projects, the Swiss Forum awarded Dr. Bhullar with the 'SFIAR Award 2014' for International Agricultural Research (SFIAR).

Talk: Contribution of organic agriculture to sustainable development in the tropics

By the middle of the 21st century, more than half of the world's population will be living in tropics, leading to a tremendous increase in food demand. The alarming rates of biodiversity losses, depletion of natural resources and compromised economic and social wellbeing of rural communities call for transformation of our food system to make it environmentally sustainable, socially justifiable and economically affordable. Such a transformation is of even higher relevance in the tropics, which support about two third of global biodiversity. Holistic farming practices based on ecological principles offer substantial potential of moving towards a sustainable agricultural system. This presentation will discuss the potential of organic agriculture compared to conventional agriculture in tropics based on research findings from long-term systems comparison studies. The role of sustainability standards and major challenges in their implementation with regard to small holder farming will also be discussed.

Literature:

Nelson, E., Gomez Tovar, L., Schwentesius Rindermann, R., and Gomez Cruz, M.A. (2010). Participatory organic certification in Mexico: an alternative approach to maintaining the integrity of the organic label. Agriculture and Human Values 27, 227-237.

Andres. C. and Bhullar, G.S., (2016) Sustainable intensification of tropical agro-ecosystems: need and potentials. *Frontiers in Environmental Science – Agroecology and Land Use Systems* **4:5**. doi: 10.3389/fenvs.2016.00005

Tuesday 13.09.16 (continued)

Dr. MICHAEL MEISSLE (Agroscope Reckenholz, Zurich, CH)

Michael Meissle is Senior Scientist at Agroscope, the agricultural research institute of the Swiss government and currently deputy leader of the Biosafety research group, which is focusing on risks and benefits of genetically modified (GM) plants and of introduced exotic arthropods. He has been working in the area of non-target risk assessment since 2001. His research interests cover laboratory, field, and landscape-level effects of GM crops on arthropods; multitrophic interactions between plants, arthropods, and microorganisms; transfer of Bt proteins between trophic levels (using ELISA); bioactivity of insecticidal proteins in plants and arthropods (using sensitive insect bioassays). His involvement in the EU project ENDURE allowed him to gain experience with IPM in European maize production, where he published on pests, pesticide use and the role of Bt maize in IPM. Michael Meissle has conducted systematic literature reviews on arthropods in European agricultural crops for the European Food Safety Authority (EFSA) and the EU-project GRACE. He has been active in the IOBC-WPRS working group on GMOs in Integrated Crop Protection since its establishment in 2003. Since 2013 he acts as convenor of this group.

Talk: Genetically engineered plants and Integrated Production

Genetically engineered (GE) crops are grown on steadily increasing areas worldwide. They carry a range of different traits including herbicide tolerance, insect resistance, drought tolerance, or virus resistance. Biotech companies or public research institutions develop new traits, such as improved nutritional or industrial properties, disease resistance, or tolerance to abiotic stress. Before GE plants can be commercialized, an environmental risk assessment is performed. Potential risks are identified and risk hypotheses are formulated and subsequently tested. If potential environmental concerns remain after the assessment, risk mitigation measures can be installed.

Today's GE plants are often used in industrial farming systems based on large-scale monocultures. Sustainable agricultural systems, however, should be built on a range of different tactics to avoid the outbreak of weeds, pests, and diseases coupled with monitoring systems and suitable damage thresholds. Chemical pesticides should only be used as a last resort. Well-respected concepts of Integrated Pest Management (IPM) and Integrated Production (IP) have been proposed by the International Organization for Biological and Integrated Control (IOBC). In this presentation, the principles of Integrated Production will be introduced. Examples of GE plants will be presented and their potential contribution to sustainable agriculture will be discussed.

Literature:

Meissle M, Romeis J, Bigler F (2011) Bt maize and integrated pest management – a European perspective. Pest Manag Sci 67: 1049-1058.

Gray A (2012) Problem formulation in environmental risk assessment for genetically modified crops: a practitioner's approach. Coll Biosafety Rev 6: 10-65.

Wednesday 14.09.16

Emeritus Prof. ALLAN BUCKWELL (Institute for European Environmental Policy, London and Brussels, UK & Belgium)

Emeritus Professor Allan Buckwell joined the Institute European Environmental Policy (IEEP) as a half-time Senior Fellow in January 2012. He is a distinguished agro-economist specializing in agricultural and rural policies. His major interests are the Common Agricultural Policy (CAP), trade issues, and technology and structural change in farming and its impacts. The CAP reform, as well as land and agricultural management are key specializations of Alan Buckwell. He will be able to teach the students the necessary know-how, how to assess the economic viability of agricultural production systems in as a critical aspect of their sustainability, and consider the correspondingly necessary support policies.

Talk: Evolution of the CAP as a policy for sustainable intensification of EU agriculture.
This note sets out three pre-requisites to achieve a further significant reform of Europe's Common Agricultural Policy (CAP). They are the Why? What? and How? of reform. First there have to be compelling political reasons to motivate such change – four imperatives for reform are offered. Second there has to be a soundly-based, well-evidenced proposal for the broad direction of change which has a chance of gaining political support – the three elements of what is required are suggested. Third, it is judged that some degree of EU institutional innovation will be necessary to effect the changes required to create an EU agricultural and resource management policy which matches the challenges of the 21 Century. This is required to steer EU agriculture onto a sustainable development path, and to bring these discussions into the open before the early 2020s. The note makes no attempt to spell out details of the suggested new policy or to supply the evidence base for it, but it offers the big picture arguments and ideas.

Literature:
Swinnen et al. 2014 (30 contributors). The Political Economy of the 2014-2020 Common Agricultural Policy. An Imperfect Storm. Rowman & Littlefield International Ltd, London, UK.
Buckwll et al. 2014 (10 contributors). The Sustainable Intensification of European Agriculture. A Review Sponsored by the RISE Foundation.

Wednesday 14.09.16 (Continued)

FRANÇOIS MEIENBERG (Public Eye, CH)

Public Eye (Previously The Erklärung von Bern (EvB) is a sustainability-oriented, politically and religiously independent solidarity development based in Switzerland, which advocates for fairer relations between Switzerland and countries disadvantaged by current globalization. Conserving the principles of liberty, democracy, respect for human rights and promoting fair economic relations are among the main goals of this association. Francois Meienberg is member of the EvB and expert in agriculture, biodiversity and patent rights. He will discuss current debates concerning the "access to seed material" with a particular focus on intellectual property rights (IPRs) in agriculture.

Talk: Sustainable Access to Plant Breeding Material

Various international regulations govern the access to seeds today: The International Treaty on Plant Genetic Resources for Food and Agriculture, the TRIPS Agreement of the WTO, the Acts of the International Union for the Protection of New Varieties of Plants (UPOV). The presentation will discuss in which way these regulations do support or are in contradiction with Human Rights obligations, the sustainable development of plant genetic resources and the promotion of innovation and development. The presentation of specific patent cases will help to better understand the current patent policy in Europe and its possible impact on the breeding sector, farmers and consumers.

Literature:

Carlos M. Correa et al. Plant Variety Protection in Developing Countries: A Tool for Designing a Sui Generis Plant Variety Protection System: An Alternative to UPOV 1991, APBREBES, 2015.

Wednesday 14.09.16 (Continued)

Dr. MELANIE PASCHKE (Zurich-Basel Plant Science Center, ETH Zurich, University of Basel & University of Zürich, CH)

Melanie Paschke is director in education of the Zurich-Basel Plant Science Center. She has a PhD in Ecology and Environmental Sciences and a track record as educator in all areas of academic professional conduct and transferable skill development with more than 30 training workshops, summer schools and seminars taught in previous years. Her focus is on ethics in the plant sciences and on research integrity. Melanie Paschke will work with the students on the ethics of sustainable agriculture.

Workshop: Moral decision Making in Sustainable Agriculture

Transition towards sustainable intensification and sustainable agriculture is differently understood in society. Different worldviews and cultural backgrounds based on normative values, interests and obligations create different perspectives on what kind of world do we want to live in. Using current transition examples we will depict the different worldviews. We then undertake an ethical analysis and reflect the perspectives, worldviews, beliefs and possible outcomes (options) through the three ethical lenses: utilitarian model, right-based model and virtue-based model. This analysis can be used as a tool for well-reflected moral decision-making when engaging in the dialog between different stakeholders and can be included in the case studies. The workshop will integrate role-plays for cases presented at the beginning of the WS.

Learning Objectives: Students will develop

- Awareness for moral and ethical dimensions of sustainable agriculture
- Understand different ethical lenses, i.e. utilitarian model, right-based model and virtue-based model
- Depict value systems behind different concepts of sustainable agricultural systems: sustainable intensification (world-wide) and sustainable de-intensification (Europe)
- Carry out an ethical analysis for competing value systems

Literature:

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO) (2004).The ethics of sustainable intensification. ftp://ftp.fao.org/docrep/fao/007/j0902e/j0902e00.pdf (accessed: 20.07.2016)

Thursday 15.09.16

Dr. PHILIPP AERNI (University of Zürich, CH) is Director of the Centre for Corporate Responsibility and Sustainability (CCRS). While holding a PhD in Agricultural Economics, he is an interdisciplinary social scientist with a particular interest in the role of science, technology, and innovation for sustainable development. Philipp Aerni examines public-private partnerships and their potential to drive sustainable innovations.

Talk: Human rights, entrepreneurship and sustainable agriculture

The contemporary human rights debate is mostly concerned with the protection of people affected by change that is beyond their control. But what about entrepreneurs who make use of their basic economic rights to create and commercialize innovation? In agriculture, we associate such entrepreneurs with wealth accumulation in agribusiness. Fact is however that most entrepreneurs on this planet are in a precarious situation. They are mostly outsiders forced to make a living as survival entrepreneurs in the informal sector, where they attract hardly any investment and have little opportunity to grow through innovation and thus in a position to pay taxes and employ people. So far they have not been on the radar screen of those who want to promote sustainable agriculture, which are focused more on regulating possible unsustainable change than facilitating sustainable change. In my talk I will argue that we need a more holistic view of sustainable agriculture that focuses on empowerment through public-private partnerships. The overall objective should be to integrate informal but entrepreneurial farmers to become better integrated into a formal sustainable economy. The argumentation will be illustrated by means of concrete case studies.

Workshop: Questioning implicit baseline assumptions of sustainable agriculture in the Global North

The public discourse on 'sustainable agriculture' is not just shaped by scientific facts but many political and economic interests of stakeholders who portray their private interest in the mass media as the public interest. They are primarily focused on pleasing their respective constituencies by starting from the implicit and unquestioned baseline assumptions on sustainable agriculture that shape agricultural, development and environmental policies in affluent countries in Europe. One of the widespread assumption is that economic, social and environmental sustainability of agriculture is threatened by global economic and technological change. As a consequence, lots of policy interventions are designed to protect the domestic agricultural sector, but they also serve the economic interests of particular economic interest groups.

How effective are current measures to promote sustainable agriculture in the Global North really? How do they impact entrepreneurship and innovation in rural areas? What happens when we export such defensive agricultural policies to the Global South that faces completely different demographic, social and environmental challenges?

Potential answers to these questions will be discussed by means of a selected example. Students are then asked to pick another example related to the global production, consumption and trade of a particular food crop and how stakeholders respond to uncertainty in the market. They are then encouraged to identifying problems with current problems and come up with alternative policies designed to promote sustainable intensification while generating income for rural areas through entrepreneurship and innovation that add new markets to basic commodity trade.

Learning Objectives: Students will develop

- Awareness for contextual and dynamic dimensions of sustainable agriculture
- Understand the role of entrepreneurship and innovation in facilitating sustainable development in rural areas
- Understanding the risk of exporting agricultural policies from the Global North to the Global South
- Being able to illustrate the importance of taking into account the contextual nature of farming by means of a concrete example

Literature: Aerni, P. (2007) 'Exploring the linkages of commerce, higher education and human development: A historical review'. *ATDF Journal* 4(2): 35-48. http://phase1.nccr-trade.org/images/stories/publications/history_higher_ed.pdf

Aerni, P., Nichterlein, K., Rudgard, S, Sonnino, A. (2015) Making Agricultural Innovation Systems (AIS) Work for Development in Tropical Countries. *Sustainability* 7 (1): 831-850. http://www.mdpi.com/2071-1050/7/1/831/htm

Aerni, P. (2014) 'The great misunderstanding of the global food crisis'. In B. Heap and D. Bennett (Eds) Insights – Africa's future: can biosciences contribute? Banson Publishers, Cambridge: 76-87. http://www.ourplanet.com/insights-2014/7_global_food_crisis.pdf

Thursday 15.09.16

MARTIN SCHMID, HEKS/EPER, Swiss Church Aid

HEKS/EPER is the aid organisation of the Swiss Protestant Churches and promotes and works towards a more humane and more equitable world, assisting people and communities to overcome economic, social or humanitarian disparities in order to gain autonomy and to live in dignity. Its International Division is based in Zurich (headquarters) and Lausanne. In 2016, HEKS/EPER delivers its results with 140 international and 38 headquarters staff members together with more than 100 partner organisations in more than 200 projects in 30 countries.
Martin Schmid is Head of HEKS/EPER's Thematic Advisory Team. He will present and discuss issues around secured access to land as prerequisite for sustainable development of rural communities in development countries.

Talk: Secured access to land as prerequisite for development
Restricted and endangered access to land and resources has proven to be one of the major obstacles to the development of rural communities in development countries, which are in the centre of HEKS/EPER's work.
The reasons why access to land is crucial for the development of rural communities is manifold: Agriculture is their predominant source of income and secured access to land and resources is the basis for any agricultural production. Beyond the classical crop cultivation, secured access to land is required for other basic livelihood strategies, for example access to pasture land, possibilities for collecting non timber forest products and firewood, and the fulfilment of housing requirements. Furthermore, secured access to land is important for the spiritual attachment of a group and thus the maintenance of a feeling of belonging and cultural identity.
Access to land and resources means, in the view of HEKS/EPER, that people have secured rights to land ownership and/or land use, and that they can control, manage and use the land and affiliated resources in the long term.
Behind this background the input gives an overview on the international development discourse on access to land, discusses the main causes and drivers of restricted access to land and highlights relevant HEKS/EPER experiences in successfully securing access to land in its priority countries.

Literature:

HEKS (2015). ASSESS & ENHANCE LAND TENURE SECURITY- HEKS ANALYTICAL FRAMEWORK. HEKS Working Paper Series Access to Land, No 2, 02/15

Friday 16.09.16

Dr. MARKUS FRANK (BASF, Germany) is working in the Global Sustainability & Product Stewardship Department of BASF Crop Protection. He is an expert in sustainable assessment tools, like BASF's AgBalance and has vast experience from the industry sector. He will be able to teach the students how sustainability is currently being implemented in existing global agricultural production systems and which alternative market models could be an option for the future.

Talk: Measuring sustainability in the agri-food sector: AgBalance™
Life Cycle Assessment (LCA) and approaches based thereon, e.g., Eco- Efficiency Analysis and SEEBALANCE, have proven useful tools for a quantitative sustainability assessment along value chains and across industry sectors. However, there is a need for new methods to holistically assess sustainability in agriculture. To date, most if not all of the systems established to assess sustainability in agriculture are not based upon a LCA approach. AgBalance™ combines LCA with environmental, economic and social impact indicators, generalized to varying spatial scales. The methodology comprises up to 70 sustainability indicators, based on a significantly larger number of input data and parameters. The indicators are grouped into the three dimensions "environment", "society" and "economy". Both, detailed in-depth results of individual impact indicators, as well as aggregated results are outputs of AgBalance studies. Sensitivity and scenario analyses can be employed to study the robustness of the model results, and to investigate trade-offs or the response to external influences. In a case study, AgBalance was used to identify key drivers of sustainability in the production of soybean, corn and cotton in Brazil. Two farms in the Cerrado biome were compared with respect to their sustainability performance. Different fertilizer and pesticide regimes together with different professional training and social inclusion practices were revealed as the factors most critical for the different sustainability performances of both farms. It was shown that a more efficient fertilizer use in the less performing farm could result in savings of energy equivalent to the average consumption of approximately 2000 households per year. In a similar vein, AgBalance will be used by BASF and its partners to assist strategic decision-making of farming operations, facilitate the identification of product and process improvements, enhance product differentiation as well as to support the dialogue with key influencers in the agri-food value chain.

Workshop: Apply the concept of trade offs in sustainable agriculture management decisions at the farm level through the AgBalance simulation
Participants will work with the AgBalance – My Virtual Farm". A simulation game for a competition of students and scientists in order to gain insights into the concept of tradeoffs in sustainable agriculture. Based on the experience in this game they will define possible trade offs for their own use cases. What hurdles can arise from economic, social or environmental impairments when taking management decision for farm management?

Prerequisites: WLAN on all laptops of participants accessible; Bring your own laptop with WLAN

Literature:
Frank M, Schöneboom J, Gipmans M & Saling P (2012) Holistic sustainability assessment of winter oilseed rape production using the AgBalance™ method – an example of 'sustainable intensification'?, *in:* Corson, M.S., van der Werf, H.M.G. (eds.), Proceedings of the 8th International Conference on Life Cycle Assessment in the Agri-Food Sector (LCA Food 2012), 1-4 October 2012, Saint Malo, France. INRA, Rennes, France, p. 58-64.

Friday 16.09.16 (Continued)

Dr. JOSE VOGELEZANG (UR Wageningen, The Netherlands)

Jose Vogelezang was program coordinator of research programs aimed at "system innovation for agricultural production systems", before becoming the Manager New Business Development of the Plant Science Group at Wageningen University and Research, Netherlands. As Program director T&U-board she is further responsible for the strategic development of the knowledge & innovation portfolio for the Dutch Horticulture & Starting Materials sectors. José Vogelezang disposes of longstanding expertise in the field of plant production systems, sustainable agriculture, system innovation and knowledge transfer and valorization. Using the example of Dutch Agriculture she will discuss methodologies for designing new concepts for sustainable agriculture.

Talk: Three methodologies for designing New Scenarios for an Agriculture Production

Dutch agriculture is facing a huge challenge. It has to evolve into a viable sector that matches requirements of both the market and society in a sustainable way. To achieve this, drastic changes are needed that transcend individual organizations. The so-called *System innovations programs* have contributed with new, future-oriented concepts and integral strategies for sustainable agriculture. Three methodologies for developing new visions of the future, as a first step of intervention in current practices, will be described.

The first working strategy was based on a combination of the Sustainable Technology Development (STD: Aarts, 1998) and the Interactive Technology Assessment methods (Grin en Van de Graaf, 1996). It started with a strategic problem orientation, based on interviews with 50 stakeholders, followed by workshops to define new principles for the future sustainable agriculture production systems. The ´translation´ of the target vision of the future for outdoor cultivation will be presented.

The second methodology is called *Reflexive Interactive Design* and has been developed in the field of animal husbandry, for example in dairy husbandry systems (Bos et al., 2009). The methods encompasses three, sequent elements: 1) System & actor analysis, 2) Structured design and 3) Anticipating niche & structural change. New design concepts are based on so-called radical turnarounds. Various concepts for dairy husbandry will be presented.

The third method is scenario building, a methodology which has been (partly) developed by the company Shell in order to make underpinned choices in an uncertain future. Its starts with defining 'a burning question'. The next step is determining the most important 'driving forces' relevant for the burning question. Developing the four scenarios and determining robust 'trends' are next steps in the methodology. We have used this method in combination with the DEED framework: Describe, Explain, Explore and Design (Giller et al, 2008) for integrating urban agriculture in the development of the city of Almere in The Netherlands.

Workshop: Designing New Scenarios for an Agriculture Production

Working with your case studies we will practice the implementation of design-based approaches in visions for a new future: Interactive Technology Assessment; Reflexive Interactive Design; scenario building. We will practice the first steps of design-based approaches, e.g. defining what the problem is; deliberately creating possible scenarios for solving the problem.

Literature:

Grin, J. and Van de Graaf, H., 1996. Technology assessment as learning. Science, Technology and Human Values 20: 72-99.

Bos, A.P., Groot Koerkamp, P.W.G, Gosselink, J.M.J. and Bokma, S.J., 2009. Reflexive Interactive Design and its application in a project on sustainable dairy husbandry systems. Outlook on Agriculture, Vol. 38, No 2: 137-145.

Giller et al, 2008, Ecology and Society 13(2): 34

Monday 19.09.16

MARCEL VAN DER HEIJDEN, PhD (Agroscope Reckenholz, Zurich, CH)

Marcel van der Heijden heads the Plant-Soil Interactions research group at the Swiss Federal Research Institute Agroscope and he is professor in Mycorrhizal Ecology at Utrecht University (the Netherlands) and guest professor at the Department of Evolutionary Biology and Environmental Sciences at the University of Zurich. He obtained his PhD in 1999 at the Botanical Institute of Basel University, Switzerland, studying the impact of mycorrhizal fungal diversity on plant diversity, nutrient cycling and ecosystem functioning. He heads a research team of approximately 20 people. His research group performs a mix of basic and applied research, specifically investigating whether soil biota and soil biodiversity can be used to enhance nutrient use efficiency and sustainability of agro-ecosystems. He is also interested to enhance the sustainability of agro-ecosystems. In order to further investigate this, his group hosts the FAST trial, the Swiss Farming Systems and Tillage experiment, a long term trial where the main Swiss arable farming systems (e.g. organic arable farming with and without tillage, conventional arable farming with and without tillage) are compared. He published over 85 scientific papers, including several highly cited papers in Nature, PNAS, Ecology Letters and the New Phytologist. He also published over 25 applied papers for environmental engineers, farmers and policy makers aiming to enhance awareness of the importance of underground mutualisms, soil biodiversity and cover crops as a resource for agricultural production and environmental sustainability. He heads a range of national and international research projects and is a multidisciplinary researcher active in disciplines such as ecology, agriculture, biodiversity, molecular ecology, plant microbiome research, molecular cross-talk in mycorrhizal associations, plant sciences, plant nutrition, soil sciences, sustainability and environmental protection.

Talk: A comparison of the main Swiss arable production systems: an agronomic, environmental and ecological evaluation

One of the primary challenges of our time is develop sustainable farming systems that can feed the world with minimal environmental impacts. Some studies argue that organic farming systems are best because they have minimal impact on the environment and are positive for biodiversity. Others argue that no-tillage systems are better because they save energy and preserve soil structure and quality. A third group argues that conventional farming systems are best because yield per hectare is highest. However, so far, systematic comparisons of major arable production systems are rare and often it is difficult to compare the advantages and disadvantages of farming systems in a systematic way due to differences in soil/site characteristics and management. Here we present data of the Swiss Farming Systems and Tillage Experiment (FAST), a long term experiment where the main European arable production systems (organic and conventional farming, reduced tillage and no tillage, each system with different cover crop treatments) are being compared using a factorial replicated design. A multidisciplinary team of researchers from various disciplines and organizations analyzed this experiment. We show the advantages and disadvantages of the various production systems and present data on plant yield, life cycle analysis, global warming potential, soil quality, plant root microbiomes and above and below ground biodiversity. Our results demonstrate that: i) the positive effects of cover crops were highest in organic production systems and increased with reduced land use intensity, ii) soil biodiversity tended to be higher in organic production systems, iii) soil erosion was lowest in the absence of tillage and in organic production systems, and, iv) yield in organic farming systems was approximately 25% lower compared to conventional systems. Overall, our results indicate that no farming system is best and the choice of the "best" production system depends on economic, ecological and environmental priorities.

Literature:

TBA

4 Cases Studies

Case Study 1: Phytophthora-resistant potato – a contribution to sustainable agriculture in Switzerland?

Potato blight, caused by *Phytophthora infestans*, is the most destructive potato disease worldwide causing significant damage also in Switzerland. Researchers in Wageningen (Netherlands) have transferred resistance genes from wild potatoes into commercial cultivars (cis-genic potatoes). In this case study, students should elaborate

1) What is current practice to protect potatoes from blight in Swiss agriculture? How sustainable is the current practice?
2) What could be potential consequences (positive and negative) of growing cis-genic potatoes?
3) Under which circumstances could cis-genic potato production in Switzerland be sustainable?

Environmental aspects as well as social and economic aspects for farmers, the processing industry, food markets, and consumers should be considered.

Supervised by: Meissle

Literature:

Wohlfender-Bühler D, Feusthuber E, Wäger R, Mann S, Aubry SJ (2016) Genetically modified crops in Switzerland: implications for agrosystem sustainability evidenced by multi-criteria model. Agron Sustain Dev 36: 33.

Speiser B, Stolze M, Oehen B, Gessler C, Weibel FP, Bravin E, Kilchenmann A, Widmer A, Charles R, Lang A, Stamm C, Triloff P, Tamm L (2013) Sustainability assessment of GM crops in a Swiss agricultural context. Agron Sustain Dev 33: 21-61.

VIB (2015) A blight resistant potato for Europe. VIB's Fact Series, VIB, Ghent, Belgium. Available online: http://www.vib.be/en/about-vib/plant-biotech-news/Documents/BackgroundReport_Potato_ENG.pdf

Case Study 2: Agroecological practices and sustainable intensification in tropical agriculture

A focus on locally adapted methods and stakeholder participation is regarded as key to the sustainable intensification concept. Smallholder farmers depend to a large degree on well-functioning ecosystems to provide services such as soil fertility and nutrient cycling, water delivery and plant protection. Local adapted methods arise for example from agroforestry, conservation agriculture, participatory plant breeding etc. Often there is a danger to regard certain methods in the context of SI as "silver bullets" and not enough attention is being paid to the agro-ecological and socio-economic situation. Slow adaptation rates are the result. The focus on in the intensification concept on the yield increase distracts from important constraints such as post-harvest losses, long-term system resilience and low access to markets.

(Adapted from the Fact Sheet: Bregenzer, Hanisch, Rindisbacher & Xu (2016) on "Sustainable intensification in tropical agriculture." In: Zurich-Basel Plant Science Center (2016): Proceedings from PSC Summer School 2014 – Emerging technologies for sustainable crop productions)

In this case study, students could for example analyze:

(1) Successful and non-successful cases of a transformation of local farming practices that were intended to intensify the crop yields of the farmers.
(2) Are these examples sustainable in the short or long-term?
(3) What were the socio-economics constraints or challenges that hindered or fostered the implementation of these examples (positive and negative externalities)?
(4) What are key criteria for a successful local adaptation of new farming practices in the agro-ecological and socio-economic situation of a certain community?

Supervised by: Herren, Buckwell

Literature:
TBA

Case Study 3: Resistance breeding of small grain crops

"Resistance breeding offers the potential to produce durable resistance to fungal diseases in small grain crops. A large spectrum of genetic diversity is available, and can be exploited by novel knowledge and techniques. Creating commercial cultivars with a long-lasting and broad resistance against major pathogens, is therefore easier nowadays. Multilines, cultivar mixing and pyramiding appear to be promising ways toward this objective, but their use has not yet been deployed at a large scale. Resistance genes can be combined in order to limit the chances of adaptation of the pathogens. Then, a long term strategy should be implemented to manage these resistance genes in a sustainable way. Managing this diversity would allow for recycling known resistance genes while discovering new ones with a systematic approach. Next, the possibility of introgressing a new resistance, whether with a low or with a high-tech approach (e.g. crossing vs. transgenic methods), should also be regarded as a part of the breeding strategy. Eventually, implementing a new resistance has to be achieved in an efficient and affordable way. To develop successfully, the new variety must also match the market requirements and the user and consumers acceptance.

The sustainability of the resistance displayed by a given grain crop does not expressly bring added value to all the market players Therefore, this characteristic may not be prioritized by breeding companies, because of important development costs. The use of resistance genes is only determined by a resistant behavior in the field for the breeding time scale and is not assessed or predicted for the long term. To serve sustainability, important reflections and decisions need to be made at the political level."

(From the Fact Sheet: Begheyn, Lacavé, Lüthi, Praz, Roth & Schäfer (2016) on "Use of genetic diversity to increase fungal resistance of small grain crops." In: Zurich-Basel Plant Science Center (2016): Proceedings from PSC Summer School 2014 – Emerging technologies for sustainable crop productions.)

High hopes are also on the new breeding technologies as these are thought to be highly targeted and embedment in sustainable schemes seems to be possible. However, socio-economic debate is diverse and regulation of the new technologies is difficult.

In this case study, participants will try to understand the debate and the arising conflicts.

(1) Environmental benefits and risks of the new technologies? How is environmental sustainability for generation I biotechnologies?
(2) Can we come up with sustainable resistance breeding and resistance management schemes?
(3) Wat is regulative practice for example on DUS (Distinctiveness, Uniformity, Stability) or IPR practices and where are the shortcomings for sustainability? What is the debate around regulative practice for new breeding technologies? What regulation can help to reach our sustainability goals?
(4) ….

Supervised by: Paschke, Meienberg

Literature:

Barrows, G., Sexton, S. & Zilberman, D. (2014). Agricultural Biotechnology: The Promise and

Prospects of Genetically Modified Crops. The Journal of Economic Perspectives 28, 99-119

Carlos M. Correa et al. (2015). Plant Variety Protection in Developing Countries: A Tool for Designing a Sui Generis Plant Variety Protection System: An Alternative to UPOV 1991, APBREBES, 2015

Wolfenbarger, L.L & Phifer, P.R. (2000). The Ecological Risks and Benefits of Genetically Engineered Plants**.** *Science* 290, 2088-2093.

Mundt, C.C. (2002) Use of multiline cultivars and cultivar mixtures for disease management. Annual Review of Phytopathology. 40, 381-410.

Hartung, F. & Schiemann, J (2014). Precise plant breeding using new genome editing techniques: opportunities, safety and regulation in the EU. The Plant Journal 78, 742–752

Case Study 4: Climate smart farming systems

"The introduction of the CSA program has received quick and widespread approbation and application, since the global awareness about the urgency of climate change mitigation is strong. Since CSA is intertwined in a global network of large organizations which have power and financial resources, the possibility of its success and application seem more probable than ever, especially concerning policy and governance. Even though the program has been received well, there are critical voices getting loud, since CSA aims to include agriculture in the global carbon market, meaning revenues from an offset market for reducing carbon emissions. This would bias the system against smallholders, who this approach claims to focus its efforts on. The opponents also state, that for example the no-till soil-management - one proposal of CSA to reduce GHG emissions - involves application of herbicides which makes the farmer again dependent on large companies. Similarly, carbon off- sets would put small-scale farmers in debt by undermining their capacity to adopt and adapt.

The other paradox is that some measures listed to reduce GHG emissions, can actually be sources of GHG in some cases. For example no-tillage in places with abundant rain precipitation can cause stagnation of the water in the soil, which can increase the emission of oxide nitrate in the air. Also the use of leguminous plants in rich soil can be a source of emission instead of sequestration. There are no general solutions that can be applied everywhere, every location should be studied separately in order to find a specific solution.

CSA is an ambitious, young and dynamic program that might be applied well. And there is hope that its strong and powerful backbone, the FAO, might enable its success, without endangering the independence of smallholders."

(From the Fact Sheet: Maspoli, Peter, Vonzun (2016) on "Climate smart agriculture." In: Zurich-Basel Plant Science Center (2016): Proceedings from PSC Summer School 2014 – Emerging technologies for sustainable crop productions.)

In this case study, students could for example analyze:

(1) To understand the arising conflicts behind a global proposal and our theoretical insight into its implementation, students will design their own climate-smart farming system (scenario building) and will analyze its feasibility and sustainability using a design-based approach.
(2) With simulation games we can understand the possible trade-offs in these approaches.

Supervised by: Vogelezang, Frank

Literature:

FAO (2013) Climate-Smart Agriculture Sourcebook:
http://www.fao.org/climate-smart-agriculture/72611/en/

Smith, P. and 19 co-authors (2008). Greenhouse gas mitigation in agriculture. Philosophical Transactions of the Royal Society B 363, 789-813. http://www.jstor.org/stable/20208468

<u>Case Study 5 & 6:</u> (Agroecology) and sustainable intensification in temperate agricultural systems

"The future will face us with challenges like increasing world population and climate change. Therefore, we have to deal with a need for higher food production and stable yields while at the same time the impact on the environment has to be reduced, i.e. we have to aim at sustainable intensification in agricultural farming. However the term "sustainable intensification" is not clearly defined and used in multiple ways. As it was shown above, a multi-metric approach has to be taken into account, also including that there is no single way to a sustainable intensification but rather a combination of individually adapted strategies.

Since in temperate zones the yield gap is already small compared to other climates, it is more important to reduce the environmental impact rather than increasing the yield in those areas. Multiple technologies of precision agriculture (e.g. tractor GPS-guidance, precise fertilization based on aerial imagery and sensor technology) are certainly a good way to follow. But since these are expensive technologies, their application is limited to large-scale farming. However, smaller farms that cannot afford costly investment can gain by optimizing management practices, including soil management and choice of crop varieties.

Hence, the diversity of agricultural systems must be taken into account and thus appropriate strategies and opportunities have to be combined individually to reach the overarching goal of sustainable intensification."

(From the Fact Sheet: Assenza, Eirdosh, Hirte, Säle and Schreier (2016) on "Sustainable intensification in temperate agriculture." In: Zurich-Basel Plant Science Center (2016): Proceedings from PSC Summer School 2014 – Emerging technologies for sustainable crop productions)

In this case study, students could for example analyze:

(1) We are not understanding the socio-economic needs and governances strategies that will allow transition in Europe to take place
(2) Analyzing current agricultural practices from industrial scale to community-assisted farming practices we might understand their sustainability using LCA approaches or simulation games we might understand the possible trade-offs in theses approaches.

Supervised by: Herren, Vogelezang, Ingram, Buckwell, Frank

Literature:

T. Garnett et al. (2013). Sustainable Intensification in Agriculture: Premises and Policies. SCIENCE 341

Garnett T. & Godfray C. (2012). Sustainable intensification in agriculture. Navigating a course through competing food system priorities. Food Climate Research Network and the Oxford Martin Programme on the Future of Food, University of Oxford, UK

Carson, M., Powell, N., Andersson, K., Osbeck, M., Schwarz, G., Hart, K. & Buckwell, A. (2012). Long-term CAP Reform Options in an Ecosystems Perspective. Stockholm Environment Institute, pp. 1-142

<u>Case study 7:</u> Applying the analytical framework to assess and enhance land tenure security – country case Cambodia

The case study work will consist on applying the HEKS/EPER analytical framework to assess and enhance land tenure security on the specific country case of Cambodia.
In this case study, students shall discuss:

- the causes and drivers of unsecured access to land in the context of a developing country and its impact on smallholders and local communities
- the complexity of the topic "access to land"
- and reflect on possible solutions to enhance land tenure security for rural communities within the given context.

Case Study Description Cambodia

Supervised by: Schmid

Literature:

Dwyer M. 2015. The Formalization Fix? Land Titling and Land Concessions in Cambodia. CDE Policy Brief, No. 4. Bern, Switzerland: CDE.

Hirsch P. & Scurrah N. 2015. The Political Economy of Land Governance in the Mekong Region.

5 General Information

11–16 September 2016, Study week in Einsiedeln (Canton Schwyz):
Schweizer Jugend-und Bildungszentrum (SJBZ), Hotel Allegro

19 September 2016: Follow-up Symposium at Agroscope Reckenholz, Zürich

Venue: Einsiedeln

Schweizer Jugend- und Bildungszentrum,
Hotel Allegro
8840 Einsiedeln

http://www.hotel-allegro.ch/home/

Venue: Reckenholz

Agroscope Reckenholz
Reckenholzstrasse 191
8046 Zürich

http://www.agroscope.admin.ch/aktuell/index.html?lang=en

Accommodation

We are staying at the Hotel Allegro in Einsiedeln, close to the beautiful Sihlsee (Central Switzerland). The hotel provides meals of well-balanced nutrition, and wherever possible using produce from the region. Breakfast is buffet continental style. The surroundings provide you with beautiful views on the surrounding mountains and on the nearby lake Sihlsee; there are lots of hiking tracks within the area of the hotel.

Hotel website: www.sjbz.ch/

Contact information:

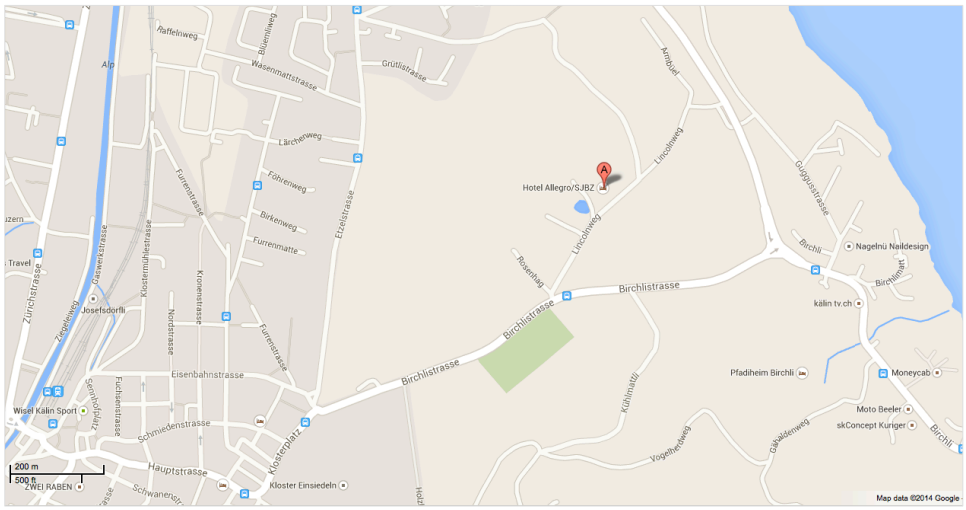
Hotel Allegro – Schweizer Jugend- und Bildungszentrum

Lincolnweg 23

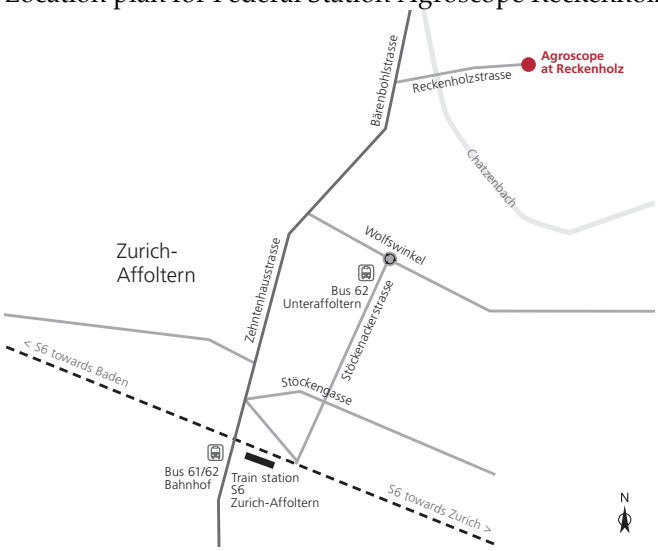
8840 Einsiedeln

Tel. +41 (0)55 418 88 88

Location plan for Hotel Allegro (http://goo.gl/maps/cIFxA):



Location plan for Federal Station Agroscope Reckenholz:



How to get to the venue in Einsiedeln and in Agroscope

There is a bus stop close (approx. 250 m) to Hotel Allegro in Einsiedeln, this bus stop is called „Friedhof“. Check the SBB online timetable for your detailed connections:
http://fahrplan.sbb.ch/bin/query.exe/en
Buy a single train ticket to Einsiedeln, Friedhof

Example: Travel plan for **Sunday, Sept. 10, 2016** from Zurich (Main station) to Einsiedeln (Bus stop: Friedhof):

Station/Stop	Time	Platf./ Edge	Travel with	Occupancy	Comments
Zürich HB	dep 15:43	6	S 25	1. 2.	Urban train 25 20559 Direction: Linthal
Wädenswil	arr 16:00	3			
Wädenswil	dep 16:09	1	S 13	1. 2.	Urban train 13 19360 Direction: Einsiedeln
Einsiedeln	arr 16:32	6			
Einsiedeln			walk		1 min., Y
Einsiedeln, Bahnhof					
Einsiedeln, Bahnhof	dep 16:37		NFB 555		Low-floor bus 555 55527 Direction: Hoch-Ybrig, Talst. Laucheren
Einsiedeln, Friedhof	arr 16:41				
Duration: 0:58; runs daily					

In Einsiedeln, take the postal bus in the direction of “Hoch-Ybrig” (or Studen), and get off at the stop “Friedhof”. From here, the Hotel Allegro is just a three-minute walk. Upon arrival at the Hotel, go to the main desk and ask for Carole Rapo.

Travel plan for **Monday, Sept. 19, 2016** from Einsiedeln (Bus stop: Friedhof) to Zurich-Affoltern:

Gare/Arrêt	Heure	Voie/ Quai	Voyage avec	Occupation	Remarques
Einsiedeln, Friedhof	dép.07:12		NFB 555		Bus à plancher surbaissé 555 55508 Direction: Einsiedeln, Bahnhof
Einsiedeln, Bahnhof	arr. 07:20				
Einsiedeln, Bahnhof			Parcours à pied		1 min., Y
Einsiedeln					
Einsiedeln	dép.07:25	4	S 13		RER 13 19325 Direction: Wädenswil
Wädenswil	arr. 07:49	1			
Wädenswil	dép.08:00	2	S 25		RER 25 20528 Direction: Zürich HB
Zürich HB	arr. 08:17	6			
Zürich HB	dép.08:31	41/42	S 6		RER 6 18630 Direction: Baden
Zürich Affoltern	arr. 08:44	2			
Zürich Affoltern			Parcours à pied		2 min., Y
Zürich Affoltern, Bahnhof					
Durée: 1:34; circule Lu - Ve, pas 16. Mai, 1. Aoû					

Region
The area is geographically interesting and beautiful with several high mountains. Einsiedeln is located up a plateau (ca. 880 m (2,890 ft) above sea level) and situated near the artificial mountain lake Sihlsee. The dam, which retains the lake, produces electricity for the trains and protects the city of Zurich further down the valley from the flood of the Sihl. The village is a popular tourist destination in central Switzerland. The Benedictine Einsiedeln Abbey, located within the village, is considered one of the most important Roman Catholic pilgrimage sites in Europe. Since the Middle Ages the Graces Chapel and a statue of the Black Madonna have been the centerpiece of the pilgrimage. Einsiedeln is also a popular destination for sports year round.

For more information:

http://www.einsiedeln-tourismus.ch/en/index.cfm

Questions about this summer school? Please contact:
Carole Rapo
E-mail: carole.rapo@usys.ethz.ch
Phone: +41 (0)44 632 89 50