



Module	Holistic Assessment of Production Systems
Code	MSLS_AF-22
Degree Program	Master of Science in Life Sciences (MSLS)
ECTS Credits	5
Workload	150 h: Contact 65 h; Group Exercise 10 h; Self-study 75 h
Module Coordinator	<p>Name Dr. Jan Grenz</p> <p>Phone +41 31 910 21 99</p> <p>Email jan.grenz@bfh.ch</p> <p>Address Bern University of Applied Sciences, School of Agricultural, Forest and Food Sciences, Laenggasse 85, 3052 Zollikofen</p>
Lecturers	<ul style="list-style-type: none"> • Dr. Jan Grenz • Dr. Christian Rosset • Dr. Christian Thalmann • Dr. Firesenai Sereke • Dr. Raphael Mainiero • Guest lecturer
Entry Requirements	Basic understanding of the principles of sustainable development and robust knowledge about agricultural production. Documents covering these aspects will be made available on Moodle, along with key questions students should be able to answer. A voluntary pre-test helps students to position their state of knowledge on sustainable development. Prior participation to HAFL-M01 and HAFL-M21 serves to improve students' knowledge about scientific data collection and analysis and is thus recommended. Previous completion of the modules T1 and T12 is encouraged.
Learning Outcomes and Competences	<p>After completing the module students will be able to:</p> <ul style="list-style-type: none"> • appraise the role and potential of holistic assessment in strategic planning and in putting sustainability into practice; • define and handle relevant and substantiated ecological, economic and social indicators of sustainability in A&F production systems; • select and apply methods and tools for A&F production systems analysis.
Module Content	<p>Students discuss the relevance and definition of sustainable agriculture and of competing approaches to agricultural development. They explore the intricacies of e.g. the delineation of system boundaries and the aggregation and weighting of information. They appraise the need for science-based, yet practically useful assessment criteria for putting sustainability into practice in A&F production systems. Several methods for measuring and assessing the performance of production systems with regard to sustainability, resource use efficiency and/or externalities that are in practical use or that offer a promising, innovative approach, are introduced and discussed. The spectrum of approaches taught stretches from monitoring and regulation (impact assessment of environmental and social legislation, product certification) to analyses and audits (e.g. Life Cycle Assessment, Response-Inducing Sustainability Evaluation).</p> <p>Real-world case studies, in which students actively apply the introduced methods (e.g. a farm is analyzed using the RISE method), serve to sensitize them for stakeholder perspectives involved in holistic assessment (producers, processor, retailer, consumer, government, research & extension).</p>
Teaching / Learning Methods	Lectures provide the guiding structure for this module. Lecturers present tools from the administrative (e.g. the MONET system), business and the applied science and management domains (e.g. RISE, WIS.2). Panel discussions and seminars allow

	comparing approaches and appraising their potential and relevance. A farm sustainability analysis, combined with a group work on an aspect of farm sustainability provides hands-on impressions on how sustainable agriculture can be managed and made a reality.
Assessment of Learning Outcome	1) Group assignment (topic defined during RISE farmer feedback session) (50%) 2) Written exam at the end of the module (50%)
Bibliography	<p>Agenda 21 and the Rio Declaration: Accessed on 07.01.2013, http://habitat.igc.org/agenda21/</p> <p>Grenz J, Thalmann C, Stämpfli A, Studer C, Häni F, 2016. RISE 3.0 Scientific Manual. HAFL, Zollikofen.</p> <p>Ostrom E, 2009. A general framework for analyzing sustainability of social-ecological systems. <i>Science</i> 325, 419-422.</p> <p>Von-Wirén-Lehr S, 2001. Sustainability in agriculture — an evaluation of principal goal-oriented concepts to close the gap between theory and practice. <i>Agriculture, Ecosystems & Environment</i> 84, 115-129.</p> <p>Zahm F, Viaux P, Vilain L, Girardin P, Mouchet C, 2008. Assessing farm sustainability with the IDEA method – from the concept of agriculture sustainability to case studies on farms. <i>Sust. Dev.</i> 16, 271-281.</p> <p>These and further readings are available on Moodle during and after the module.</p>
Language	English
Comments	<p>Attending this module will add benefit to participation in AF-23 and AF-03: knowledge on holistic assessment methods and tools improves the capability to optimize production, which in turn contributes to integrated resources and environmental management.</p> <p>The following sequences are compulsory for students: farm visit with group formation in week 2, group presentation in week 4 and written exam in week 5 of the module. For details on compulsory sequences, please refer to the detailed schedule of the module, which will be uploaded on Moodle 4 weeks before the start of the module.</p>
Last Update	11.02.2016 / Jan Grenz