



Module Title	Holistic Assessment of Production Systems
Module Code	MCLs055
Module	AF-22
Degree Programme	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 Thalmann • Veronika Zbinden • Dr. Nick Miszak • Guest lecturer
Entry Requirements	Robust knowledge about agricultural production and basic understanding of the principles of sustainable development. Documents covering the latter 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. Previous completion of the modules E3 and E5 is encouraged, but not compulsory.
Learning Outcomes and Competencies	<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 agricultural production systems and food value chains; • select and apply methods and tools for agricultural 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 agricultural production systems.</p> <p>A real-world case study, in which students do a farm sustainability analysis, is the central pillar of this module and serves to sensitise students for stakeholder perspectives involved in holistic assessment (producers, processor, retailer, consumer, government, research & extension). Challenges of and approaches to establishing sustainability along food value chains are presented and discussed as well; this includes a guest lecture or excursion related to the food industry.</p>
Teaching and Learning Methods	Lectures provide the guiding structure for this module. They present multi-criteria methods from the administrative, business and applied science and management domains. Seminar-style learning units allow students to compare approaches and appraise their potential and relevance. A farm sustainability analysis, combined with group work on an aspect of farm sustainability provides hands-on impressions of how sustainable agriculture can be managed and made a reality. The teaching-method spectrum is completed by a visit to a project of a farm where exemplary

	solutions for overcoming sustainability challenges are shown.
Assessment of Learning Outcomes	67% Group assignment (topic defined during RISE analysis; written assignment to be submitted by the end of March) 33% Written exam, on the last Wednesday of the module
Bibliography	<p>Agenda 21 and the Rio Declaration: Accessed on 07.01.2013, https://sustainabledevelopment.un.org/outcomedocuments/agenda21</p> <p>Grenz J, Thalmann C, Stämpfli A, Studer C, Häni F, 2016. RISE 3.0 Scientific Manual. HAFL, Zollikofen. Documentation on RISE @ https://www.bfh.ch/en/research/all-our-consulting-services/rise/method/</p> <p>Swiss Federal Department of Foreign Affairs (EDA). 2030 Agenda for Sustainable Development. 2030 Agenda for Sustainable Development (admin.ch)</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. Agriculture, Ecosystems & Environment 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. Sustainable Development 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 of holistic assessment methods and tools improves the capability to optimise production, which in turn contributes to integrated resources and environmental management.</p> <p>The following sequences are compulsory for students: farm visit in week 2, group presentation in week 4, 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	January 2026