



## Reshaping Landscapes by Rethinking Agriculture



LEIBNIZ CENTRE FOR  
AGRICULTURAL LANDSCAPE RESEARCH  
(ZALF)

### MISSION

*How do we feed a growing world population without harming the climate, the environment and our natural resources?*

»Mission of ZALF is to deliver solutions for an economically, ecologically and socially sustainable agriculture – together with society.

As a contribution to overcoming global challenges such as climate change, food security, biodiversity conservation and resource scarcity, we develop and design crop systems, integrated in their landscape contexts, that combine food security with sustainability. Therefore we process complex landscape data with a unique set of experimental methods, new technologies and models as well as socio-economic approaches.

ZALF research is an integrated systems research: starting from processes in soils, plants and water to causal relationships on the field and landscape level as well as looking at global impacts and complex interactions between landscapes, society and economy.«

# AGRICULTURE OF THE FUTURE:

environmentally friendly.  
productive.  
digital.  
knowledge-based.

In contrast to natural landscapes, agricultural landscapes are characterized by both their use as well as their users. Research at ZALF therefore covers not only economically and ecologically sustainable management strategies, but also societal demands on agricultural landscapes. Thus, solutions are generated that address the grand challenges facing society as a whole: population growth, climate change, food security, the protection and conservation of biodiversity and ecosystem services as well as digitalization and new technologies.



Three Research Areas, one Research Platform and an Experimental Infrastructure Platform provide the necessary disciplinary excellence and technical infrastructure.



**Research Area 1**  
**»Landscape Functioning«**  
How do agricultural landscapes function?

Research activities lead towards an integrated understanding of biogeochemical cycles in agricultural landscapes (C, N, Si) – including the interactions between land and atmosphere (e.g. trace gas and dust fluxes) and their relevance for agricultural production. The focus is on interactions between crop plants, microorganisms and soils as well as lateral transport processes.

- Co-Heads: Prof. Dr. Michael Sommer  
Prof. Dr. Steffen Kolb



**Research Platform »Data Analysis and Simulation«**

At ZALF, the focus is on interactive and easy-to-use models and data analysis methods in landscape research. The research platform »Data Analysis and Simulation« develops a coherent concept for integration of data, models and simulation methods for landscape research, from technical solutions to a landscape theory.

- Co-Heads: Prof. Dr. Gunnar Lischeid  
Prof. Dr. Claas Nendel



**Research Area 2**  
**»Land Use and Governance«**  
How can we sustainably develop and shape intensively used agricultural landscapes?

Research Area 2 »Land Use and Governance« analyzes the interactions between land use, ecosystems, their services to society, emerging conflicts and the governance of the overall system. It is the aim to develop resource-efficient, site-specific and conflict-minimizing production and governance systems which account for the social and economic value of agricultural ecosystems for humans.

- Co-Heads: Prof. Dr. Sonoko Dorothea Bellingrath-Kimura  
Prof. Dr. Klaus Müller



**Experimental Infrastructure Platform**

The Experimental Infrastructure Platform integrates ZALF's numerous field- and landscape-scale research infrastructures such as the Experimental Stations, the Landscape Laboratory »AgroScapeLab Quillow« and the landscape monitoring. In addition, the platform supports experimental research by, for example, operating and maintaining scientific instrumentation, conducting measurement campaigns and providing and managing experimental sites on grass- and croplands.

- Head: Dr. Gernot Verch



**Research Area 3**  
**»Agricultural Landscape Systems«**  
What do future agricultural landscapes look like?

In consideration of the spatial and system context, Research Area 3, »Agricultural Landscape systems«, develops and applies systems analysis and assessments to support decision making for sustainable land management. Changing societal demands on agricultural landscapes are analyzed, management options developed and the consequences for food security and the provision of ecosystem services and biodiversity assessed.

- Co-Heads: Prof. Dr. Katharina Helming  
Prof. Dr. Frank Ewert (acting)

**Directorate and Administration & Services**

The basis for excellent research are excellent structures and working conditions. This is ensured by the Directorate in the areas of Strategic Science Management and Public Relations and the Administration with various service units.

## SUSTAINABLE DEVELOPMENT GOALS

17 »Sustainable Development Goals« are the centerpiece of the Agenda 2030, approved in 2015 by the United Nations (UN). The Agenda lays a foundation for global economic development in accordance with social justice and within the ecological boundaries of planet Earth.

### FURTHER INFORMATION

[sdgs.un.org/goals](https://sdgs.un.org/goals)

Our research addresses the following Sustainable Development Goals:



NO POVERTY



ZERO HUNGER



GOOD HEALTH AND WELL-BEING



CLEAN WATER AND SANITATION



INDUSTRY, INNOVATION AND INFRASTRUCTURE



SUSTAINABLE CITIES AND COMMUNITIES



RESPONSIBLE CONSUMPTION AND PRODUCTION



CLIMATE ACTION



LIFE BELOW WATER



LIFE ON LAND



Leibniz Centre for  
**Agricultural Landscape Research**  
(ZALF)



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### Resources & Infrastructure (status as of: August 2020)

- 375 employees
- Total annual budget: 33 Mio. € (from which 10,6 Mio. € are third party funding)
- Core financing by the Brandenburg Ministry of Science, Research and Culture (MWFK) and the Federal Ministry of Food and Agriculture (BMEL)
- Interdisciplinary research teams
- Involvement in national and international networks
- Transdisciplinary, application-oriented research
- Systematic promotion of young researchers
- Family-oriented personnel management
- Scientific meeting centre
- Landscape Laboratories patchCROP and AgroScapeLab Quillow
- Platform for openly accessible landscape research data at ZALF: Open Research Data – <http://open-research-data.de/>

### Photo Credits

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