Module description
Resilient Agriculture – Recent Advances

Module	IN.7 (in English)
ECTS credits	3
Teaching hours per week	2
Workload (in hours)	Classroom-based and self-directed study 23 hours
Module description	The environment and food security are threatened by climate change, increasing droughts, biodiversity loss and soil degradation. At the same time, modern agriculture itself is one of the major causes of the degradation of its own productive resources. Resilient agriculture must respect and restore ecological principles to sustain its productivity under a broad variety of abiotic and biotic stress factors. Current approaches such as organic farming, regenerative agriculture, agroforestry, keyline design, permaculture, biochar application, habitat management and others are presented, discussed and evaluated. Hands-on experience, case studies and an excursion complete the picture.
Intended learning outcomes and course content	Intended learning outcomes: Participants become familiar with agricultural techniques and concepts that are intended to restore natural resources and maintain productivity under conditions of global change. They critically assess the strengths and weaknesses of these approaches' contributions to climate change mitigation, water management, biodiversity and yield stability. With this knowledge, they can devise and support efficient ways of transforming agriculture into a more resource-oriented, sustainable and climate-adapted system for food security. Course contents: • Threats of agroecosystems and food security through climate change, biodiversity loss, soil degradation and industrial agriculture. • Significance of resilience, functional aspects of soil, water and biodiversity management as well as socioeconomic factors. • Systemic solutions like organic farming, regenerative agriculture, agroforestry or permaculture. • Experimental work, literature assessment, case study presentations by participants. • Excursion on applied practices of resilient agriculture.

Assessment	Portfolio: literature excerpt, case study presentation, short excursion report; at least 75 % attendance required
Grading	☒ passed/failed ☒ by grade for degree programmes, if required
Prerequisites	- Good English language proficiency - Basic knowledge of ecology and agriculture
Teaching and learning methods	Lecture: - 12 sessions (90 minutes) - 1 excursion (approx. 5 hours; self-organised field trip for remote participants) Date (provisional): Wednesday, 17:30–19:00 (German local time)
Lecturer	Prof. Dr. sc. agr. Jens Poetsch
Target group	Advanced students of all programmes admitted
Frequency and duration	Duration of the module: one semester, module offered once per year, always in the summer term, provided the minimum number of participants is reached.
Number of participants	min. 8, max. 24 participants (including up to 12 external participants online)

Data protection declaration: https://www.hs-rottenburg.net/system/datenschutz/