

List of Proposed Master's Thesis Topics

Value Chains and Rural Development (VCR) in Agricultural Science	
Topics and further information	Contact and Geography
Rural Economics - Switzerland	
<p>Sustainability assessment of Swiss flax production For decades the production of natural fibers was abandoned in Swiss agriculture due to replacement by cheaper cotton and synthetic fibers. However, several farmers in the Emmental region have recovered the cultivation of flax and several initiatives try to establish value chains for natural fibers in Switzerland covering not only agricultural production but also the industrial processing and retail. An important underlying principle of these initiatives is the establishment of an environmentally, economically and socially sustainable and, as far as possible, regional value chain. This master thesis will analyse and evaluate the sustainability of the flax value chain in Switzerland. The focus will be on the agricultural production, for which data are now available on inputs and yields over several years. This allows the quantitative analysis of the environmental impact of flax production by means of a life cycle assessment.</p>	<p>Matthias Meier, Dominik Flügistaller Emmental</p>
<p>Assessing the economic viability of micro farms in community-supported agriculture in Switzerland Micro farms are commercial vegetable productions (typically smaller than 2 ha) characterized by organic farming practices and few mechanized processes. Farmers sell their produce directly to consumers primarily through pre-ordered and pre-paid vegetable boxes in community-supported agriculture (CSA) schemes. Existing evidence shows that micro farmers can be economically successful due to low-input practices, high cropping densities, and limited mechanization. In Switzerland the number of micro farms and CSA schemes has increased during the last 10 years. To date, little data and evidence is available that allows exploring the economic viability of this farming practices. This MT aims at developing an analytical tool that supports cost management and strategic planning for micro farm businesses. In a first step, information requirements will be identified through a participatory process involving the agricultural producers. In a second step, a cost estimation model will be developed that allows to allocate costs to specific crops and calculate the corresponding economic viability.</p>	<p>Filippo Lechthaler French or German speaking part</p>
<p>Broadening the approach to measure well-being/quality of life of farm households In many European countries there is a long-standing need to improve the understanding of the financial situation and well-being (or quality of life) of farm households to design effective farm income support measures. Although it has multidimensional aspects, well-being is traditionally measured by economic or material indicators including the level of income, housing conditions, socioeconomic status or wealth. These measures have well-known limitations in what they intend to measure as individual well-being – as foreseen in its conceptualization – is to a large extent subjective and not easily quantifiable. As a consequence, non-economic aspects of well-being such as social</p>	<p>Sandra Contzen, Filippo Lechthaler</p>

<p>participation, health, education etc. are typically underrepresented as compared to economic or material measures.</p> <p>This Master Thesis aims developing concrete measurements for farm-household wellbeing / quality of life based on the one hand on existing concepts in measuring farm-household wellbeing in advanced economies and on the other hand on the bottom-up results from a study on quality of life of Swiss dairy farm-households (MilkQualiLife). The study will thus include a literature review to assess the international experience as well as primary data collection to assess the developed measurements in Switzerland.</p>	
<p>Internalizing the costs of sustainable production. Case study of fresh fruits, vegetables, meat or milk</p> <p>Many agri-food supply chains have undergone a strong consolidation process. At some steps of the chain, the market is dominated by few actors (inputs, retail) with huge bargaining power. Governments in many countries have pursued a policy of trade liberalization and the deregulation of agricultural and labor markets. One result has been a weakening of the bargaining power of farmers and workers. Yet we know that sustainable agricultural development requires investment, hence a strong economic position of the farmer. The student will investigate how the “real” cost of sustainable production can be included in product prices, using a fresh product as an example.</p>	<p>Jan Grenz, Daria Reisch Switzerland</p>
<p>Added value for standard trees (Hochstamm) fruit products</p> <p>Products from standard trees credibly stand for quality, enjoyment, biodiversity and beautiful landscapes. Large jus and cider producers such as Ramseier and Möhl were therefore able to successfully launch drinks from these trees. However, many consumers want to support fruit production in their own region and want to contribute to the preservation of the trees on their own place. Regional markets are too small for the large producers and this opens up marketing opportunities for regionally anchored fruit producers.</p> <p>The aim of this paper is to analyse the market for products from standard tree fruits and their value chain. Based on established models such as the "Naturpark Thal", "Hochstamm Seetal" or the label "Miini Region" (Coop), possibilities are to be derived for increasing the added value of products from high-trunk fruit, so that farmers have a financial incentive to cultivate the high-trunk trees.</p> <p>Together with interested local actors and stakeholders, a business model, a prototype and a marketing concept for suitable market services are to be developed for the Seeland region.</p>	<p>Pascale Lorenzini, Christian Thalmann</p>
<p>Regional business models for food production and marketing in an alpine tourism region</p> <p>Local and regional markets represent interesting income sources for farms. Tourism regions in the Swiss Alps are very interesting for selling Swiss food products as these products can be exported (invisibly) via the touristic demand. The goal of this MT is to analyze and optimize existing regional business models in the Swiss Alpes and to develop new ones.</p>	<p>Andreas Hochuli</p>

<p>Topics and further information</p>	<p>Contact and Geography</p>
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Rural Economics - International	
<p>Cost Benefit Analyses of development projects Comparison studies with various institutions, sectors and projects, identifying best practices but also pitfalls, recommendations for the development community in terms of methods for analysing cost effectiveness of development cooperation.</p>	<p>Dominique Guenat</p> <p>Geography to be determined</p>
<p>Assessing smallholders' climate vulnerability with regard to food security in the Peruvian Highlands It is well-established that small-scale agriculture on the Peruvian Altiplano is highly vulnerable to climate and weather hazards due to its high exposure related to the mountainous topography and inter-annual climatic variation. Recent vulnerability research in this region has shown that smallholder livelihoods are frequently threatened by drought, frost and heavy rainfalls. This Master thesis aims at assessing climate vulnerabilities with regard to food security for small-scale farmers on the Peruvian altiplano. Based on quantitative household data collected in 2016, the student will statically assess associations between farm characteristics and socio-economic outcomes in the face of specific climate hazards. Results will serve to develop tailored adaptation strategies for rural communities.</p>	<p>Filippo Lechthaler</p> <p>Peru, Switzerland</p>
<p>Value-creation for market-access of small-scale cocoa farmers in Colombia In the Colombian cacao value chain, smallholder farmers makeup more than 90% of total cacao production and report notably low productivity in their crops – approximately 1/3 of their full potential. This is the result of the lack of technical knowledge for the cacao crop establishment and management as well as the limited access to financing instruments that enable farmers to invest in their crops. Also, farmer´s lack of infrastructure and appropriate handling of harvest and post-harvest processes has resulted in low-quality cacao, even though the beans genetics are among the finest and most demanded worldwide. This backdrop has hindered the farmers' access to high-value markets and the transformation of subsistence-level farms into high-yield and profitable cacao plantations that can pave the way for the cacao-growing communities to overcome poverty.</p>	<p>Ingrid Fromm</p> <p>Colombia</p>
<p>Cost-benefit analysis of irrigated horticulture at smallholder level In Guatemala Aqua Alimenta and its partner organisation ASECSA are setting up a technical service for small-scale irrigation, based on appropriate technology that is produced in a local workshop. The systems aim to improve productivity during rainy seasons (where growing irregularity of rains is a major concern), extend the production period and establish irrigated horticulture production, especially during dry season. The thesis shall compare the investment needed to install an irrigation system with the benefits from the increase in productivity, in order to make a statement on the system's return on investment. This can be done on a case study basis on one or several farming sites or in an experimental setting. The case studies should further also describe the changes in production patterns towards more diversified production. These results shall then be used to review the current evaluation indicator set. The student could further support the local team in the implementation of mobile m&e tools and in systematization of the m&e data.</p>	<p>Christoph Studer</p> <p>Guatemala</p>

<p>Participatory Promotion of New Value Chains for the Diversification of Income FAO is developing, together with other actors such as SDC, an innovative approach of participatory watershed planning and management in the Atlas Mountains of Morocco (GIBV-MA). HAFL, together with the Centre for Environment and Development (CDE) of Bern University, is backstopping this project. The Midelt region, targeted by the project, is one of the poorest of the country. It is famous for its apple production, produced under irrigation. On the other hand, the level of degradation of the natural resources (erosion and deforestation) is extreme, leading to recurrent natural disasters such as floods and decreased productivity. One of the project's objectives is to develop promising or new value chains that will contribute to the diversification of income of the local population. Apple is the most important agricultural production, but there is no processing of this commodity and losses are important. Other promising value chains are aromatic and medicinal plants, beekeeping/honey and agrotourism. The Master student will support a process of participatory market chain approach to develop or improve one selected value chain.</p>	<p>Pascale Wälti Morocco</p>
<p>How do public and private investors influence the sustainability of agriculture? Case studies of the soybean and cocoa value chains Agriculture is on the one hand considered as a seriously underfunded sector of the economy. On the other hand, where investment does happen, it is often criticized for supporting unsustainable forms of agriculture, such as large-scale monocultures. The students will compile and evaluate the state of knowledge on who invests how much into what in two supply chains of major importance for Switzerland, namely the soybean and the cocoa value chains. They will also suggest resp. identify measures for assuring a more sustainable role of agricultural finance.</p>	<p>Jan Grenz, Daria Reisch Brazil</p>

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Animal Science - International	
<p>Inclusive value chains: mobile pastoralists and the livestock/meat and milk production in Chad Livestock husbandry is a main economic pillar of countries in the Sahelian and Sudanese zone. In Chad, the sector employs 40% of the working age population and the livestock population includes about 94 mio. animals (principally cattle, sheep, goats and camels). The majority of the livestock sector earnings are generated through exports destined to neighboring countries mainly to Nigeria. Transhumance systems are the dominant mode of husbandry accounting for approximately 80% of the sector. Although they contribute an essential part to the rural economy, mobile pastoralists are socially marginalized and largely excluded from public services. The goal of this master's thesis is to analyze the value chain for livestock/meat and milk in Chad paying particular attention to the socio-economic impact on livelihoods of nomadic communities. The study will involve a mapping of the value chain and an economic analysis of the interaction between the different stages. Results will help to define strategies and recommendations to optimize value chain</p>	<p>Filippo Lechthaler Chad</p>

management and build up inclusive market systems to strengthen income stability of rural populations.	
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Crop production - International	
<p>Ring-Basin Infiltration Pits – Pilot implementation and feasibility study in eSwatini</p> <p>The goal is to conduct a feasibility study for ring-basin infiltration pits (RIPs) in eSwatini, together with a RIP expert from Ethiopia and the local partner organization ACAT (Africa Cooperative Action Trust) of sahee foundation. The student will first visit implemented RIPs in Ethiopia and collect economic data on RIP profitability. Then the student will travel to the eSwatini, where a pilot RIP shall be implemented. In eSwatini, the student will assess the feasibility of implementing the pilot RIP (location of the RIP, the availability of materials, etc.) and implement the RIP together with the RIP expert from Ethiopia. The student will document the entire process and draw relevant conclusions.</p>	<p>Christoph Studer</p> <p>eSwatini (Swaziland), Ethiopia</p>
<p>Pepper production in Kampot, Cambodia</p> <p>Kampot is famous for the outstanding quality of its pepper. Some even say that it is the best pepper in the world.</p> <p>Pepper production in Kampot is facing several problems such as poor water management, damages to the crop by termites, poor crop management resulting in low yields. On the other hand, the location is quite favourable, and the local conditions are rather good and unique and therefore the cultivation of pepper quality is good. That is why this small area in the south of Cambodia received a geographical indication. It is possible to produce four kinds of pepper from the same plant with exceptional quality: green, black, red and white.</p> <p>The pepper production in that region must be organic (because it is in a protected area). All pepper producers are members of a cooperative the role of which is to verify that its members comply with the rules relative to managing the protected area.</p> <p>The proposed MSc thesis may focus on the pepper agronomy, and propose improvements to overcome the mentioned problems, based on literature review, interviews with local pepper producers (including a specialized research centre in Cambodia). Looking into the sustainability of production is also part of the research.</p>	<p>Dominique Guenat</p> <p>Cambodia</p>

Topics and further information	Contact and Geography
Cross-cutting questions	
<p>Assessing farmers' socio-economic vulnerability to climate impacts: a case study on agriculture in Swiss mountain region</p> <p>It is well-known that mountain regions are particularly exposed to adverse climate events. In the Swiss Alps, agriculture still plays an important economic, social and cultural role. There are over 7000 alpine farms, which account for one-third of the agricultural land cultivated in the country. Despite all this, the potential socio-economic impacts of future climate scenarios (climate change) in the agricultural sector are widely unknown.</p> <p>The Master Thesis aims at developing a profile of socio-economic vulnerability to climate impacts for Swiss farmers with a focus on mountain regions. The study will include primary data collection to</p>	<p>Christine Jurt, Filippo Lechthaler</p> <p>Switzerland</p>

<p>describe and analyze farmer's risk exposure and their perspective on a range of economic, social and political risks they need respond to. On the basis of the results options for action to strengthen climate resilience of the targeted communities will be discussed</p>	
<p>Pass or fail vs. Continuous improvement of farms Generally, sustainability certifications assess the degree of sustainability using a checklist. If the farmer meets the required criteria, it gets the certification. With this approach, the farmer behaves passively and is told top down what to do. It is not astonishing that this has a negative effect on the farmer's willingness to deal with sustainability topics. RISE's approach is to ensure a real engagement with sustainability issues and continuous development. The greatest challenge here is to integrate the sustainability issues into the day-to-day management of the farm. In this work, answers to the following questions are to be found: 1) How should such a process ideally be designed and what elements does it contain (process, documents, consulting, etc.) so that a planned and continuous development can take place? 2) what is the experience of farmers participating in such a process and what are the effects at the farms?</p>	<p>Christian Thalmann Switzerland</p>
<p>MSAS: platform for the promotion of technologies for sustainable agriculture Studies as well as practical experience suggest that there is a substantial discrepancy between the existing technologies and knowledge for sustainable agriculture on the one hand, and the realities of farm-level production on the other hand. We hypothesize that the reasons for this "implementation gap" include a lack of knowledge of adapted technologies as well as a lack of finance. An internet-based "Marketplace for sustainable agricultural solutions" (MSAS) might contribute to reducing the implementation gap, by offering brokerage between farmers and ag advisors, technology and knowledge providers, and investors. The MSc student will create a concept for MSAS, collecting and putting together information on user demands, technical solutions and platforms in other sectors. This is a thesis for creative, IT-affine students</p>	<p>Jan Grenz, Daria Reisch Switzerland, Ukraine</p>
<p>Sustainable cheese: developing a manual for Swiss cheesemakers Fromarte, the association of the artisanal cheesemakers of Switzerland, wants to support its 600+ member companies in becoming more sustainable and in credibly valorizing their sustainability performance. A concept for a manual has been developed by HAFL researchers. This concept shall now be developed into a full sustainability manual and tested with cheesemakers and dairy farmers</p>	<p>Jan Grenz, Christian Thalmann Switzerland</p>
<p>Impact de la médaille du Concours des produits du terroir</p> <ul style="list-style-type: none"> - Impact technico économique des produits médaillés du Concours (étude consommateur) - Impact des médailles et du Concours des produits du terroir sur les producteurs (évaluation économique, qualité, procès de production, etc.) - Le Concours des produits du terroir comme moyen d'intégration des filières ou produit : adhésion des différents acteurs et impact 	<p>Nancy Bourgeois Lüthi Tunisia</p>

<ul style="list-style-type: none"> - Accompagnement d'un médaillé pour l'amélioration d'un ou de plusieurs aspects pour une meilleure commercialisation de son produit : DLC, emballage..... - Formulation et caractérisation d'un produit de terroir: ex : Bsisssa à base de blé germé 	
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Topics and further information	Contact and Geography
Food Systems	
<p>Die lebendige Food Hauptstadt Bern – Inwiefern tragen Bauernbetriebe bereits heute zu einem regionalen Wertschöpfungskreislauf bei?</p> <p>In der Region Bern produzieren 38 heterogene Bauernbetriebe landwirtschaftliche Güter. Unklar ist, inwiefern diese zur urbanen (Selbst-)Versorgung beitragen und das Leben in der Schweizer Hauptstadt mitgestalten. Die Masterarbeit zum Thema „Bern – Die lebendige Food Hauptstadt?“ soll bestehende Formen urbaner Landwirtschaft erforschen und dabei der Frage nachgehen, was eine lebendige Food Hauptstadt auszeichnet. Die Masterarbeit erfolgt in Zusammenarbeit mit Slow Food Bern und embrace. Die Ergebnisse dieser sehr aktuellen Fragestellung können auf politischer Ebene eine Wirkung erzielen, indem verstärkt für bestehende Berner Bauernhöfe Sorge getragen wird.</p>	<p>Evelyn Markoni, Franziska Götze</p> <p>Switzerland</p>
<p>The role of Switzerland in increasing social and environmental resilience in West Africa to secure cocoa supply</p> <p>The taste for chocolate in emerging markets will continue to increase the global demand for cocoa. However, supply shortages of this pressured commodity are expected as early as 2020. Ghana and Côte d'Ivoire are the world's largest producers of cocoa, providing 60% of global supplies. Both countries face production bottlenecks that threaten cocoa exports in the coming years. Swiss-based multinationals must go beyond traditional development and CSR approaches to think more creatively about business model innovations that will help smallholder farmers capture more value from the global chocolate market.</p>	<p>Ingrid Fromm</p> <p>Ghana, Côte d'Ivoire</p>
<p>Smallholder Productivity and Poverty Reduction in Zambia</p> <p>Research under this theme falls under two sub-themes: Agricultural inputs, productivity, and poverty and Farm structure, land access and institutions. The first sub-theme is divided into four sub-themes: a) agricultural technology, land and labour productivity; b) transformation in the farm and nonfarm rural economy; c) research and development; d) mechanization and agricultural productivity and; e) public Investment, market and rural development strategy. The second sub-theme is on farm structure, land access and institutions which is divided into four further sub-themes : a) farm size, agricultural productivity and welfare; b) land institutions and access; c) farm blocks and resettlement and d) agricultural growth strategy-large-scale versus small-scale farmers.</p>	<p>Ingrid Fromm</p> <p>Zambia</p>

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