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Institute of Agricultural Sciences in the Tropics

(Hans-Ruthenberg-Institute)

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1. Welcome and overview of the Departments

Introduction to the Institute of Agricultural Sciences in the Tropics

(Hans-Ruthenberg-Institute)

The *Hans-Ruthenberg-Institute* provides comprehensive capacity for research and education in the field of Tropical Agricultural Sciences. With 9 specialised working groups and more than 100 scientists, it offers profound empirical and theoretical knowledge covering the entire spectrum of tropical and subtropical agricultural systems. During the last decade we have been active in more than 200 research and educational projects across 50 countries of the Tropics.

All essential scientific disciplines of tropical agriculture, i.e., crop and animal sciences, agroecology, agricultural engineering as well as agricultural economics and social sciences, are united in one institute.

The Institute is well positioned to make a substantial contribution to tackle global scientific, environmental, economical and social challenges inorderto ensure food security and develop sustainable agricultural systems. The Institute develops novel integrated strategies to address the challenges in global food and eco-systems related to the changing environment by bringing together natural and social sciences in innovative ways. The main areas of research at the institute are:

- Sustainable Agri-Food Systems
- Ecosystem Services & Agricultural Development
- Farming Systems Digital Age
- Food Security & Health

Dear Friends and Colleagues,

It is a great pleasure to present the 2025 Annual Report of the Hans-Ruthenberg-Institute for Tropical Agricultural Sciences. This report highlights the exceptional disciplinary and interdisciplinary research and teaching activities of the institute its numerous collaborations within the University of Hohenheim and with its many partners around the world

In a time of mounting global challenges—ranging from climate change and resource scarcity to the urgent need for sustainable food systems—our mission to contribute to feeding a growing population sustainably has never been more relevant. The projects, collaborations, and achievements featured in this report are a testament to the dedication and innovation of our researchers, educators, and students.

We remain committed to fostering impactful research, nurturing the next generation of scientists, and driving practical solutions that balance productivity with ecological and social sustainability. We hope this report inspires and informs, showcasing the breadth and depth of our endeavors over the past year.

Thank you for your continued support and interest in the work of the Hans-Ruthenberg-Institute. We look forward to engaging with you in the future as we strive toward our shared goal of sustainable agricultural development.

Warm regards,

Ingo Grass

Director, Hans-Ruthenberg-Institute for Tropical Agricultural Sciences

We wish you an interesting reading and look forward to continuous and new interactions in 2026.

Competence of Working Groups

Rural Development Theory and Policy (490a)

Prof. Dr. Manfred Zeller

Our research activities mainly focus on the analysis of policies affecting the critical triangle of agricultural and rural development.

Through our research and teaching activities, we seek to contribute to an improved understanding of the trade-offs between and synergies among the three major development objectives: equity, economic growth, and environmental sustainability.

Picture credit: Tim Loos

International Agricultural Trade and Food Security (490b)

Dr. Kirsten Boysen-Urban (Interim Chair) / Prof. Dr. Martina Brockmeier

The International Agricultural Trade and Food Security group aims to contribute to the ananalysis of different pathways and associated policies to support the sustainable transformation of agrifood-ecosystems. A particular focus is on trade-offs and synergies between sustainability objectives: economic and social, in particular food security, and environmental targets. We are particularly interested in…

… assessing the role of international trade and trade policies (including tariff and non-tariff measures such as regulation, standards and mirror cluases).

… investigating the resilience of agrifood-ecosystems to economic and physical shocks.

… exploring different sustainable pathways on the demand side (e.g., food waste reduction, changes in dietary behaviour) and supply side (e.g., expansion of irrigation, scarcity of natural resources such as phosphorus).

Picture credit: Kirsten Boysen-Urban

… analysing the effects of different policy options/ mix of policies such as different trade, climate and agricultural and food policies and how these policies need to be designed to ensure that they are target-oriented, sustainable and efficient.

For this purpose, we develop and apply global and single-country economic models and their underlying databases. These economic models are well suited to analysing the impact of different behavioural changes and policy instruments, taking into account potential repercussion and spill-over effects through markets to consider potential effects on by-standers. In addition, we use participatory approaches and co-creative methods to develop scenarios and simulation models, incorporating expert knowledge from different stakeholders in the respective area of interest. We also apply qualitative methods such as survey instruments and interviews. Our research is policy-oriented, and we aim to understand how we can increase the uptake of evidence in policy making. The knowledge generated and the collaboration with different institutions that are active in the policy sphere ensure that we conduct and deliver research that is relevant to the transformation of agrifood ecosystems at global, national and local levels.

Social and Institutional Change in Agricultural Development (490c)

Prof. Dr. Regina Birner

The goal of our Division is to contribute to agricultural development through research, teaching and policy dialogue on the social, institutional and political dimensions of agriculture in developing countries. Our focus is interdisciplinary, combining re-search approaches developed in agricultural and institutional economics, rural sociology and political science. Our work is guided by the vision of a future world agriculture that is able to feed a growing world population, to use its unique potential to contribute to poverty reduction and to provide environmental services instead of overusing natural resources.

In our research, we focus on innovative approaches to support smallholder agricultural development, such as digital tools for smallholder farmers, agricultural carbon projects, and sustainability initiatives for agricultural value chains. Gender and climate change are cross-cutting topics of our research.

Picture credit: Regina Birner

Land Use Economics (490d)

Prof. Dr. Thomas Berger

The Chair of Land Use Economics originates from a visiting professorship for development research that was endowed by Senator e.h. Dr. Dr. h.c. Eiselen until 2006. The chair is primarily concerned with human-environment interactions in the areas of land use, water resources and renewable energies. Possible consequences of environmental, structural and policy changes are evaluated with respect to resource protection and food security.

Methods from computer science are an integral part in research and teaching. These methods are used to analyze the environmental effects of policies on the agent level and the adaptive ranges of those agents. Furthermore, the distributive effects of policies on diverse segments of the population are made visible. A microeconomic and farm management foundation, together with a consideration of social networks and spatial environmental interactions forms the distinguishing characteristic.

The chair currently deals with the following areas of emphasis:

- Climate change and climate variability, especially droughts
- Land and water use, decarbonization, ecosystem services
- Multi-agent systems, agent-based simulation
- Digital Agriculture, hybrid intelligence

Land Use Systems, Picture credit: Thomas Berger

Plant Production in the Tropics and Subtropics (490e)

Jun. Prof. Dr. João Vasco Silva (since Sep. 2025)

Picture credit: 490e

Meeting Future Challenges In times of Global Change and an increasing awareness of the negative impact of non-sustainable agriculture on the environment an isolated examination of crop or land use system is no longer meaningful. Crop production systems have to be assessed in a holistic way, considering production issues, people's livelihoods and environmental quality and biodiversity. Simultaneously, Global Climate Change feedbacks such as extreme weather conditions and elevated CO_2 in the atmosphere have a direct effect on crop production itself, as well as crop quality, competition and plant-soil-environmental interactions. Investigating trade-offs between different crop production methods and the environment is a challenging scientific task and demand new innovative and integrated approaches to design sustainable intensification strategies. In addition to ecophysiological research topics the Plant Production Section thus focuses on nutrient cycles, competition for resources, soil quality, carbon sequestration and environmental impact of plant-animal productions systems with specific consideration of N_2 fixing legume-based integrated (intercropping, agroforestry, agro-silvo-pastoral systems) approaches.

The research approach in the Plant Production Section is based on a theoretical analysis, i.e. dynamic process-based modelling (from soil aggregate to landscape) of agroecosystems in the tropics and subtropics, and a simultaneous experimental approach to improve our understanding of plant production and nutrient cycles in agroecosystems by using stable isotope (^{15}N, ^{13}C and ^{18}O), molecular and spectral methods. We are an international team and interested in interdisciplinary research approaches and strong collaborative partnerships.

Ecology of Tropical Agricultural Systems (490f)

Prof. Dr. Ingo Grass

Picture credit: 490f

The experimental research within Ecology of Tropical Agricultural Systems group focuses on patterns and dynamics of biodiversity and associated ecosystem services in agricultural landscapes. Research topics include multitrophic interactions (pollination, biological control), food webs and the relative importance of local vs. regional determinants for ecosystem functions in managed and (semi)natural ecosystems.

A major focus is on the agroecology of tropical and temperate land-use systems, including effects of land-use change, climate change and urbanization. We aim to develop farming practices at local and landscape scales that promote agricultural productivity while sustaining biodiversity, ecosystem functions and services.

Management of Crop Water Stress in the Tropics and Subtropics (490g)

Prof. Dr. Folkard Asch

Agricultural production systems in the Tropics and Subtropics are subject to rapidly changing base parameters induced by climate change, limited resources, fluctuation of prices for food and commodities and the worldwide increasing demand for biofuel and renewable resources. Sustainable management of water resources of these systems requires a comprehensive analysis of factors contributing to the water balance on a local and regional scale.

Madagascar irrigated rice production in small holder systems. Picture credit: 490g

The research activities of the Department of Management of Crop Water Stress in the Tropics and Subtropics (490g) focus on the interactions between crops and water availability and climatic conditions, soil fertility, and abiotic stresses such as salinity and iron toxicity. Management options are evaluated in terms of adapting cropping calendars and resource input, and evaluating the potential of varietal differences. Resource use and efficiency in and plant responses to controlled environment farming are also a strong focus of the group. The work of 490g combines research approaches from the field-scale to the plant's internal signaling.

Animal Breeding and Husbandry in the Tropics and Subtropics (490h)

Dr. Kristina Rösel (Interim chair)/ Prof. Dr. Mizeck Chagunda (until 2024)

Smallholder livestock household in Berhampore Village, West Bengal, India. Picture credit: ILRI/Susan MacMillan

Agricultural systems are facing ever-increasing challenges, such as increasing global demand for livestock products involving intensification, conflicting demands on land and water resources, and climate change. All these challenges entail natural resource degradation including loss of livestock genetic diversity, and some unprecedented trade-offs that can easily 'tip the balance' in the production systems.

The department of Animal Breeding and Husbandry in the Tropics and Subtropics aims to contribute to efficient and sustainable livestock production systems and food and nutritional security. Therefore, we investigate efficient breeding approaches, livestock husbandry techniques, novel (information) technology, climate change mitigation and adaptation strategies in livestock systems, integrating socio-economic and biophysical determinants. We conduct basic and applied, inter- and transdisciplinary research using modelling and conventional approaches in both intensive and extensive (incl. organic) systems in temperate, tropical and sub-tropical environments.

Agricultural Engineering in the Tropics and Subtropics (440e)

Prof. Dr. Joachim Müller

PV-system for solar oil extraction, Picture credit: 440e

The increasing global scarcity of resources is the driving factor for research and teaching in the field of agricultural technology in the tropics and subtropics to ensure the efficient use of water, energy and agricultural resources. The focus is on the development of resource-saving irrigation technologies and the use of renewable energies. Since post-harvest processes - such as drying - are particularly energy-intensive, this area is a special research focus. The research is carried out on a fundamental basis in an interdisciplinary network with complementary research fields and external partners from industry and research. In order to ensure knowledge transfer, the basic knowledge gained is adapted to the requirements of practice in applied research. The feedback process with practice ensures that basic research is aimed at relevant and current problems. Additional research areas are the use of biogenic fuels as well as the implementation of photovoltaics and solar thermal energy to secure heat and electricity supplies in the rural tropics and subtropics. Both, conventional and highly innovative technologies are provided to sustainably solve problems in various areas of daily needs, from individual households to medium-sized companies. There is a particular focus on off-grid solutions and the direct use of electricity and process heat from renewable energy sources to optimize agricultural methods (irrigation) and post-harvest processes (drying, cooling).

Hohenheim Tropics (Hub-Management) (490)

Dr. Marcus Giese

The Hans-Ruthenberg-Institute is one of the main contributors to the "Hohenheim Tropics" network organised by the Hub-Management. The network provides access to various international partners and internal or associated scholarships, conferences, travel support for Master and PhD students as well as alumni networks. Among other activities to promote and support research and education in agricultural sciences in the Tropics, the Hub-Management coordinates access to

- Dr. Hermann Eiselen MSc-Scholarship Program supported by the *fiat panis* foundation
- ATSAF e.V. Academy (PhD, MSc scholarship program)
- African German Centre for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science - UKUDLA
- DAAD Economy stipends, Summer / Winter Schools
- NatureLife International - Science Sustainability Price
- DAAD Agri-Alumni-Net: Research and Educational Network for African Alumni
- Agritropics: English Master Program for Tropical Agriculture
- “Hohenheim Tropics” seminar series
- Research Network Africa
- Water Security Climate Change (WSCC) conference, World Food Day Events
- Networks: CGIAR++-Centres, Challenge Programs, ATSAF e.V. Junior Scientist Program
- “Tropentag” – Annual international conference on research in tropical and subtropical agriculture, natural resource management and rural development
- Student Excursions to the Tropics and Subtropics
- Baden-Württemberg Center for Brazil and Latin America

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3. Research

3.1. Ongoing research and educational projects

Flagship Projects

UKUDLA - African German Centre for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science (420a, 510g, 490 Hub)

The UKUDLA Network with the DAAD at the UKUDLA Launch Cape Town, South Africa, Sept. 2025. Picture credit: DAAD.

Short description: UKUDLA is a collaborative centre that advances interdisciplinary research and capacity building in food systems, with a strong foundation in applied data science. Based in South Africa and Malawi, the centre promotes evidence-based approaches to understanding and improving food systems across their full breadth — from agricultural production, processing, and distribution, to nutrition, consumption, food safety, and food security.

Our work addresses the economic, ecological, and socio-cultural dimensions of food systems, with particular attention to resilience under environmental and economic stress, gender equality, and inclusive development. Through a combination of cutting-edge research, graduate education, and stakeholder engagement, UKUDLA fosters the next generation of scientists and professionals who will shape sustainable and just food futures in Southern Africa.

Data-driven methods — including statistical modelling, geospatial analysis, and machine learning — support innovative research and facilitate the transfer of knowledge into policy, practice, and society. For more information, visit our Hohenheim webpage: https://ukudla.uni-hohenheim.de/en

People involved: Prof. Dr. Christine Wieck, Prof. Dr. Thomas Dimpfl, Dr. Marcus Giese

Partner: UKUDLA has been collaboratively conceptualised by the University of Hohenheim (UHOH) [Germany], the University of the Western Cape (UWC) [South Africa] , the University of Pretoria (UP) [South Africa], the University of Mpumalanga (UMP) [South Africa], Lilongwe University of Agriculture and Natural Resources (LUANAR) [Malawi]

Funding: DAAD with funds from: Federal Foreign Office (AA), Federal Ministry of Research, Technology and Space (BMFTR), Federal Ministry of Agriculture, Food and Regional Identity (BMLEH). South African side: Department of Science, Technology and Innovation (DSTI), National Research Foundation (NRF).

Duration: 2025 - 2029

Location: Germany, South Africa, Malawi

Minding women's time: Does time saving technology and behavioural interventions change the margins (490a)

This research project is funded by the Center for Effective Global Action at UC Berkeley, the University of Hohenheim and the Baden-Württemberg Stiftung. The project is implemented by the Chair of Rural Development Theory and Policy in collaboration with the University of San Francisco and Hawassa University.

Short description: The aim of the project is to identify and test the effectiveness of time saving and behavioral interventions that save women's time, increase their participation in paid work, and ultimately economically empower women. The project has three phases: Phase I focuses on understanding the sociocultural context and time use pattern to come up with inter-ventions that will be tested and evaluated in subsequent phases. Phase II and Phase III focuses on designing and evaluating the intervention.

People involved: Dr. Bezawit Bahru

Funding: Baden-Württemberg Stiftung, Center for Effective Global Action, University of Hohenheim

Duration: 2023-2026

Location: Ethiopia

Picture credit: 490a

Strengthening Evidence-Based Policy and Practice for Sustainable Food Systems under the EU-AU Partnership (StEPPFoS) (490b)

Short description: The project "Strengthening Evidence-Based Policy Practice for Sustainable Food Systems under the EU-AU Partnership" (StEPPFoS) supported by the African Union Commission and the European Commission aims to promote policy coherence and alignment across the Pan-African Network for economic Analysis of Policies (PANAP) and for Food and Nutrition Security and Sustainable Agriculture (FNSSA) to help minimise the fragmentation of agri-food policy initiatives at national and regional levels. The goal is to promote science-based decision-making processes and the exchange of experiences in support of agricultural, food and trade policies and the integrative sustainable transformation of agrifood systems in Africa.

The project is funded by the European Commission's Horizon Europe funding programme for the period 2024-2027 and is coordinated by the Forum for Agricultural Research in Africa (FARA).

The International Agricultural Trade and Food Security group (490b) of the University of Hohenheim participates in the StEPPFoS project together with seventeen other research institutes and organisations in Europe and Africa. The group leads/co-leads three work packages and several activities such as assessing barriers and facilitators of policy-research interaction, providing capacity building in computable general equilibrium modelling and analysis, supporting policy impact assessments and developing scenarios for agrifood system transformation in Africa.

https://steppfos.faraafrica.org/

People involved: Dr. Kirsten Boysen-Urban, Dr. Dorothee Flaig, Dr. Christine Bosch, M.Sc. Emmanuel Namwanja

Partner: Coordinator: Forum for Agricultural Research in Africa (FARA), CSIR, CORAF, EDCPM, FANRPAN, RUFORUM, Agrinatura, KIPPRA, Wageningen University and Research, AFAAS, EAFF, Universita Ca' Foscari in Venice, Université Félix Houphouët-Boigny, LifeWatch ERIC, EAFF, ASARECA, ACU, EC JRC

Funding: European Commission, Horizon Europe

Duration: 2024-2027

Location: Africa

StEPPFoS inception meeting, February 2024, Picture credit: FARA

Institutional innovations for livestock development and food security in Africa: Case studies from successful projects in Uganda (IILDA) (490c)

Picture credit: Viviane Yameogo

Short description: IILDA aims to contribute to food and nutrition security in Africa by leveraging the opportunities created by the ongoing livestock revolution on the continent. The project is built on the premise that sustainable livestock sector development requires targeted investments that enhance livestock productivity, raise household incomes, and improve food and nutrition outcomes. In collaboration with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) in Uganda, the department conducts research to identify the governance and institutional conditions that enable successful livestock interventions. These include the provision of artificial insemination services, the construction and management of livestock markets, the development of livestock water infrastructure, and investments in forage and feed systems. Using a systems perspective, IILDA seeks to inform development partners and government agencies about the institutional arrangements, incentives, and coordination mechanisms that underpin the effective design, implementation, and scaling of livestock investments. In 2025, the project's research on artificial insemination of cattle has examined its potential to boost livestock productivity and explored the socioeconomic and institutional conditions required for its upscale. In 2026, IILDA will deepen its analysis by focusing on the governance of livestock water infrastructure, forage development initiatives, and livestock markets in Uganda. This work aims to uncover the institutional dynamics, power relations, and collective action challenges that shape the performance, effectiveness, and sustainability of these investments. By promoting the integration of these insights into future development projects, the project seeks to contribute to a more productive and resilient livestock sector in Africa, which contributes to food security, poverty reduction and environmental sustainability.

People involved: Prof. Dr. Regina Birner, Dr. Guesbeogo Viviane Yameogo

Partners: Dr. Patience Rwamigisa, Ministry of Agriculture, Animal Industries and Fisheries (MAAIF), Uganda Kenya

Funding: Fiat Panis Foundation

Amount: 50,000 Euro

Duration: 2024-2025

Location: Uganda

Clifood Phase 2: German-Ethiopian SDG Graduate School “Climate Change Effects on Food Security (CLIFOOD)" – Subproject: Climate change and intergenerational persistence of poverty and malnutrition (490d)

Picture credit: Dr. Christian Troost

Short description: Smallholder farmers in Ethiopia’s Central Rift Valley are increasingly exposed to climate variability and unpredictable rainfall, threatening their agricultural productivity and livelihoods. This project investigated the value, adoption, and policy implications of seasonal rainfall forecasts for smallholder decision-making. The research applied an interdisciplinary approach, combining agent-based modeling, dynamic risk assessment, crop simulation, and field experiments with farmers to evaluate how stochastic forecast information can inform adaptive farm management.

The study assessed various adaptation strategies enabled by seasonal forecasts, such as cultivar selection aligned with anticipated precipitation, optimized planting dates, forecast-guided fertilizer application, and flexible in-season adjustments like crop switching or tied ridging. Results indicate that tailoring cultivar choices to seasonal forecasts can strengthen farmers’ adaptive capacity, although financial benefits under current forecast accuracy remain modest. Realizing the full potential of these strategies depends on improved forecast skill, timely access to suitable seeds, and efficient distribution systems.

Whole-farm simulations across diverse weather scenarios showed that the timing and flexibility of management decisions—particularly in-season adjustments—are critical for increasing farm income and resilience. However, the magnitude of these benefits varies by season and locality, highlighting the need for well-targeted advisory services and supportive policies.

Framed field experiments with smallholder farmers revealed that neither better forecast accuracy nor information dissemination alone are sufficient to drive significant behavioral change. Effective uptake occurs when forecasts are communicated repeatedly, clearly, and in formats that fit local contexts, ideally through trusted advisory channels and digital tools. Farmer education, prior experience with forecasts, and regular extension service engagement play important roles in successful adoption of stochastic weather forecasts.

In conclusion, the study underscores that maximizing the benefits of seasonal rainfall forecasts requires an integrated approach. Advancements in forecasting technology must be combined with accessible inputs, targeted training, and enabling policy environments. Comprehensive adaptation packages that link forecast information to timely seed access, credit, and extension support emerge as the most effective way to promote resilience and inclusive adaptation among smallholder farmers facing climate uncertainty.

People involved: Prof. Dr. Thomas Berger, Dr. Christian Troost, Samuel Elias Kayamo

Partner: Hawassa University (Ethiopia)

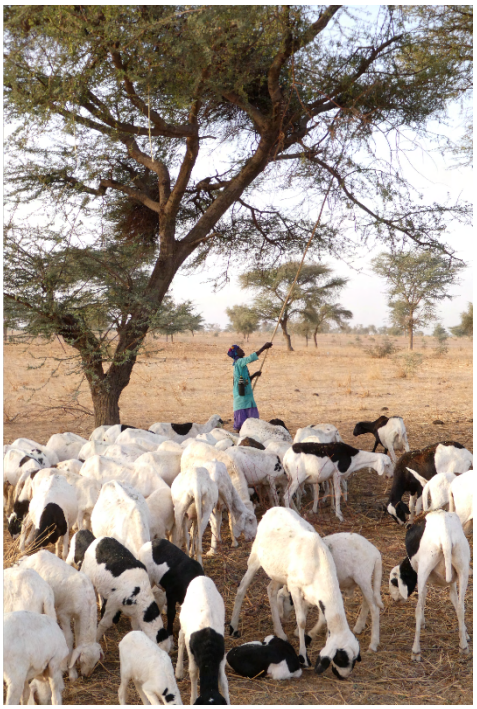
Funding: DAAD/BMZ

Duration: 01.01.2021 - 31.12.2025

Location: Ethiopia (Africa)

SustainSAHEL: Synergetic use and protection of natural resources for rural livelihoods through systematic integration of crops, shrubs and livestock in the Sahel (490e)

Short description: SustainSAHEL's overall goal is to promote practices that enhance soil quality and yields, build resilience to climate change, and contribute to food security and better livelihoods in the West African Sahel (Burkina Faso, Mali and Senegal). The project's approach is embedded within the themes of agroecology, organic agriculture, and elements of conservation agriculture. The Department of Plant Production in the Tropics and Subtropics (490e) at the University of Hohenheim is participating in the SustainSAHEL collaborative project through work package 7 (WP7), which focuses on geo-statistical and scenario modelling of crop, shrub, and livestock (CSL) systems. WP7 will be the nexus for all spatially resolved data included in the landscape-scale analysis. WP7 will connect socio-ecological knowledge from WP2 with state-of-the-art remote sensing data and climate change observations and projections. Based on this information and measured data on soils, crops and livestock, representative scenarios of integrated CSL systems will be modelled for contrasting agroecological zones using our own developed land use change impact assessment (LUCIA, https://lucia.uni-hohenheim.de) model. Impact on system productivity, ecosystem functions and services, scaling potential and system resilience will be assessed. Scenarios will be developed, and model outputs validated by stakeholders in an iterative multi-step procedure with WP2 through Inovation Platforms. Stakeholder scenarios will be modelled at the respective sites for long-term assessment regarding climate change resilience, productivity and environmental impacts. Further, scenarios will be applied across sites to test scaling potentials.



Picture credit: 490e

People involved: Prof. Dr. Georg Cadisch, Dr. Carsten Marohn and Dr. Eric Koomson

Partner: FIBLE (Switzerland), Univ. Kassel (Germany), IRD (France), CIRAD (France), ISRA (Senegal), INERA (Burkina Faso), Univ. Nazi Boni (Burkina Faso), IPR (Mali), Access Agriculture (Belgium), AFAAS (Burkina Faso), AOPP (Mali), CSE (Senegal), IER (Mali), IITA (Kenya), CPF (Burkina Faso) and CNCR (Senegal).

Funding: EU 2020, H2020-SFS-2018-2020

Duration: 01.09.2020 – 30.08.2025

Location: Burkina Faso, Mali and Senegal

BRIGHT-Futures: Bright spots in agriculture – learning from today's role models for a sustainable future (490f)

Short description: Climate change and the ongoing destruction of the environment are two of the biggest global challenges and time is running out for countermeasures. Agriculture has a key role to play in the necessary transformation towards greater sustainability, as more than 50% of the global land surface is used for agriculture. This makes agriculture a major driver of global greenhouse gas emissions, habitat loss and species extinction, while at the same time being massively affected by the consequences - such as increasing droughts, pest infestation and unequal distribution of food. Agriculture itself must therefore be part of the solution - but what does this solution look like?

Picture credit: 490f

In the BRIGHT-Futures project, we conduct targeted research into the principles of sustainable and successful agriculture. To this end, we identify successful examples of sustainably functioning agricultural systems and learn from these 'lighthouses' - the bright spots. After all, there are already numerous examples of such bright spots of economically profitable agriculture that is also climate-friendly and promotes biodiversity. What has not yet been achieved, however, is to derive general principles from these examples of success that allow the findings to be generalised and transferred to other cases. However, this is necessary to identify the most effective leverage points for a large-scale transformation of agricultural systems.

People involved: Prof. Dr. Ingo Grass, JProf. Dr. Verena Seufert, Prof. Dr. Andreas Schweiger

Partner: Kerala Agricultural University, India; ITCER Kenya

Funding: Anton & Petra Ehrmann Stiftung

Duration: 2025 – 2031

Location: India, Kenya, Germany, Mexico

EXALT—Coupling Thermal Desalination and Extraction of Dewatered Salt with Hydroponic Greenhouse (490g)

Short description: Freshwater is a severely limited resource, especially in the Near and Middle East, and therefore there are increasing attempts to incorporate saline or brackish water into crop production processes. Under intense solar radiation, ventilation to cool greenhouses also allows moisture in the air to escape, resulting in significant water loss. In a closed system, this loss can be avoided via active cooling and condensation to recover the water, while the heat extracted from the greenhouse can be further used as process heat. By coupling desalination and greenhouse air conditioning via heat pumps, the partners in the EXALT collaborative project are developing an energy-efficient process to reduce both the water requirements for plant production in the greenhouse and the energy requirements for desalination. With the objective of removing dehydrated salt, a problem of conventional desalination processes is also addressed. The EXALT project is jointly supported by the German Federal Ministry of Education and Research (BMBF) and the Israeli Ministry of Science and Technology (MOST) within the Middle East Regional Water Research Cooperation Program (MEWAC). 2022-2025

Test setup to investigate the optimum growth conditions depending on nutrient solution salt concentration levels at the Hohenheim University Phytotechnical Center

People involved: Prof. Dr. Folkard Asch, Dr. Jörn Germer, Julia Asch, Hemanth Kumar Puppala

Partner: University of Hohenheim, Fraunhofer-Institute for Solar Energy Systems ISE, EcoPeace Middle East – Jordan, The Hebrew University of Jerusalem

Funding: German Federal Ministry of Education and Research (BMBF), Israeli Ministry of Science and Technology (MOST), Middle East Regional Water Research Cooperation Program (MEWAC)

Duration: 01.01.2022 - 31.12.2025

Location: Near and Middle East

Öko2Huhn: Dual-purpose chicken in organic farming – Breeding and determination of potentially suitable origins and implementation in practice (490h)

Short description: In cooperation with the project partners, we are investigating the potential of dual-purpose chicken in organic agriculture. In general, dual-purpose livestock breeds are known for appropriate yields of two products, e.g., milk and meat in ruminants, or eggs and meat in poultry.

Using qualitative and quantitative methods, we will assess:

- The potential of advancing dual-purpose breeds in organic production systems;
- The cost-effectiveness of dual-purpose chicken by comparing origins of crossbreeds and purebreeds;
- The establishment of a breeding population of a local chicken breed using the Sundheimer chicken as a case study.

The case study of the Sundheimer chicken is led by the department's doctoral student, David Kohnke. The Sundheimer chicken originates from Sundheim in Baden-Wuerttemberg and is known for fast growth to medium weight, good egg production and a calm temperament. They have long been considered endangered but recently, they were moved to the watch list of the *Red list of native livestock breeds in Germany* (BLE, 2025).

A male Sundheimer chicken in Baden Württemberg, Picture credit: Pantel.

While the project is located in Germany, the approach is applicable to temperate as well as tropical climate, especially in extensive low-input smallholder production systems that feed the majority of people in low- and middle-income countries. It contributes to the Sustainable Development Goals 2 (Zero hunger), 12 (Responsible consumption and production) and 15 (Life on Land).

People involved: David Kohnke, Dr. Kristina Rösel, Prof. Dr. Mizeck Chagunda

Partner: Weihenstephan-Triesdorf Unviersity of Applied Sciences (HSWT): Prof. Dr. Wilhelm Pflanz, Tobias Rentschler; Bioland Beratungs GmbH: Gwendolyn Manek, Elias Schmelzer; Hochschule für nachhaltige Entwicklung Eberswalde (HNEE): Prof. Dr. Eva Saliu, Annemarie Kaiser; Ökologische Tierzucht gGmbH: Inga Günther, Pauline Seyler

Funding: Bundesprogramm Ökologischer Landbau, Bundesministerium für Landwirtschaft, Ernährung und Heimat

Duration: 2020-2026

Location: Baden-Württemberg, Germany

Biostar - Sustainable bioenergies for food processing SMEs in rural areas of West Africa (440e)

Short description: The overall aim is to contribute to energy and food security through the development of a bioenergy sector that responds to the needs of food processing SMEs. Specifically, BioStar aims to promote the sustainable development of food processing SMEs in rural areas through innovation in sustainable bioenergy production and optimization of food processing. BioStar also aims to contribute to the emergence of a bioenergy supported industry by stimulating its organization and advisory framework.

Specifically, BioStar focuses on supporting technical and organizational innovations and multidisciplinary knowledge management through the following:

Testing innovative pilot systems in the area of food processing companies to improve energy efficiency,

Promoting innovation platforms for the use of renewable energy sources in food processing SMEs

Organizing a bioenergy sector through capacity building of energy experts and equipment suppliers to ensure audit, installation and maintenance service.

Crushing of biomass to determine energy content,

Picture credit: 440e

People involved: Prof. Dr. Joachim Müller, Dr. Klaus Meissner, Dr. Sebastian Romuli, Janvier Ntwali

Partner: Institut für Agrartechnik, FG Tropen und Subtropen (440e), Landesanstalt für Agrartechnik und Bioenergie (740), CIRAD (French Agricultural Research Centre for International Development), 12 weitere Partner in Europa and, West Afrika

Funding: EU Commission (FOOD 2018 / 041-107)

Duration: Oktober 2019 – Februar 2025

Location: Senegal, Burkina Faso (Afrika)

Projects

Hub-Management (490)

Agri-Alumni-Net

Keywords: Agro-ecological challenges, food security, climate change, environmental protection
Funding, Duration: DAAD (BMZ); Phase 1: 2022 - 2023 in cooperation with University of Nairobi, Kenya & Phase 2: 2024 - 2025 in cooperation with Hawassa University, Ethiopia.
Location, Partners: Kenya, Ethiopia, Germany; University of Nairobi, Hawassa University

UKUDLA African German Centre for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science

Keywords: Food Systems, Data Science, Sustainable and Inclusive Development, Resilience and Food Security, Interdisciplinary Capacity Building
Funding, Duration: DAAD with funds from: Federal Foreign Office (AA), Federal Ministry of Research, Technology and Space (BMFTR), Federal Ministry of Agriculture, Food and Regional Identity (BMLEH). South African side: Department of Science, Technology and Innovation (DSTI), National Research Foundation (NRF), 2025 - 2029
Location, Partners: University of Hohenheim (UHOH) [Germany], University of the Western Cape (UWC) [South Africa] , University of Pretoria (UP) [South Africa], University of Mpumalanga (UMP) [South Africa], Lilongwe University of Agriculture and Natural Resources (LUANAR) [Malawi]

Rural Development Theory and Policy (490a)

Minding Women's time: Does time-saving and behavioral interventions change the margins?

Keywords: Women's economic empowerment, Time-saving technology, Housework
Funding, Duration: BW-Stiftung, 01.04.2023 - 31.03.2026
Location, Partners: Ethiopia

International Agricultural Trade and Food Security (490b)

Sino-German International Research Training Group - Adaptation of maize-based food-feed-energy systems to limited phosphate resources (AMAIZE-P) – Research Subject 4.3 - Economic assessment of future phosphorus availability: Impacts on agricultural and food markets at farm, national and global levels

Keywords: Phosphorus availability, CGE modelling, international trade, food security
Funding, Duration: Deutsche Forschungsgemeinschaft (DFG) – 328017493/GRK 2366 (01.10.2024-30.09.2027)
Location, Partners: China, Germany, World, Coordinator/Speaker: Prof. Dr. Torsten Müller (340i) University of Hohenheim, several departments of the University of Hohenheim, and China Agricultural University

Strengthening Evidence-Based Policy Practice for Sustainable Food Systems under the EU-AU Partnership (StEPPFoS)

Keywords: AU-EU Partnership, PANAP, Policy Impact Analysis, Sustainable Food System
Funding, Duration: European Commission, HORIZON; 01.01.2024 - 31.12.2027
Location, Partners: Africa; Coordinator: Forum for Agricultural Research in Africa (FARA), CSIR, CORAF, EDCPM, FANRPAN, RUFORUM, Agrinatura, KIPPRA, Wageningen University and Research, AFAAS, EAFF, Universita Ca' Foscari in Venice, Université Félix Houphouët-Boigny, LifeWatch ERIC, EAFF, ASARECA, ACU, EC JRC

Assessment of the impacts of the implementation of response measures for Ghana

Keywords: Climate Mitigation Policies, Cross-Border Effects, Policy Impact Analysis, Nationally Determined Contributions
Funding, Duration: UNFCCC; 01.09.2025 - 31.03.2026
Location, Partners: Ghana; Ghana Environmental Protection Agency, UNFCCC mitigation division, University of Seville, Impactecon, KNUST University.

Social and Institutional Change in Agricultural Development (490c)

Fostering innovations to reduce livestock's long shadow in Africa

Keywords: Innovations, livestock development, cattle breeding, chicken farming systems, Kenya
Funding, Duration: BW-i: Eliteprogramm für Postdoktorandinnen und Postdoktoranden, Baden-Württemberg-Stiftung, 01.05.2022 - 01.05.2025
Location, Partners: Kenya, Prof. Dr. John Mburu, University of Nairobi, Ass. Prof. Dr. Thomas Daum, University of Gothenburg, Louis Schwarze

Institutional innovations for livestock development and food security in Africa: Case studies from successful projects in Uganda (IILDA)

Keywords: Livestock development, innovation, governance challenges, food security
Funding, Duration: Fiat Panis Foundation, 2025-2026
Location, Partners: Uganda, Dr. Patience Rwamigisa, Ministry of Agriculture, Animal Industries and Fisheries (MAAIF)

International PhD Program "Agricultural Economics, Bioeconomy and Sustainable Food Systems" (IPPAE)

Keywords: Agricultural economics, bioeconomy, sustainable food systems
Funding, Duration: German Academic Exchange Services (DAAD), 2023-2030
Location, Partners: Benin, Bolivia; Burkina Faso, Brazil, Colombia, Ethiopia, Ghana, Kenya, India, Tanzania, Uganda; Ahmadu Bello University, Zaria; Indian Institute of Management, Udaipur; Makarere University; Sokoine University of Agriculture; University of Ghana, Legon University of Nairobi.

Land Use Economics (490d)

Biodiversity in agriculture: Data and models to support pesticide reduction

Keywords: Biodiversity, pesticide reduction, agricultural productivity
Funding, Duration: MLR - Ministerium für Ernährung, Ländlichen Raum und Verbraucherschutz Baden-Württemberg Sonderprogramm zur Stärkung der biologischen Vielfalt, Bereich „Biodiversität in der Landwirtschaft“, 01.12.2022 - 30.06.2025
Location, Partners: Germany, LTZ Augustenberg

Clifood Phase 2: German-Ethiopian SDG Graduate School “Climate Change Effects on Food Security (CLIFOOD)" – Subproject: Climate change and intergenerational persistence of poverty and malnutrition

Keywords: Adaptation, climate change, social networks
Funding, Duration: DAAD, BMZ, 01/2021-12/2025
Location, Partners: Ethiopia (Africa), Hawassa University

Plant Production in the Tropics and Subtropics (490e)

GAIA – Guiding acid soil management investments in Africa (www.acidsoils.africa)

Keywords:	food security, agricultural lime, soil acidity
Funding, Duration:	Bill and Melinda Gates Foundation, 2020-2025
Location, Partners:	Eastern Africa, International Maize and Wheat Improvement Center (CIMMYT), Ethiopian Institute of Agricultural Research (EIAR), Tanzania Agriculture Research Institute (TARI), Rwanda Agriculture Board (RAB), Zambia Agriculture Research Institute (ZARI)

AcroAlliance - A Brazilian-German Vision to Foster the Sustainable Use of Local Biodiversity in the Bioeconomy

Keywords:	Macaúba palm, *Acrocomia aculeata*, biorefinery, oils, proteins and fibres, modelling
Funding, Duration:	BMLE via FNR and FINEP (Brazil), 2021 - 2025
Location, Partners:	Brasilien, Federal Univ. Vicosa, Agronomic Institute of Campinas, Frauenhofer Institute

Leg4Dev - Legume-based agroecological intensification of maize and cassava cropping systems in Sub-Saharan Africa for water-food-energy nexus sustainability, nutritional security & livelihood resilience

Keywords:	Intercropping, Agroforestry, Climate Change, Model comparison
Funding, Duration:	EU-DESIRA, 2021-2025
Location, Partners:	Ethiopia, Malawi, Tansania, Univ. Galway, Univ. Wageningen, Swedish Univ. Agric., IITA, CYMMIT, ILRI

NAPERDIV - Nature-based perennial grain cropping as a model to safeguard functional biodiversity towards future-proof agriculture

Keywords:	Kernza®, *Thinopyrum intermedium L.* , intermediate Wheatgrass, microbiome, soil fauna
Funding, Duration:	DFG, H2020 ERA-Net cofund scheme "BiodivERsA3", 2021 - 2025
Location, Partners:	France, Belgium, Sweden, Gembloux AgroBio-Tech, University of Graz, University of Liège, University of Trier, Nicolaus Copernicus University of Torun, Swedish University of Agricultural sciences

SustainSAHEL: Synergetic use and protection of natural resources for rural livelihoods through systematic integration of crops, shrubs and livestock in the Sahel

Keywords:	Agroecological Systems, Climate Resilience, Geo-statistical Modelling
Funding, Duration:	EU 2020, H2020-SFS-2018-2020, 01.09.2020 – 30.08.2025
Location, Partners:	Burkina Faso, Mali and Senegal, FIBLE (Switzerland), Univ. Kassel (Germany), IRD (France), CIRAD (France), ISRA (Senegal), INERA (Burkina Faso), Univ. Nazi Boni (Burkina Faso), IPR (Mali), Access Agriculture (Belgium), AFAAS (Burkina Faso), AOPP (Mali), CSE (Senegal), IER (Mali), IITA (Kenya), CPF (Burkina Faso) and CNCR (Senegal)

Ecology of Tropical Agricultural Systems (490f)

BRIGHT-Futures: Bright spots in agriculture - learning from today's role models for a sustainable future

Keywords:	Sustainability, agricultural transformation, trandisciplinarity
Funding, Duration:	Anton & Petra Ehrmann Foundation, 2024 - 2027
Location, Partners:	Kenya, Mexico, India, Germany

NOcsPS 2.0: A more Sustainable Agriculture 4.0 without chemical-synthetic Plant Protection

Keywords: Biodiversity, cropping system, mineral fertilisers
Funding, Duration: Ministry of Research,Technology and Space Germany, 2025 - 2028
Location, Partners: Germany

Fitness consequences of trait-mediated interactions between the invasive plant *Impatiens glandulifera*, native plants and their pollinators (P2 zu PP FLINT)

Keywords: Eco-evolutionary biodiversity dynamics, plant-pollinator interactions, invasive species, biodiversity
Funding, Duration: DFG, 2024 - 2027
Location, Partners: Germany

HABIT - Cooperative doctoral college: Leverage points for a Transformation of Agricultural Landscapes - from Biodiversity Loss to Biodiversity Enhancement

Keywords: Landscape design, agricultural transformation, biodiversity conservation
Funding, Duration: Ministry of Science, Research and Arts Baden-Württemberg, 2022-2027
Location, Partners: Germany, Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen (HfWU)

Spatial scaling of biodiversity and ecosystem functions in rainforest transformation landscapes

Keywords: Smallhoder agriculture, ecological-economic trade-offs and synergies, landscape effects, scaling
Funding, Duration: DFG, 2024 - 2027
Location, Partners: Indonesia, University of Göttingen

Management of Crop Water Stress in the Tropics and Subtropics (490g)

EXALT - Coupling thermal desalination and dewatered salt discharge with hydroponic crop production using heat pumps

Keywords: Genotypic responses of horticultural crops to variable root zone salinity, illumination, and atmospheric vapor deficit in hydroponical systems. Modelling of water, energy, and electric flux dynamics in controlled environment farming.
Funding, Duration: BMBF and MOST, 07.2021 - 06. 2025
Location, Partners: Germany, Jordan, and Israel. University of Hohenheim, Frauenhofer ISE, EcoPeace Jordan, Hebrew University of Jerusalem.

HypoWave+ - Implementation of a hydroponic system for sustainable water re-use in agriculture

Keywords: Tomato production with marginal waters (pretreated municipal water water), monitoring of nitrogen loads to ensure enironmentally safe nutrient levels through depletion via plant uptake
Funding, Duration: BMBF, 02. 2021 – 04. 2025
Location, Partners: Hohenheim und Weißenberge, Universität Hohenheim, TU Braunschweig, Frauenhofer IGB, Huber, ISE Bauern, ISOE, INTEGAR, Ankermann GmbH & CoKG, XYLEM.

INNUWA - Intelligent nutrient management for irrigation with marginal waters

Keywords: Real time electrophoretic monitoring of nutrient concentrations to manage nutrient dynamics in annual and perennial plants hydroponically grown with marginal waters.
Funding, Duration: BMBF, 12. 2024 - 11. 2027
Location, Partners: Hohenheim, Tel Aviv. Universität Hohenheim, STEP Systems GmbH, Agricultural Research Organisation, Israel

PureCircles - PRIMA Project: Maximizing Resource Use Efficiency in the Water-Nutrient-Energy Nexus for Sustainable Agriculture in Marginal Lands

Keywords:	Closing water -, energy-, and nutrient cycles by AI-assisted integration of high-end solar technology, hydroponic systems, climate resilient crops, and smart agrotechnical management strategies
Funding, Duration:	Germany (Federal Ministry of Education and Research - BMBF), Portugal (Fundação para a Ciência e a Tecnologia (FCT)), France (The French National Research Agency (ANR)), Italy (MUR – Ministry of Universities and Research) , Egypt (Science, Technology & Innovation Funding Authority (STDF)), Tunisia (Ministry of Higher Education and Scientific Research) and Morocco (Ministry of Higher Education, Scientific Research and Innovation – Morocco (MHESRI- Ma)) in the framework of the Partnership for Research and Innovation in the Mediterranean Area (PRIMA). The PRIMA program is supported by the European Union's Framework for Research and Innovation under Horizon 2020. Duration of the project: June 2023 - November 2026
Location, Partners:	12 partner institutions from five European and three Maghreb countries build a strong R&I partnership to implement a systemic approach for sustainable agricultural practices that prevent and reduce land/ water salinization and pollution

The role of micro-organisms in mitigating iron toxicity in rice (*Oryza sativa*)

Keywords:	Rice genotypes, Iron toxicity endophytic bacteria and fungi, mode of action
Funding, Duration:	DFG, Aufbau internationaler Kooperationen, 28.08.2023 - 31.12.2025 Ministry of Arts and Science, BW, Afrikaintiative Tübingen-Hohenheim
Location, Partners:	Madagascar - LRI, Uni Hohenheim, Uni Tübingen

Water - People - Agriculture (Anton & Petra Ehrmann-Stiftung Research Training Group), Integrative solutions to water issues and conflicts

Keywords:	Scholarships fo PhD research projects, study program “water for life”, seminars & excursions, world water day symposium. Topics: Water as resource, water and climate, water productivity, water and health, water as societal challenge.
Funding, Duration:	Anton & Petra Ehrmann-Stiftung, 01.09.2013 - 31.12.2025
Location, Partners:	Projects in Europe, Africa, South America, and Asia, various partners

Animal Breeding and Husbandry in the Tropics and Subtropics (490h)

ASSET - Agroecology and Safe food System Transitions in South-East Asia

Keywords:	Nutrition, Health, Agroecology, Food safety
Funding, Duration:	EU and AFD (Agence Francaise de Developpment), 2020-2025
Location, Partners:	Vietnam & Cambodia & Laos (South East Asia), AGENCE FRANCAISE DE DEVELOPPEMENT, Asia-Pacific Association of Agricultural Research Institutions (APAARI), Centre de coopération internationale en recherche agronomique pour le développement (CIRAD), and more …

Öko2Huhn - Dual-purpose chickens in organic farming: Breeding and determination of potentially suitable origins and implementation in practice

Keywords:	dual-purpose chicken; regional-, organic-, practical chicken breeding; biodiversity; small breeds
Funding, Duration:	BMEL (BLE: BÖLN), 18.02.2020 - 31.12.2026
Location, Partners:	Baden-Württemberg (Germany), Bioland Beratung GmbH, Hochschule für nachhaltige Entwicklung Eberswalde, Ökologische Tierzucht gGmbH, Hochschule Weihenstephan-Triesdorf

Linking human wellbeing and ethics of sustainability to resilient livestock management systems in Africa: Developing a framework for management of 'neglected livestock'

Keywords:	Food security, landless production systems, livelihoods, non-conventional livestock species, neglected livestock species, One Health, urbanization
Funding, Duration:	Hohenheim Research Network in Africa, Ministerium für Wissenschaft, Forschung und Kunst Baden-Württemberg 01.01.2022-31.12.2025
Location, Partners:	University of Tübingen (Germany), University of Dschang (Cameroon), Centre for Tropical Livestock Genetics and Health (UK), Federal University of Agriculture Abeokuta (Nigeria)

Agricultural Engineering in the Tropics and Subtropics (440e)

Biostar - Sustainable bioenergies for food processing SMEs in rural areas of West Africa

Keywords:	Bioenergy Innovation, Food Processing, Rural Development
Funding, Duration:	EU Commission (FOOD 2018 / 041-107), Oktober 2019 – Februar 2025
Location, Partners:	Senegal, Burkina Faso (Afrika), Landesanstalt für Agrartechnik und Bioenergie (740), CIRAD (French Agricultural Research Centre for International Development), 12 weitere Partner in Europa and, West Afrika

Strengthening farmer cooperatives in Rwanda through participatory development of PV-powered postharvest processing of maize

Keywords:	Nacherntetechnologie, erneuerbare Energie
Funding, Duration:	Stiftung Lengerich, 2024-2025
Location, Partners:	Rwanda (Africa)

3.2. Ongoing Dissertation Projects

Rural Development Theory and Policy (490a)

Name: **Jacob Asravor**
Topic: Integrated soil fertility management, farm performance and household welfare: Evidence from mmallholder farmers in Ghana and Mozambique
Keywords: Agronomic practices, improved seeds, integrated soil fertility management, productivity, technical efficiency, Mozambique, Ghana

Name: **Duong Thanh**
Topic: Poverty analysis and assessment among ethnic minorities in rural Vietnam
Keywords: Poverty targeting, poverty scorecard, poverty assessment tool

Name: **Emmanuel Leetaa**
Topic: Gender equality attitudes and women's economic empowerment: Evidence from Uganda
Keywords: Gender attitudes, time use, Uganda

International Agricultural Trade and Food Security (490b)

Name: **Simon Ehjeij**
Topic: Assessing irrigation expansion in Ethiopia: A nationwide analysis
Keywords: Ethiopia, irrigation, food security, computable general equilibrium modeling

Name: **Mamadou Jallow**
Topic: Assessing the implications of future P availability for global agri-food markets using a computable general equilibrium approach
Keywords: Phosphorus availability, international trade, food security, computable general equilibrium modeling

Name: **Emmanuel Namwanja**
Topic: Policies for the sustainability tranformation of food systems in Africa – exploring participatory and co-creative apporaches to improve uptake of scientific evidence in policy-making
Keywords: research-policy interaction, participatory methods, food system sustainability

Social and Institutional Change in Agricultural Development (490c)

Name: **Nasir Abda Aman**
Topic: Potential of agroecology for cluster wheat farms in Ethiopia
Keywords: Wheat farming; cluster farms; agroecology; Ethiopia

Name: **Usman Angara**
Topic: The impact of agricultural mechanization services on sustainable pesticide use: A case study of smallholder potato farmers in Tanzania
Keywords: Potato farming; crop protection; integrated pest management; mechanization service providers; sustainability; Tanzania

Name: **Prapti Barooah**
Topic: Innovative extension approaches for climate-smart agriculture
Keywords: Direct seeded rice; video-extension; gender; labour; India

Name: **Nikola Blaschke**
Topic: Governance, food sovereignty and food security
Keywords: Food security during the COVID-19 crisis; food sovereignty; discourse analysis; La Via Campesina; World Farmers Organization

Name: **Erich Friol Gimenes**
Topic: Sustainable land management practices in Brazil
Keywords: Agroecology; collective action; forest conservation policies; non-timber forest products; Brazil

Name: **Bisrat Getnet Awoke**
Topic: Performance evaluation of tractors and planters for small-scale conservation tillage and crop protection systems in Eastern Africa
Keywords: Conservation farming; agronomic experiments; economic analysis; Ethiopia; Kenya

Name: **Denise Güttler**
Topic: The role of livestock farmers and animal health workers in managing zoonotic diseases in Africa
Keywords: Zoonotic diseases; ethno-veterinary practices; livestock disease management; Kenya

Name: **Linda Isuyi**
Topic: Digital technologies and services in African agriculture focusing on livestock value chains in Nigeria
Keywords: Digital tools; livestock value chains; digital finance; content analysis of social media; Nigeria

Name: **Roseline Katusiime**
Topic: Dietary patterns and micronutrient deficiencies in Western Uganda
Keywords: Micro-nutrient deficiency; Calculator for inadequate micronutrient intake (CIMI); dietary patterns; economic analysis; Uganda

Name: **Sakiratou Karimou**
Topic: Innovations for sustainable farming in Benin
Keywords: Sustainable farming practices; innovations; Benin

Name: **Kartik Khera**
Topic: Governance challenges of innovations in the horticultural sector in India
Keywords: Cooling; apples; cooperatives; Himanchal Pradesh; India

Name: **Vida Mantey**
Topic: Opportunities and challenges of smallholder agricultural carbon projects in Kenya
Keywords: Agricultural carbon projects; governance challenges; institutional analysis; efficiency analysis; Kenya Agricultural Carbon Project (KACP), Livelihoods Mt Elgon project, Kenya

Name: **Josephine Montford**
Topic: Land tenure, cocoa farming and gold mining in Ghana
Keywords: Small-scale gold mining; land tenure; land acquisition; bargaining theory; fairness of land deals; traditional authorities; sustainability; Ghana

Name: **Melissa Cristina Morcote Martínez**
Topic: Resilience pathways for cocoa farmers in Alto Beni, Bolivia
Keywords: Cooperatives; climate changes; water; integrated protected areas; Bolivia

Name: **Evelyne Wairimu Njuguna**
Topic: Exploring the potential of digital tools as a catalyst to agricultural transformation in Kenya
Keywords: Digital tools for smallholder farmers; review; AgroCares soil scanner; soil fertility management; governance challenges; Kenya

Name: **Esther Ogbole**
Topic: An Institutional Analysis of Rangeland Carbon Projects in Kenya and South Africa
Keywords: Rangeland carbon projects; governance challenges; collective action; Northern Kenya Rangelands Carbon Project; Kenya

Name: **Mellyne Atieno Ongango**
Topic: Fostering policy reforms in the agriculture sector: A case study of AGRA
Keywords: Village-based advisors (VBAs); regenerative agriculture; environmental and sustainable management systems (ESMS); seed policy reform; AGRA; Ghana; Kenya

Name: **Rashid Parvez Khan**
Topic: Innovation in smallholder agriculture: Case studies from India and Uganda
Keywords: Review of extension services; climate-smart agriculture; extension and gender; start-ups; India; Uganda

Name: **Louis Schwarze**
Topic: Fostering innovations to reduce livestock's long shadow in Kenya
Keywords: Innovations, livestock development, cattle breeding, chicken farming systems, Kenya

Name: **Tatjana Rojas Rueda**
Topic: Non-timber forest bioeconomy governance on biodiversity-based value webs: a study case of *Bactris guineensis* in Colombia
Keywords: Bioeconomic; Non-timber forest products; biodiversity; value webs;

Name: **Anna Seidel**
Topic: Risk management in pastoral livestock systems in Kenya
Keywords: Risk management; pastoral livestock systems; camels; food security; Northern Kenya

Name: **Violet Nyabaro**
Topic: Potentials and challenges of carbon projects in Africa
Keywords: Agricultural carbon projects; rangeland carbon projects; offsetting/insetting

Name: **George Woode**
Topic: Governance challenges of nutrition programs in Ghana
Keywords: Micronutrient deficiences; nutrition programs; governance challenges; Process Net-Map; Ghana

Land Use Economics (490d)

Name: **Samuel Elias Kayamo**
Topic: Modeling the linkage between climate change, inter-generational persistence of poverty and malnutrition: The case of Sidama, Ethiopia
Keywords: Climate change adaption, poverty, food security

Name: **Abebe Teshome Gurmu**
Topic: Comparative Analysis of Productivity and Profitability of Cluster and Non-cluster Based Wheat Farming: Evidence from ex-ante analysis in Arsi zone of Oromia Regional State, Ethiopia
Keywords: Agricultural productivity, poverty, food security

Name: **Asmera Adicha Adala**
Topic: Irrigation-based improved forage technology diffusion and its effectiveness in enhancing agro-pastoral household income in Southern Ethiopia
Keywords: Agro-pastoral systems, poverty, food security

Plant Production in the Tropics and Subtropics (490e)

Name: **Adam M. Adam**
Topic: Potential of grain legume diversification options for African smallholder farms in a changing climate: Evidence from meta-analytic approaches and crop models
Keywords: Crop models, Grain legumes, African smallholder farms and climate change

Name: **Mekuria Wolde Assena**
Topic: Ecological interactions of cereals, Striga hermonthica and plant-associated microbial biocontrol agents
Keywords: Striga hermonthica, Fusarium oxysporum f.sp. strigae, bacterial lipopeptide, phenolic acids, integrated Striga management, biological control, mycoherbicide

Name: **Alena Förster**
Topic: Perennial grain cultivation as a nature-based solution for resilient agriculture suggested by soil bioindicator species analysis
Keywords: Perennial intermediate wheatgrass (Kernza), earthworms, nematodes, plant microbiome, soil biodiversity, resilient agriculture

Name: **Sulemana Issifu**
Topic: Assessing the microbial diversity and biological nitrification inhibition potential of Thinopyrum intermedium
Keywords: BNI, Kernza®, ammonia oxidizing bacteria and archaea, metabolome, nitrification

Name: **Catherine Meyer**
Topic: Influence of Climate on Variation of Inflorescence Traits in the Neotropical Oilseed Palm *Acrocomia aculeata*
Keywords: *Acrocomia* Mart., Oilseed palm, Flower Biometry, Phenological Pattern, Yield Formation, Ecotype Comparison, Ex-Situ Germplasm Collection, Brazil

Name: **Enoch Opoku**
Topic: Restoration of degraded Gold mined sites for Agricultural Production in Ghana
Keywords: Restoration, degraded mined sites, soil health and productivity, perennial legumes,revegetation, biological nitrogen fixation, soil organic amendments

Ecology of Tropical Agricultural Systems (490f)

Name: **Sabine Baumgartner**
Topic: Resilience of semi-arid rangelands towards high grazing and rainfall variability
Keywords: resilience, rangelands, Africa

Name: **David Becker**
Topic: Fitness effects of invasive plants on pollinators
Keywords: plant-pollinator interaction networks, functional diversity, fitness, Himalayan balsam (*Impatiens glandulifera*), invasive species

Name: **Klara Dietrich**
Topic: Agroecological management of olive orchards
Keywords: Agroecology, olives, med. agroecosystems, climate change, cultural landscapes

Name: **Marit Kasten**
Topic: Landscape design for biodiversity and multifunctionality
Keywords: Landscape design, biodiversity conservation, landscape composition and configuration

Name: **Hannah Melcher**
Topic: Biodiversity and Ecosystem services in tropical smallholder agriculture
Keywords: Sustainability, agricultural transformation, trandisciplinarity

Name: **Sara Tassoni**
Topic: Multitrophic interactions in a landscape context
Keywords: Multitrophic interactions, host-parasitoids interactions, bees, wasps, parasitoids, landscape heterogeneity

Name: **Aaron Willmott**
Topic: Integrating biodiversity and ecosystem services in tropical plantations
Keywords: Ivory Coast, plantations, agroforestry, birds

Management of Crop Water Stress in the Tropics and Subtropics (490g)

Name: **Geckem Dambo**
Topic: Remote sensing of photo protective pigments in climate change adapted wheat
Keywords: Wheat improvement, photo-protective pigments, adaptation, cross tolerance, heat, drought, radiation stress, genotypic variation

Name: **Theresa Detering**
Topic: Nutrient uptake, growth, transpiration of hydroponically grown tomato genotypes under variable environmental conditions.
Keywords: Genotypic responses, root zone temp., nutrient concentration, VPD effluents, waste water treatment plants, water purification, nutrient uptake, transpiration.

Name: **Benjamin Gutai**
Topic: Modelling grassland x grazing interactions with LUCIA
Keywords: Grazing, land-use-change, grassland x animal interactions, stocking density, carbon storage, integrated modelling, matter fluxes, herd size, LUCIA.

Name: **Gazi Nazmul Hasan**
Topic: Salt stress and potassium nutrition affecting hormesis dynamics in sweet potato
Keywords: Sweet potato, genotypes, root zone salinity, hydroponics, soil culture, biomass, plant growth, transpiration, genotypic responses, tolerance mechanisms, leaves, petioles.

Name: **Sebastian Heintze**
Topic: Salinity and ammonium effects on nutrient uptake dynamics in hydroponically grown Quinoa
Keywords: Quinoa, NH_4 toxicity, nutrient uptake, root zone salinity, hydroponics, waste water use, plant growth, transpiration, genotypic responses, VPD, light quality

Name: **H E M Khairul Mazed**
Topic: Optimizing crop transpiration for water re-use in hydroponic crop production in controlled environments
Keywords: Cucumber, Tomato, Quinoa, leaf area, nutrient distribution, VPD, light quality, N-nutrition, root zone salinity, hydroponics, water purification, water recovery, transpiration.

Name: **Hemanth Kumar Pupalla**
Topic: Salinity effects on nutrient uptake dynamics in hydroponically grown crops
Keywords: Cucumber, Tomato, Quinoa, nutrient uptake, root zone salinity, hydroponics, water purification, water recovery, plant growth, transpiration, genotypic responses, VPD

Name: **Johanna Volk**
Topic: Modelling of sweet potato responses to salinity
Keywords: Genotypic responses, soil salinity, field trials, Mozambique, greenhouse trials, mechnisms, hormesis, tolerance traits, modelling, breeding

Animal Breeding and Husbandry in the Tropics and Subtropics (490h)

Name: **Josephine Gresham**
Topic: Extended lactation as a strategy for developing optimal fertility in organic dairy farming
Keywords: Extended Lactation, Organic Dairy Farming, Fertility in Dairy Cows, Dairy Calf management, Optimal Lactation Length in Dairy Cows, Sustainable Dairy Farming

Name: **David Kohnke**
Topic: Breeding und potential evaluation of suitable origins of dual purpose chickens in organic farmingmi
Keywords: Chicken breeding, dual purpose breeds, native breeds, Sundheimer Huhn

Name: **Maria Oguche**
Topic: Implications and trade-offs of livestock intensification in Sub-Saharan Africa – Case of Nigeria
Keywords: Neglected livestock species, Food security, Nigeria, Sustainable livestock production, Rural households

Name: **Kwamboka Tirimba**
Topic: Interactions between environmental footprint and socio-economic factors and their impact on dairy productivity in India and Malawi
Keywords: Methane, dairy nutrition, indigenous breeds, sustainable dairy production, socio-economic factors, India, Malawi

Name: **Lea Schönfeldt**
Topic: Integration into the local beef value chain – A feasible approach for enhancing economic and ethical appreciation of surplus dairy cows?
Keywords: Baden-Wuerttemberg, surplus dairy calves, welfare, meat from dairy breeds, ethics, waste

Agricultural Engineering in the Tropics and Subtropics (440e)

Name: **Joevin Bonzi**
Topic: Development of efficient and viable small-scale solar powered plant oil production in West Africa
Keywords: Mechanical oil extraction, photovoltaic system, simulation model, Reinforcement learning, energy efficiency

Name: **Sawittree Chai Areekitwat**
Topic: Optimization of harvest and post-harvest technologies for cassava leaves with respect to human nutrition
Keywords: Post-Harvest Processing, Cassava Leaf Optimization, Protein Extraction

Name: **Selamawit Debelle**
Topic: Development of food products based on cassava leaves
Keywords: Cassava Leaves, Food product development, Nutritional value, Cyanide content

Name: **Philipgi Kanatt**
Topic: Effect of post harvest operations on quality attributes of mace, shell and kernel of nutmeg (Myristica fragrans Houtt.),
Keywords: Nutmeg, Mace, Aflatoxin, Antioxidants, Drying temperature, Sorption isotherm

Name: **Boris Mandrapa**
Topic: Optical detection of spider mites in greenhouse cultivation
Keywords: spider mite, greenhouse, hyperspectral imaging, machine learning

Name: **Farah Mrabet**
Topic: Development of solar milk cooling systems for rural areas
Keywords: Milk, solar energy, technology, innovation, cooling

Name: **Janvier Ntwali**
Topic: Evaluation of mycotoxins and methods of reducing mycotoxins in staple crops grown in Rwanda
Keywords: Maize, Postharvest, Mycotoxin contamination, Aflatoxins, Water activity, ELISA test, Mycotoxins control, Rwanda

Name: **Leon Oehme**
Topic: High throughput phenotyping of maize based on computer vision
Keywords: HTP, AI, Computer Vision, UAV, Maize, 3D

Name: **Iris Ramaj**
Topic: Monitoring and optimization of aeration process in cereal storage bins based on theoretical modelling and practical approaches
Keywords: Postharvest technology, grain storage systems, low-temperature drying, aeration and cooling of grain bulks, sorption isotherms, bulk compressibility, self-compaction behaviour, mathematical modelling, discrete element modelling (DEM)

Name: **Alice-Jaqueline Reineke**
Topic: In situ detection of phosphorus status in soil by hyperspectral imaging
Keywords: HIS, spectroscopy, phosphate, soil nutrients

Name: **Steffen Schock**
Topic: Optimierung der Steuerung des Durchlüftungs- und Kühlungsprozesses von Schüttgütern, insbesondere Getreide
Keywords: C02, Sensor, Isotherme, Lagerung

Name: **Yang Zhang**
Topic: Nitrogen management on maize and cotton based on unmanned aerial vehicle
Keywords: UAV, cotton, nitrogen balance

4. Peer-reviewed Publications

Rural Development Theory and Policy (490a)

(1) **Duong, B. T.**, **Sariyev, O.**, & **Zeller, M.** (2025). Can weight of evidence method improve poverty targeting? *Social Indicators Research*, 1–29. https://doi.org/10.1007/s11205-025-03576-z

(2) **Asravor, J.**, Tsiboe, F., Adetoyinbo, A., & Ankamah, J. (2025). Charting the path to increased oil palm output in Ghana beyond area expansion: Technology or managerial capacity - which leads the way? *Agribusiness*, 1–16. https://doi.org/10.1002/agr.22054

(3) Owusu, V., & **Asravor, J.** (2025). Do regional-specific differences influence smallholder farmers' climate information use? Evidence from Ghana. *Climate Services*, 38, 1–13. https://doi.org/10.1016/j.cliser.2025.100580

(4) **Chan, N., Sariyev, O., & Zeller, M.** (2025). Gender gap in rice productivity: micro-evidence from Myanmar. *Development in Practice*, 1–20. https://doi.org/10.1080/09614524.2025.2466047

(5) **Chan, N., Sariyev, O.,** Islam, M. A., & **Zeller, M.** (2025). How competitive is Myanmar's rice sector? A comparison of production costs and efficiency. *Agribusiness*, 1–27. https://doi.org/10.1002/agr.22029

(6) **Dewi, Y. A., Bahru, B. A., & Zeller, M.** (2025). Performance of agricultural extension agents in Indonesia: evidence from a nationally representative survey. *The Journal of Agricultural Education and Extension*, 31(4), 527–553. https://doi.org/10.1080/1389224X.2024.2407178

(7) **Sariyev, O., Asravor, J., & Zeller, M.** (2025). Poverty and food security impacts of sustainable intensification: Evidence from Ethiopia. *Food Security*, 1–16. https://doi.org/10.1007/s12571-025-01517-9

International Agricultural Trade and Food Security (490b)

(1) Smeets Křístková, Z., Cui, H. D., Rokicki, B., M'Barek, R., van Meijl, H., & **Boysen-Urban, K.** (2025). European green bonds, carbon tax and crowding-out: The economic, social and environmental impacts of the EU's green investments under different financing scenarios. *Renewable & Sustainable Energy Reviews*, 211, 1–17. https://doi.org/10.1016/j.rser.2025.115330

(2) Feuerbacher, A., & **Flaig, D.** (2025). Tourism in Africa and economic vulnerabilities to exogenous shocks. *Economic Modelling*, 152, 1–12. https://doi.org/10.1016/j.econmod.2025.107258

Science for Policy Reports

(1) **Flaig, D**., Shutes, L., and A. Mainar-Causapé (forthcoming). Application and further development of tool kit to assess the impacts of implementation of response measures for Maldives. UNFCCC – Mitigation Programme.

Social and Institutional Change in Agricultural Development (490c)

(1) **Adu-Baffour, F.**, Daum, T., Obeng, E. A., **Bosch, C., & Birner, R.** (2025). Who cleans up the mess? Exploring community-based solutions for rehabilitating Ghana's artisanal and small-scale mining lands. *Environmental Development, 55, 1–15.* https://doi.org/10.1016/j.envdev.2025.101239

(2) Boller, M. L., **Bosch, C.**, Heinzel, K., **Birkenberg, A.**, & Krupitzer, C. (2025). Brewing a sustainable future: a firm-level analysis of sustainability initiatives in the coffee sector. *Environment Systems & Decisions*, 45(4), 1–20. https://doi.org/10.1007/s10669-025-10047-w

(3) Daum, T., Scheiterle, L., **Yameogo, V**., Adegbola, Y. P., Mulinge, W., Kergna, A. O., Daudu, C., **Angara, U**. A., Zossou, R. C., Nientao, A., Fatunbi, O., **Isuyi, L**., & **Birner, R.** (2025). Moving beyond the productivity

paradigm: Agricultural innovation systems and sustainable transformation in Africa. Agricultural Systems, 229, 104445. https://doi.org/10.1016/j.agsy.2025.104445

(4) Graf, S. L., **Blaschke, N.**, & Oya, C. (2025). Is surplus appropriated differently in cereals, cocoa and cattle production? A systematic literature analysis of class relations in West African farming systems. *Journal of Agrarian Change*, 1–14. https://doi.org/10.1111/joac.70022

(5) Günther, M. K., **Bosch, C.**, Ewell, H., Nawrotzki, R., & Kato, E. (2025). Step by step to higher yields? Adoption and impacts of a sequenced training approach for climate-smart coffee production in Uganda. *International Journal of Agricultural Sustainability*, 23(1), 1–31. https://doi.org/10.1080/14735903.2025.2545042

(6) **Mantey, V.**, Missiame, A., **Bosch, C., Birner, R., Birkenberg, A., Guesbeogo Yameogo, V.**, & Mburu, J. (2026). Carbon projects, cooperative membership and technical efficiency of smallholder dairy farmers in Kenya. *Environmental Development*, 57, 101373. https://doi.org/10.1016/j.envdev.2025.101373

(7) Mockshell, J., **Omulo, G.**, Asante-Addo, C., Ritter, T. N., Quintero, M., & Remans, R. (2025). Identifying critical incentives for scaling out the adoption of agroecological practices - a systematic review of Peruvian cacao value chains. *International Journal of Agricultural Sustainability*, 23(1), 1–20. https://doi.org/10.1080/14735903.2025.2497640

(8) Mockshell, J., **Omulo, G.**, **Hidalgo, F.**, Quintero, M., Ritter, T., Orjuela, G., & Place, F. (2025). Key narratives around agroecological transitions. A systematic literature review of the current debate. *Agroecology and Sustainable Food Systems*, 1–26. https://doi.org/10.1080/21683565.2025.2524730

(9) Njuguna, E., Daum, T., **Birner, R.**, & Mburu, J. (2025). Silicon Savannah and smallholder farming: How can digitalization contribute to sustainable agricultural transformation in Africa? *Agricultural Systems*, 222, 1–15. https://doi.org/10.1016/j.agsy.2024.104180

(10) Oguche, M., Kariuki, J., **Birner, R.**, & Chagunda, M. (2025). Is there unrecognized potential in neglected livestock species in Sub-Saharan Africa? A systematic review of four selected species. *Food Security*, 17(1), 161–183. https://doi.org/10.1007/s12571-024-01503-7

(11) Tefera, Y. D., **Awoke, B. G.**, & Daum, T. (2025). What factors are inducing or impeding the adoption of agricultural mechanization? Revisiting farm scale, overhead capital and spatial divergence. *World Development Perspectives*, 38, 1–16. https://doi.org/10.1016/j.wdp.2025.100671

Land Use Economics (490d)

(1) Gensch, L., Jantke, K., **Rasche, L.**, & Schneider, U. A. (2025). Corrigendum to 'Pesticide risk assessment in European agriculture: Distribution patterns, ban-substitution effects and regulatory implications' [Environ. Pollut. 348 (2024) 123836]. *Environmental Pollution*. https://doi.org/10.1016/j.envpol.2024.125431

(2) Marco, J., **Valbuena, N.**, Valderrama, D., & Vásquez, M. (2025). Examining the success of the tilapia industry in Huila, an emerging aquaculture hub in the Colombian Southwest. *Aquaculture Economics & Management*, 29(2), 180–206. https://doi.org/10.1080/13657305.2025.2455423

(3) **Rasche, L.**, Katjana, J., Jantke, K., Uchezuba, D., & Schneider, U. A. (2025). Exploring the plausibility of inoculated cowpeas as a climate adaptation strategy for Namibian smallholder farmers. *Sustainability*, 17(9), 1–13. https://doi.org/10.3390/su17094041

(4) Gensch, L., Jantke, K., **Rasche, L.**, & Schneider, U. A. (2025). Land of opportunities: aligning organic farming and conservation targets in Europe. *Journal of Environmental Planning and Management*, 1–20. https://doi.org/10.1080/09640568.2025.2504520

(5) Jeong, J., Jantke, K., **Rasche, L.**, Eschenbach, A., Uchezuba, D., Reinhold-Hurek, B., & Schneider, U. A. (2025). Managing scarce water and land resources: The potentials of cowpea production in Namibia. *Environmental Development*, 1–34. https://doi.org/10.1016/j.envdev.2025.101139

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Ecology of Tropical Agricultural Systems (490f)

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Management of Crop Water Stress in the Tropics and Subtropics (490g)

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Animal Breeding and Husbandry in the Tropics and Subtropics (490h)

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Agricultural Engineering in the Tropics and Subtropics (440e)

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5. Knowledge transfer

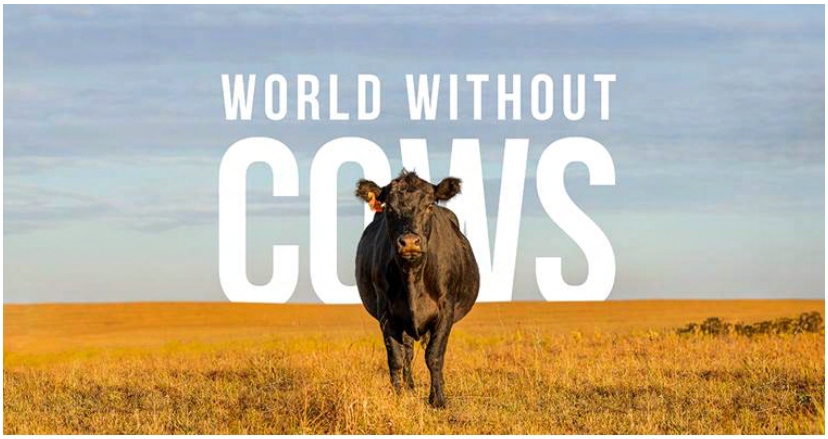
5.1. Distinctions

Working with UNFCCC to support climate policy impact assessment. Dorothee Flaig is working with UNFCCC colleagues on a tool to support climate policy impact assessment. Their aim is to advertise the power of economic models to support evidence-based policy making. Click here to have a further look at their work.

Frontiers Planet Prize for Science-Publication with Prof. Dr. Ingo Grass. One of the world's most prestigious awards for environmental research, the Frontiers Planet Prize, has now been awarded to a publication in the journal Science, whose main authors include Prof. Dr. Ingo Grass from the Department of Ecology of Tropical Agricultural Systems at the University of Hohenheim. The prize is worth one million US dollars and was accepted by one of the study leaders, Prof. Dr. Zia Mehrabi from the USA, on June 17, 2025, in Villars-Sur-Ollon (Switzerland). Those primarily responsible for the study regard the publication as a joint achievement and intend to share the prize money among themselves. **Further Infos:** Science-Publikation, Pressemitteilung der Universität Hohenheim vom 5.4.2024

Prof. Dr. Ingo Grass. (C) Foto: Ingo Grass

In February 2025, Prof. Dr. Mizeck Chagunda was awarded an **Honorary Professorship** by the University of Hohenheim. Following the ceremony, Prof. Chagunda gave a seminar presentation on the "*Future contributions of animal genetics and genomics in the transformation of food systems in Africa*". Subsequently, the documentary "*World Without Cows*" was screened. The film "was written and directed by two award-winning journalists, Michelle Michael and Brandon Whitworth, who spent nearly three years visiting scientists, academics, farmers and others to get an up-close look at the social, financial, nutritional and environmental impact of cows — and to explore the possible repercussions of a world without them." The documentary was filmed in more than ten locations including the University of Hohenheim, and also features Prof. Dr. Mizeck Chagunda at his previous office at Hohenheim. The official trailer for the documentary and more information is available at: https://worldwithoutcows.com/



5.2. Media coverage

(1) BMLEH (2025). **Wissenschaftlicher Beirat für Agrarpolitik, Ernährung und gesundheitlichen Verbraucherschutz,** www.bmleh.de, https://www.bmleh.de/DE/ministerium/organisation/beiraete/agr-organisation.html

(2) Deutschland.de (2025). **Ernährung sichern – mit Daten.** Gemeinsam gegen Hunger und Mangelernährung: Ein neues deutsch-afrikanisches Zentrum in Südafrika setzt auf Daten, Kooperation und Nachwuchs für mehr Ernährungssicherheit. Ein Interview mit Prof. Christine Wieck und Dr. Marcus Giese (UKUDLA). https://www.deutschland.de/de/topic/umwelt/ernaehrungssicherheit-in-afrika-daad-fachzentrum

(3) Universität Hohenheim (2025). **Neu in Science: Schluss mit einer einseitigen industriellen Landwirtschaft - Frontiers Planet Prize für Science-Publikation mit Prof. Dr. Ingo Grass,** Pressemitteilung, https://agroecology.uni-hohenheim.de/themen-details?tx_ttnews%5Btt_news%5D=62081&cHash=e553069f77dfb0e8ece3e5d4fab1dd9e

(4) Universität Hohenheim (2025). **Insektizide: Neonikotinoide bedrohen Biodiversität stärker als gedacht,** Pressemitteilung, https://www.uni-hohenheim.de/pressemitteilung?tx_ttnews%5Btt_news%5D=65287&cHash=7b13424703a39312465272f0bdde1ce6

(5) Vbio. (2024). **Tierisches Teamwork: Bienen, Fledermäuse und Vögel fördern gemeinsam die Macadamia-Produktion.** www.vbio.de. https://www.vbio.de/aktuelles/details/tierisches-teamwork-bienen-fledermaeuse-und-voegel-foerdern-gemeinsam-die-macadamia-produktion

5.3. Conferences, Colloquia, Seminars, & other Events

Tropentag 2025 (Bonn)

Picture credit: www.tropentag.de

The annual interdisciplinary conference on research in tropical and subtropical agriculture, natural resource management and rural development (Tropentag) is jointly organised by the universities of Berlin, Bonn, Göttingen, Hohenheim, Kassel-Witzenhausen, Leibniz Centre for Agricultural Landscape Research ZALF e.V. (all Germany), Czech University of Life Sciences Prague (Czech Republic), BOKU Vienna (Austria), and the Council for Tropical and Subtropical Research (ATSAF e.V.) in co-operation with the GIZ Fund International Agricultural Research (FIA).

Tropentag 2025 (TT25), held under the theme *"Reconciling Land System Changes with Planetary Health"*, took place as a hybrid event organised by the University of Bonn / ZEF, Germany, in cooperation with ATSAF e.V., from September 9–12, 2025. The conference featured in-person sessions, live-streamed oral presentations, guided poster sessions, pre-conference workshops, and special online sessions, providing broad opportunities for exchange among more than 800 participants from around the world.

As every year, the **"Hohenheim Tropics" Hub-Management (Dr. Marcus Giese, Maria Oguche, Andrea Zipp and Gaby Kircher)**, presented the activities of the University of Hohenheim and the Hans-Ruthenberg-Institute

related to agricultural research and education in the tropics. The Hohenheim Tropics Hub showcased the University's ongoing commitment to sustainable agricultural innovation, interdisciplinary collaboration, and education in support of global food security. Hohenheim Tropics organized two pre conference work-shops, one linked to the Agri-Alumni network about "Scaling, adoption and dissemination of good agricultural practices and innovations for food systems in Africa" as well as another workshop presenting "Lessons learnt and Opportunities for international cooperation in sustainable and climate-resilient agriculture: Perspectives from BMLEH international projects in South America, Europe, and Africa."

World Food Day Event

The topic of the World food Day Event 2025, Picture credit: FAO

World Food Day is celebrated worldwide on October 16 to promote action for global food security. It marks the day on which, in 1945, the Food and Agriculture Organization (FAO) of the United Nations was founded.

In 2025, the event held special significance as it marked the **80th anniversary of both the FAO and the United Nations**. Under the global theme *"Hand in Hand for Better Food and a Better Future!"*, this year's celebration called for solidarity and collaboration to build more sustainable, resilient, and equitable food systems for everyone.

The official World Food Day ceremony took place in **Uzbekistan**, where leaders, experts, farmers, youth representatives, and development partners gathered to reflect on the progress made in transforming agrifood systems and to reaffirm their commitment to ending hunger and malnutrition. The event highlighted the importance of joint global action across governments, organizations, and communities to ensure that all people have access to healthy diets while living in harmony with the planet.

The University of Hohenheim continues its strong commitment to research and education on global food and nutrition security, contributing to the goals promoted by the World Food Day initiative.

World Water Day 2025

Topic of 2025 World Water Day. Picture credit: UN-Water

On the occasion of the United Nations World Water Day 2025, the **Graduate Academy "Water–People–Agriculture"** at the University of Hohenheim, supported by the **Anton & Petra Ehrmann-Stiftung**, hosted an online colloquium on **Monday, 31 March 2025**, from 13:00 to 16:30.

The event brought together leading experts and young researchers to discuss the role of glaciers in hydrological systems and the far-reaching implications of climate change for the cryosphere, water resources, and societies. Through keynote presentations and Q&A sessions, participants explored how glacial retreat and changing ice dynamics affect hydrology, ecosystems, and livelihoods.

Invited speakers included **Prof. Dr. Wilfried Hagg** (University of Applied Sciences, Munich) on *"The hydrological effects of glacier retreat"*, **Prof. Dr. Angelika Humbert** (Alfred Wegener Institute and University of Bremen) on *"The hydrology of the Greenland Ice Sheets"*, and **Dr. Tobias Hipp** (German Alpine Club, Munich) on *"Alpine future without ice – just nostalgia or a severe crisis?"*

PhD candidates of the Research Training Group "Water–People–Agriculture" also presented their ongoing research: **Sreymey Ngoun** (Institute of Agricultural Sciences in the Tropics) on *"Real color crop imaging for improved crop status monitoring in cassava"*, and **Aaron Willmot** (Institute of Agricultural Sciences in the Tropics) on *"Integrating biodiversity and ecosystem services in tropical plantations."*

The colloquium was opened and closed by **Prof. Dr. Folkard Asch** and **Dr. Marcus Giese**, providing a platform for scientific exchange and interdisciplinary discussion on the challenges and opportunities of sustainable water management under climate change. The event was organized by Thesesa Detering, Nguyen Van and Andrea Zipp.

Water Security Climate Change Conference 2025

Water Security and Climate Change Conference, Tashkent, Uzbekistan 2025, Picture credit: University of Central Asia

The annual Water Security and Climate Change Conference (WSCC) is an interdisciplinary event supported by the German Academic Exchange Service (DAAD) with funds from the Federal Minsitry for Economic Cooperation (BMZ) that convenes scientists, policy-makers and stakeholders from diverse sectors to discuss the multifaceted relationships between water security and climate change.

This year, the 9th WSCC was held from **8 – 10 October 2025** at the Tashkent Institute of Irrigation and Agricultural Mechanization Engineers (TIIAME-NRU) in Tashkent, Uzbekistan. The conference continued the legacy of the DAAD's "exceed – Higher Education Excellence in Development Cooperation" programme, building on networks including the Sustainable Water Management in Developing Countries network (SWINDON), the Centers for Natural Resources and Development (CNRD) and the SDGnexus Network.

In recognition of the longstanding involvement of the Hans-Ruthenberg-Institute and the "Hohenheim Tropics" Hub-Management in water-and-agriculture discourse, the Institute co-organised four thematic sessions, keynotes and workshops, with **Dr. Marcus Giese** and **Dr. Alejandro Pieters** moderating high-level segments:

- Keynote - Rivers of Resilience: Transboundary Water Management for Food, Climate, and Security in Central Asia (moderated by M. Giese)
- Panel - Dissemination and Upscaling of Innovative Practices to Address the Water, Food & Energy Nexus (moderated by M. Giese)
- Science Session - Sustainable Water Management for Agriculture and Ecosystems (moderated by M. Giese)
- Successes & Challenges - Success Skills in Agri-Food Systems (moderated by M. Giese & A. Pieters)

The conference emphasised bridging science, policy and practice to develop actionable pathways toward water- and food-secure societies. Topics addressed included: Coping with climate-related water extremes; Water for Food and Environment Systems, and Data-Driven Solutions – Leveraging AI and Big Data. In this way, the WSCC 2025 reinforced its role as a global platform for interdisciplinary dialogue, innovation and actionable solutions in the context of water security under climate change. With the support of the Anton & Petra Ehrmann foundation three scientists from Hohenheim were able to present their research projects at the WSCC 2025: **Van Nguyen, Simon Ehjeij, and Sebastian Heintze.**

UKUDLA Summer School & Launch

UKUDLA *is a collaborative centre based in South Africa that drives interdisciplinary research and capacity building in food systems, grounded in applied data science. Supported by* ***German and African partners****, it advances evidence-based approaches to improve every stage of the food system — from production and processing to nutrition and food security. Through data-driven research, education, and stakeholder engagement, UKUDLA promotes sustainable, inclusive, and resilient food futures in Southern Africa.*

UKUDLA
African German Centre
for Sustainable and Resilient Food Systems and Applied Agricultural and Food Data Science

https://ukudla.uni-hohenheim.de/en

The centre is funded by the German Academic Exchange Service (DAAD) with funds from the Federal Foreign Office (AA), the Federal Ministry of Research, Technology and Space (BMFTR) and the Federal Ministry of Agriculture, Food and Regional Identity (BMLEH) in Germany. On the South African side, the Department of Science, Technology and Innovation (DSTI) and the National Research Foundation (NRF) are involved.

This marks the **first of five UKUDLA Summer Schools** to be held over the coming years as part of the Centre's commitment to developing sustainable and resilient food systems in Africa. The UKUDLA 2025 Summer School, held from 14 to 24th September 2025, brought together international master's students from universities across Africa and Germany for an intensive programme of training, collaboration, and engagement on food systems and data science. Hosted at the **University of the Western Cape (UWC)** in Cape Town, South Africa, in partnership with the **University of Hohenheim (UHOH)**, the **University of Pretoria (UP)**, the **University of Mpumalanga (UMP)**, and the **Lilongwe University of Agriculture and Natural Resources (LUANAR)**, the programme aimed to strengthen academic leadership and research capacity.

The Summer School combined **interactive and expert-led seminars, hands-on training, and interdisciplinary exchanges** with **field visits** to connect classroom learning to real-world contexts focused on the sustainable development of food systems in Africa. A highlight of the week was the **official UKUDLA Launch event**, which brought together institutional leaders, partners, and stakeholders to mark the formal establishment of the Centre. The programme also aligned with global conversations, taking place alongside the **G20 Minister meeting**, to highlight the relevance of food systems and data science for international policy agendas. The organization of the UKUDLA Summer School 2025 was lead by the African Partners at the University of Western Cape and Pretoria with support from the German Team at the University of Hohenheim**: Dr. Marcus Giese, Prof. Thomas Dimpfl, Prof. Christine Wieck, Dr. Krisina Mensah, Dr. Markus Mösler and Michelle Moriano.**

Reveal of the official UKUDLA sign at UWC with the UKUDLA group, including Masters students, PhD students, Postdoctoral fellows, UKUDLA staff, Professors and the DAAD. © Sharif Mosa.

Research seminar „Hohenheim Tropics“

The interdisciplinary **'Hohenheim Tropics Seminar'** with a focus on research in the Global South was successfully launched in the winter semester of 2024. **Prof. Dr. Regina Birner**, **Prof. Dr. Kirsten Boysen-Urban**, **Dr. Marcus Giese** and **Prof. Dr. Ingo Grass** organise the ‘Hohenheim Tropics Seminar’ in order to create a forum for exchange and networking and to promote interdisciplinary research in Hohenheim.

15.04.25	**Dr. Ole Boysen**, Joint Research Center of the European Commission	**The Impact of the EU Deforestation Regulation on Cocoa: Markets and Forests**
20.05.25	**Thomas Hoerz,** Independent Consultant	**Rangelands and Pastoralism: The Case of Somaliland**
03.06.25	**Samuel Kayamo,** Land Use Economics	**Use of Seasonal Rainfall Forecast in Agricultural Decision-making in the Central Rift Valley of Ethiopia**
17.06.25	**Kelzy Jepsen,** Sustainable Use of Natural Resources	**Co-creating Gendered Pathways for Food System Transformation in Mexico**
24.06.25	**Dr. Archana Raghavan Sathyan,** Kerala Agricultural University, India	**Climate Vulnerability and Climate Adaptation of Agricultural Systems in Kerala, India**
01.07.25	**Dr. Teweldemedhn G. Hailu**, Animal Breeding and Husbandry in the Tropics and Subtropics	**Sustainable Beekeeping and Genetic Conservation of the Unique Ethiopian Honey Bee**
08.07.25	**Dr. Dorothee Flaig, Dr. Kirsten Boysen-Urban,** International Agricultural Trade and Food Security	**Policy Research Interaction in Africa**

Programme for the Research Seminar “Hohenheim Tropics” for the summer semester 2025.

Programme for the Research Seminar "Hohenheim Tropics" for the winter semester 2025/26.

Ecology Colloquium

The Ecology Colloquium, organized by the departments of **Landscape Ecology and Vegetation Science** (320a), **Plant Ecology** (320b), **Ecology of Tropical Agricultural Systems** (490f), and **Applied Entomology** (360c), is a weekly lecture series open to everyone interested in ecological research. Scientists from around the world present fascinating insights into the ecological topics they are currently working on.

Interested in Ecology?
Join Our Open Ecology Colloquium!

UNIVERSITÄT HOHENHEIM

Tuesdays, 16:15 - 17:45 in HS 4 or scan the QR Code to join online!

Date	Speaker/Affiliation/Topic
25/11/2025	**Swen Renner** (Natural History Museum Vienna): Global change and vector-borne parasites: An analysis of ecological interactions
02/12/2025	**Emma Sayer** (University of Ulm): Tropical Forest Productivity, Element Cycling and Greenhouse Gases – what we've learned from a 20-year large-scale experiment
10/12/2025 (special date)	**Su'ad Yoon** (University of Hawai'i): Novel immunological interactions as an overlooked aspect of global change: Insights from the host range expansion of Lycaeides melissa
16/12/2025	**Huan Liang** (German Centre for Integrative Biodiversity Research (iDiv)): Plant–pollinator interactions in natural and urban ecosystems
13/01/2026	**Jörg Albrecht** (Senckenberg Biodiversity and Climate Research Centre): From natural history collections to models of biodiversity change
20/01/2026	**Frank Hilker** (University of Osnabrück): TBA
27/01/2026	**Annemarie Wurz** (University of Marburg): Community-level trait variation of plants and animals across environmental gradients in Southern Ecuador
03/02/2026	**Maximilian Hanusch** (University of Hohenheim): Mechanistic insights into community assembly and biotic interactions

Organized by the Departments of **Landscape Ecology and Vegetation Science** (320a), **Plant Ecology** (320b), **Ecology of Tropical Agricultural Systems** (490f), and **Applied Entomology** (360c).

Contacts for organizational questions: David Becker (d.becker@uni-hohenheim.de) Zheng Zhou (zheng.zhou@uni-hohenheim.de)

Day of the Open University

On 5 July 2025, the Hans-Ruthenberg-Institute presented itself at the **Open University Day** with the following activities:

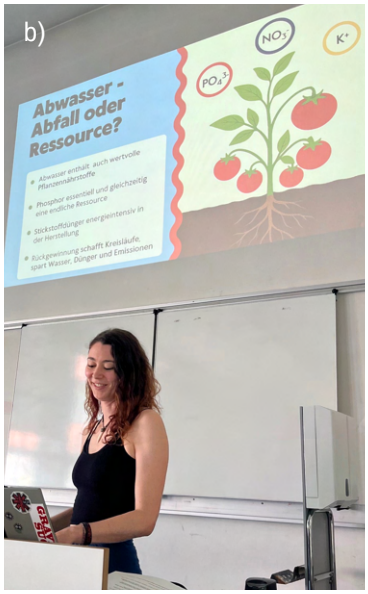
'Tropical Diversity in Hohenheim': we introduced research and teaching activities with a focus on the tropics and subtropics, which have a long tradition at the University of Hohenheim. We provided information about the Institute of Agricultural Sciences in the Tropics (Hans Ruthenberg Institute), its 100+ staff members, the “Agricultural Sciences in the Tropics & Subtropics” degree programme, and its various alumni programmes.

Short presentations were given on sustainable land use in the tropics, showcasing highlights from our research and educational projects. Our research aims to protect the environment, ensure food security and combat poverty. Visitors to the presentations gained insight into tropical agricultural science through examples from our projects in the tropics. **Dr. Marcus Giese** began with his presentation, 'South Africa – a new centre of expertise for sustainable agriculture', followed by **Theresa Detering** with 'From wastewater to tomatoes: circular economy with hydroponics'.

We organised a quiz about research in the tropics and offered hands-on experience. Our departments of ecology, economics, and plant and animal sciences showcased their work and provided insights into their diverse methods. Visitors had the chance to participate in the quiz and win a prize (the quiz was also suitable for children).

a)

b)



*a) Setting up the stands in front of the institute at Garbenstrasse 13, b) Theresa Detering presents her doctoral thesis research and meets with lively interest from the audience. More photos: Hands-on activities for visitors, the quiz, and other activities proved very popular**. Kristina Rösel, Andrea Zipp, Theresa Detering, Ingo Grass, Regina Birner, Christine Bosch, and Kirsten Boysen-Urban**, among others, engaged in lively discussions with the numerous visitors.*

Hohenheimer Staffellauf

The Running Team 2025, with cold drinks and supporters from the Hans-Ruthenberg-Institute.

The Hohenheim Relay Race is a traditional sports event, and many working groups and students were participating with a running team in the 30th edition. Hohenheim Tropics competed for the first time as a mixed team of their own, but not without valuable experience gained from numerous previous races. So they knew exactly what was important and saved their energy for the demanding victory celebration. After the 5 km course, they finished in the lower midfield of a total of 60 teams with a time of 23:15 minutes. Numerous supporters from the Hans-Rutenberg-Institute handed out the necessary cold drinks on what was probably the hottest day of the year. The runners were: **Van Nguyen, Johanna Volk, Mekuria Assena, Alejandro Pieters, and Marcus Giese.**

6. Teaching

Institute of Agricultural Sciences in the Tropics (Hans-Ruthenberg-Institute) (490 – Hub Management)

4905-211 Ökozonen und Kulturpflanzen der Tropen (Lecture, WS)

4907-410 Natural Resource Use and Conservation in the Tropics and Subtropics

4403-221 Nachhaltige Ressourcennutzung in den Tropen (Lecture, SS)

4907-441 Interdisciplinary Practical Science Training (Practical training with exercises, SS)

3000-811 Spezialkurs: "Water for life" (PhD) (Lecture, WS)

4907-811 Water - People - Agriculture (Seminar, WS/SS)

A039 Hohenheim Tropics Seminar (Seminar, WS/SS)

WorldWaterDay Colloquium 2024 (Other event (Non-Lecture, SS))

Agri-Alumni Net Workshop (Other event (Non-Lecture, WS))

World Food Day Symposium 2024 (Other event (Non-Lecture, SS))

4907-490 Excursion to the Tropics and Subtropics

UKUDLA Summer School 2025 on Sustainable Food Systems and Data Science in Africa

Rural Development Theory and Policy (490a)

4901-811 Interdisciplinary Aspects of Food Security (Lecture with seminar, WS)

4901-421 Poverty and Development Strategies (Lecture, WS)

4901-471 Quantitative Methods in Economics (Lecture with exercise, WS)

4901-821 Rural Development Seminar for PhD and M.Sc. students (Seminar, WS/SS)

4901-481 Monitoring and Evaluation of Rural Development Projects (Lecture with exercise/seminar, SS)

4901-431 Rural Development Policies and Institutions (Lecture with seminar, SS)

International Agricultural Trade and Food Security (490b)

4902-441 Basic Microeconomics (Lecture, WS)

4902-443 Exercises to Basic Microeconomics (optional) (Exercise, WS)

4902-431 Food and Nutrition Security (Lecture, WS)

A077 Seminar on Global Trade and Food Security (for M.Sc. and Ph.D. Students) (Seminar, WS, SS)

4902-211 Internationale Wirtschaft, globaler Wandel und Ernährungssicherung (Lecture with seminar, SS)

4902-421 International Food and Agricultural Trade (Lecture with exercise, SS)

A087 Tutorial International Food and Agricultural Trade (Exercise, SS)

A039 Hohenheim Tropics Seminar (Seminar, WS/SS)

Social and Institutional Change in Agricultural Development (490c)

4903-521 Governance of Sustainable Agri-Food Systems (Lecture with exercise, WS)

4903-461 Methods in Interdisciplinary Collaboration (Lecture with exercise, WS)

4903-501 Policy Processes in Agriculture and Natural Resource Management (Lecture, WS)

4903-511 Innovations for Sustainable Agri-Food Systems (Lecture with seminar, SS)

4903-471 Qualitative Research Methods in Rural Development Studies (Lecture with exercise, SS)

A068 Research Colloquium Institute 430 and 490c (Colloquium, WS, SS)

Land Use Economics (490d)

4904-411 Agricultural Economics Seminar (Lecture with exercise, WS/SS)

4904-431 Land Use Economics (Lecture with exercise, WS)

4904-461 Farm System Modelling (Lecture, WS)

4904-462 Modelling of Land Use Decisions with Mathematical Programming (Exercise, WS)

4904-463 Introduction to Excel Spreadsheet Models (voluntary) (Exercise, WS)

4904-481 Farm Risk Analysis (Lecture with exercise, SS)

4904-820 Land Use Economics – Empirical Applications (Seminar with exercise, WS/SS)

Plant Production in the Tropics and Subtropics (490e)

4905-421 Crop Production Systems (Lecture with exercise and seminar, WS)

A039 Hohenheim Tropics Seminar (Seminar, WS/SS)

4905-211 Ökozonen und Kulturpflanzen der Tropen (Lecture, WS)

4905-411 Weltwirtschaftspflanzen und Weidewirtschaft in den Tropen und Subtropen (Lecture with seminar, WS)

4905-471 Biodiversity and Genetic Resources (Lecture with seminar and excursion, SS)

4905-430 Integrated Agricultural Production Systems (Lecture with seminar, SS)

4905-461 Modeling of Agroecosystems (Lecture with exercise and practical training, SS)

Research Proposal Writing (Other event (Non-Lecture, WS))

Modellierungskurs (Other event (Non-Lecture, WS))

Ecology of Tropical Agricultural Systems (490f)

3201-022 Agrarökologie (Lecture, WS)

4906-411 Ecology and Agroecosystems (Lecture with seminar, WS)

4906-211 Landwirtschaft und Naturschutz (Lecture with seminar, WS)

4906-441 Agroecology and Biotic Resource Conservation (Lecture with exercise and seminar, SS)

4906-431 Field Course Agroecology and Biodiversity (Lecture with exercise and seminar, SS)

4907-410 Natural Resource Use and Conservation in the Tropics and Subtropics

A059 Ecology Colloquium (Colloquium, WS/SS)

Management of Crop Water Stress in the Tropics and Subtropics (490g)

A038 Graduiertenseminar Plant Production and Agroecology in the Tropics and Subtropics (Seminar, WS/SS)

3000-821 Methods of Scientific Working (Lecture with seminar, WS)

4907-411 Natural Resource Use and Conservation in the Tropics and Subtropics (Lecture, WS)

4907-211 Reaktionen und Anpassungen von Pflanzen unter Wasserstress (Lecture, WS)

3000-811 Spezialkurs: "Water for life" (PhD) (Lecture, WS)

4907-811 Water - People - Agriculture (Seminar, WS/SS)

4907-421 Ecophysiology of Crops in the Tropics and Subtropics (Lecture with exercise, SS)

4907-431 Crop Production Affecting the Hydrological Cycle (Lecture with exercise, SS)

4907-441 Interdisciplinary Practical Science Training (Practical training with exercises, SS)

WorldWaterDay Colloquium 2024 (Other event (Non-Lecture, SS))

Agri-Alumni Net Workshop (Other event (Non-Lecture, WS))

World Food Day Symposium 2024 (Other event (Non-Lecture, SS))

Animal Breeding and Husbandry in the Tropics and Subtropics (490h)

A001 490h (Seminar) for PhD and Master students (Seminar, WS/SS)

A013 Anleitung zum wissenschaftlichen Arbeiten (Anleitung, WS/SS)

A039 Hohenheim Tropics – 1 lecture WS + SS

3090-450 Project in Organic Agriculture and Food Systems (non-lecture, WS + SS)

4907-411 Natural Resource Use and Conservation in the Tropics and Subtropics – 8 lectures WS

4905-211 Ökozonen und Kulturpflanzen in den Tropen – 4 lectures WS

1403-401: Global Nutrition and Food Security – 2 lectures WS

4908-441 Livestock Production Systems and Development (Lecture with seminar, WS) – **This lecture was graded with 1.1 in the student evaluation** ⭐

4908-451 Organic Livestock Farming and Products (Lecture with seminar, WS)

4908-421 Promotion of Livestock in Tropical Environments (Lecture with exercise and seminar, SS)

4908-210 Tierhaltung im Ökologischen Landbau (Ring-Lecture, SS)

Agricultural Engineering in the Tropics and Subtropics (440e)

4403-561 Bewässerungstechnik für Nahrungs- und Energiepflanzen (Lecture with exercise, WS)

4403-421 Erneuerbare Energieträger (Lecture with exercise, WS)

4403-441 Irrigation and Drainage Technology (Lecture with exercise and excursion, WS)

4403-521 Nacherntetechnologie (Lecture with exercise, WS)

4403-451 Projektierung von Anlagen zur Nutzung von nachwachsenden Rohstoffen, Neben- und Abfallprodukten (Lecture, WS)

4403-011 Verfahrenstechnik biogener Brenn- und Kraftstoffe (Lecture, WS)

4403-231 Wissenschaftliches Arbeiten, Projektmanagement und Rhetorik (Lecture with exercise, WS)

4403-431 Biomasse als Energieträger (Lecture with exercise, SS)

4403-221 Nachhaltige Ressourcennutzung in den Tropen (Lecture, SS)

4403-551 Post-Harvest Technology of Food and Bio-Based Products (Lecture with exercise and excursion, SS)

4403-471 Renewable Energy for Rural Areas (Lecture, SS)

7. Graduation theses

Rural Development Theory and Policy (490a)

Dissertations

Name: **Nandar Aye Chan** (2025)

Topic: A multifaceted analysis of Myanmar's rice sector: gender perspectives, international competitiveness, and farmers' emotional well-being

Description: The agricultural sector is vital to Myanmar's economic development, food security, and poverty reduction. However, recent global shifts in commodity markets, combined with local crises such as climate change, the COVID-19 pandemic, conflicts, economic instability, and rising fertilizer prices and operational costs, have significantly affected Myanmar's agri-food sector. These challenges threaten the performance of the agricultural sector, particularly the rice sector, which is essential for many livelihoods, rural employment, and export earnings. The sector faces declining productivity, reduced incomes, rising debt burdens, and increased vulnerability, especially among smallholder farmers, including women…

Name: **Yovita Anggita Dewi** (2025)

Topic: Smallholder agricultural practices in Indonesia: information and communication technologies (ICTs) usage, extension agent performance, and the impact of interventions on technical efficiency

Description: Indonesia's agricultural sector—in particular including its smallholder farmers—remains the country's economic backbone, as evidenced by its contribution to the gross domestic product (GDP). This role was further demonstrated during the Covid-19 crisis, when the sector supported resilience through labor absorption, where many urban laborers and small entrepreneurs lost their job and fled back to their home villages. Smallholder farmers in Indonesia grapple with a range of hurdles including technical limitations, social dynamics, economic pressures, and institutional constraints, which hinder their ability to boost productivity, increase output, and improve their incomes…

International Agricultural Trade and Food Security (490b)

Dissertations

Name: **Vladimir Korovin** (2025)

Topic: Scenario Analysis of Global Food Security within CGE models: The Role of Caloric Equivalents

Description: In recent years, food security has gained increasing attention due to growing concerns about access to sufficient, safe, and nutritious food, which remains a critical part of the UN Sustainable Development Agenda. Achieving global food security is becoming more challenging due to rising populations, limited resources, and stagnating agricultural yields, making future projections crucial. This thesis explores the use of computable general equilibrium (CGE) models for food and nutrition security analysis and addresses challenges of incorporating caloric measures into these economic models. It develops an integrated framework that includes a calorie module, allowing for improved assessment and comparison of long-term food security scenarios across regions.

Bachelor and Master Theses

Name: **Kautsar Tandipanga** (2025)
Topic: Trade Liberalization and SDGs: A CGE Analysis of the IA-CEPA's Impact on Indonesia (M.Sc.)

Name: **Ibrahim Baby Eldigel Hussin** (2025)
Topic: The Impact of the Regional Comprehensive Economic Partnership on Agricultural and Food Trade: A Quantitative Assessment (M.Sc.)

Name: **Emmanuel Namwanja** (2025)
Topic: Bridging the Divide: Assessing Policy-Research Interactions for Sustainable Food Systems in Africa (M.Sc.)

Name: **Luiz Marchiore Libanio** (2025)
Topic: Agricultral Trade in Turbulent Times: Assessing Policy Responses and Trade Dynamics (M.Sc.)

Name: **Bojidara Ilieva** (2025)
Topic: Food Security & Genetically Modified Organisms: a blessing in disguise for world food supply? A Systematic Literature review (M.Sc.)

Social and Institutional Change in Agricultural Development (490c)

Dissertations

Name: **Ferdinand Adu-Baffour** (2025)

Topic: Governance of land rehabilitation and remediation: case studies of Ghana's small-scale mining sector

Description: Small-scale gold mining is an important industry in Ghana, which creates substantial income opportunities for rural communities, but has far-reaching negative effects on agricultural land resources, as it is typically associated with physical land degradation caused by the use of heavy machinery and with chemical contamination caused by the use of mercury for gold extraction. The thesis of Ferdinand Adu-Baffour deals with the institutional causes of these environmental problems and with potential community-based strategies to address them. The topic is well suited for a PhD thesis. The research was part of the interdisciplinary research project "Mercury-AMF", which was funded by BMBF and aimed to develop innovative approaches to the decontamination of mercury-affected soils in West Africa.

Name: **Francisco Javier Hidalgo Jaramillo** (2025)

Topic: Digital agriculture: socio-technical-physical interactions and the transformation of the rural world(s)

Description: The use of digital tools in agricultural production and agricultural value chains, also referred to as "digital agriculture", has emerged as a contested topic: On the one hand, the digitalization of agriculture is praised as the next agricultural revolution, which can play a key role in the transition of agri-food systems towards sustainability. On the other hand, digitalization is portrayed as a major threat, especially to family farming, which may reinforce the power of large-scale tech companies, promote a "productivist paradigm" and deepen a global "digital divide". The thesis of Francisco Hidalgo aims to make a theoretical and empirical contribution to this contested debate, using digital tools for coffee farming and their application in Colombia as an example.

Bachelor and Master Theses

Name: **Ful, Prosper Loh.** (2025)
Topic: What do failed land deals mean for rural communities? – A comparative case study from Ghana (M.Sc.)

Name: **Schäfer, Robert** (2025)
Topic: Institutional Innovations and Cooperation in Colombian and Ugandan Coffee Seed Systems (M.Sc.)

Name: **Ibarra Medina, Lina** (2025)
Topic: Exploring the Drivers of Agroecological Practices in Zambia: A Mixed-Methods Approach (M.Sc.)

Name: **Fiedelak, Laura-Marie** (2025)
Topic: Agroecological Practices and Food Security: A Mixed-Methods Study of Small-Scale Farmers in Zambia (M.Sc.)

Land Use Economics (490d)

Bachelor and Master Theses

Name: **Markus Müller** (2025)

Topic: Betriebswirtschaftliche Analyse von Strategien zur Pestizidreduktion am Praxisbeispiel von landwirtschaftlichen Betrieben in Südwestdeutschland (M.Sc.)

Plant Production in the Tropics and Subtropics (490e)

Dissertations

Name: **Lisa Pataczek** (2024)

Topic: Combining improved mungbean cultivars with plant growth promoting rhizobacteria inoculation and regulated deficit irrigation to increase crop productivity

Description: The cultivation of legumes provides an approach to sustainably intensify agricultural production, since short-duration legumes can fit into existing cereal-based cropping systems, diversifying farm incomes and farmers diets, as well as providing environmental benefits through the fixation of atmospheric N2 and, thus, enhancing yields of following crops. Mungbean is a legume, which plays already an important role in the traditional nutrition of people in the Global South. Its nutritious seeds can improve food security and the short growing duration facilitates the diversification of mainly cereal-based crop rotations. However, yields are low and may even become lower in future in the face of …

Bachelor and Master Theses

Name: **Persson, J.** (2025)
Topic: Simulating interactions within a dynamic crop-tree-livestock-soil system using the LUCIA-LIVSIM coupled model (M.Sc.)

Name: **Owusu-Sekyere, Charlena** (2025)
Topic: Manure Quality Under Different Livestock Feeding and Its Impact on Soil Fertility and Crop Performance: A Review (B.Sc.)

Ecology of Tropical Agricultural Systems (490f)

Dissertations

Name: **Wilhelmine Anders** (2025)

Topic: The effect of management, altitude and land-use change on pollination and biocontrol services in macadamia orchards

Description: How ecological intensification can improve sustainability of agricultural production is controversial and poorly understood. This dissertation investigates the potential of ecological intensification in Macadamia orchards in South Africa by harnessing pollination and biological pest control. Using nested exclusion experiments and field observations, it shows that wild pollinators, especially in landscapes with natural habitat, strongly enhance nut set, while bats and birds significantly reduce insect damage and improve nut quality. Orchard design and surrounding habitat structure emerged as key drivers of these ecosystem services, whereas common agronomic measures had limited effects. The thesis demonstrates that combining smart orchard layout with conservation of natural vegetation can sustainably boost both yield and nut quality.

Name: **Lena Michler** (2025)

Topic: Nomadic by Nature – Adaptation Strategies to Ecological and Socio-Economic Change Among Mongolian Herders in the Dzungarian Gobi

Description: This PhD dissertation examines how nomadic herders in the Dzungarian Gobi of Mongolia adapt their mobility and grazing strategies to ecological and socio-economic change. By combining GPS tracking of livestock, environmental data, vegetation surveys, and interviews with herder households, it shows that flexible mobility, including altitudinal migration, remains essential for sustainable pasture use, even as rising livestock numbers driven by the cashmere economy increase pressure on rangelands. While evidence for pasture degradation near camps was limited, climate change, market incentives, and declining herd mobility pose growing risks to both ecosystems and herder livelihoods. The thesis highlights the need for policies that support mobility, strengthen community involvement in protected area management, and balance livestock production with long-term rangeland and biodiversity conservation.

Bachelor and Master Theses

Name: **Kira Pagenkopf** (2025)
Topic: Impacts of structural heterogeneity on ground beetles in agroforestry systems (B.Sc.)

Name: **Georg Voppel** (2025)
Topic: Impacts of the invasive Himalayan Balsam (*Impatiens glandulifera)* on pollinator diversity in southern Germany (B.Sc.)

Name: **Farzin Nourisamani** (2025)
Topic: Influence of landscape and local habitat heterogeneity on bat activity patterns (M.Sc.)

Name: **Yichin Flora Chiu** (2025)
Topic: Revealing the spatial relationship between crops and wild boar carcasses using remote sensing to support epidemiological risk assessment (M.Sc.)

Name: **Lennart Stürmer** (2025)
Topic: Der Einfluss von Bruthabitaten und Nahrungsressourcen auf die Populationen von Agrarvögeln in Deutschland (B.Sc.)

Name: **Clemens Anschütz** (2025)
Topic: Assessing the relationship between development pathways, agroecological practices, and bird diversity in Zambia (M.Sc.)

Name: **Ashtha Gurung** (2025)
Topic: Effects of functional traits and habitat characteristics on seed dispersal by frugivorous birds in Caribbean lowland rainforest fragments in Costa Rica (M.Sc.)

Management of Crop Water Stress in the Tropics and Subtropics (490g)

Bachelor and Master Theses

Name: **Susanne Werner** (2025)
Topic: Effects of root zone temperature on nutrient depletion dynamics and growth performance of hydroponically grown Tomato (M.Sc.)

Name: **Lukas Liesenfeld** (2025)
Topic: Auswirkungen des Ammonium/Nitrat Verhältnises in der Nährlösung auf die Photosyntheserate hydroponisch wachsender Quinoa (B.Sc.)

Name: **Ingo Appenzeller** (2025)
Topic: Auswirkungen von Stickstoffverarmung auf die Photosyntheseraten hydroponisch wachsender Tomaten (B.Sc.)

Name: **Alexandra Schmidt** (2024)
Topic: Influence of air humidity and salt stress on growth and nutrient uptake of hydroponically grown quinoa and eggplant (B.Sc.)

Name: **Steffen Rauchenberger** (2024)
Topic: Auswirkungen unterschiedlicher Lichtquellen auf die Temperaturumwelt, das Wachstum und die Evapotranspiration hydroponisch wachsender Quinoa (B.Sc.)

Animal Breeding and Husbandry in the Tropics and Subtropics (490h)

Dissertations

Name: **Richard Dooso Oloo** (02/2025)

Topic: Genetic relationships among resilience, fertility, and milk yield in dairy cattle performing in sub-Saharan Africa

Description: Despite the relevance of dairy production in the fight against food insecurity in sub-Saharan Africa (SSA), the negative effects of climate change and general changes in the production environment pose tremendous challenges to its profitability. Genetic improvement of resilience, the capacity of animals to be either minimally affected by an environmental disturbance or rapidly recover from a disturbance in their environment, is deemed as a part of the solution to low dairy productivity and poor cattle adaptability in SSA. However, to breed for resilience, reliable and practical methods for quantifying and analyzing resilience in SSA need to be described and undertaken. […] https://doi.org/10.60848/12315

Name: **Sophie Miyumo** (12/2024)

Topic: Genetics and breeding for humoral immunity and feed efficiency in indigenous chicken population in Kenya

Description: Indigenous chicken (IC) population contribute to food, nutrition, livelihood and economic security in many rural households in developing countries in the tropical regions. Despite their contribution, IC are predominantly raised under challenging free-range systems which limit their optimal production potential and utilization. Of significance, are disease morbidity and scarcity of feed resources. Indigenous chicken are exposed to a myriad of pathogens that cause various poultry diseases which result to massive production and economic losses. Among these diseases is Newcastle disease (NCD) which is endemic in the tropics and is

considered important because of high prevalence and mortality rates. [...] https://doi.org/10.60848/12079

Bachelor and Master Theses

Name: **Claudia Lauer-Weich** (03/2025)
Topic: Untersuchung zu Selektionsmerkmalen zur züchterischen Reduktion von Schwanzverletzungen und Bursen bei Mastschweinen (M.Sc.)

Name: **Maximilian Krebs** (09/2025)
Topic: Erfassung der Auslaufnutzung von Hühnern mit Hilfe von RFID in mobilen Haltungssystemen (M.Sc.)

Name: **Carmen Lindlohr** (09/2025)
Topic: What is the relationship between enteric methane emissions and body surface temperatures in Malawian smallholder dairy cows? A model-based analysis of influencing factors (M.Sc.)

Name: **Lea Pitzen** (12/2025)
Topic: From lab to table – will cultured meat change consumer choices? A systematic literature review (B.Sc.)

Agricultural Engineering in the Tropics and Subtropics (440e)

Dissertations

Name: **Ngozi Esther Ekeledo** (2025)

Topic: Analysis of Nigerian yellow-fleshed cassava root and residues: Their nutritional and bioweb potentials

Description: Cassava is an important staple crop in the tropics, valued for its high starch content and versatility. This dissertation investigates yellow-fleshed cassava regarding antioxidant extraction from peels and stems, the impact of preservatives and drying methods on flour properties, and optimal packaging and storage conditions. Results show yellow-fleshed cassava peels have higher phenolic content and antioxidant capacity than white varieties, influenced by particle size and dilution. Sodium metabisulphite and flash-drying improve rheological and water absorption properties of flour. Packaging in ziplock aluminum bags and storage at 30°C optimizes flour quality. Utilization of by-products may reduce environmental impact. Further research into product development and storage stability is recommended.

Bachelor and Master Theses

Name: **David Beuchle** (2025)
Topic: Extraction of papaya seed oil using mechanical screw pressing

Name: **Peter Fedorenko** (2025)
Topic: Leveraging power consumption for Improved water management in irrigation systems

Name: **Omolade Oluwabi** (2025)
Topic: Quality of jam produced from kumquat vinasse

Name: **Wannapa Tantitecha** (2025)
Topic: Efficient moisture adjustment for oilseed conditioning through humid air aeration and cooling storage

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