20 September, 2024

Leibniz Center for Agricultural Landscape Research (ZALF) e.

International conference LANDSCAPE 2024 concluded:

The transformation of agricultural systems needs visions, innovations and can only be achieved together

The LANDSCAPE 2024 conference brought together international experts in Berlin from 17-19 September 2024 to discuss the transformation of agricultural landscapes. Under the title "Agroecosystems in Transformation: Visions, Technologies and Actors", approaches and results were developed for a better balance between food production, adaptation to and mitigation of climate change and the preservation of biodiversity, as well as the promotion of rural development and the diverse services that agricultural landscapes provide for people. The LANDSCAPE conference takes place every three years and is organized by the Leibniz Centre for Agricultural Landscape Research (ZALF) with the support of Humboldt-Universität zu Berlin (HU).

During LANDSCAPE 2024, around 300 researchers from 38 countries presented their scientific work on the balance of the multiple challenges facing agriculture related to biodiversity conservation, climate protection and adaptation as well as food security and economic viability of agriculture. The central theme of all conference contributions was the transformation of agroecosystems, as well as the associated visions, technologies and actors.

"We are facing a fundamental transformation of agriculture, land use and landscapes. We need to make our agricultural landscapes resilient to climate change, sustainable in the long term and ensure global food security with the available natural resources. This can only be achieved together with the most important players - the farmers," says **Prof. Frank Ewert**, Scientific Director of the Leibniz Centre for Agricultural Landscape Research (ZALF) and Chair of LANDSCAPE 2024.

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"The harvest, our drinking water, the air we breathe all depend on functioning ecosystems, healthy soil and intact biodiversity. We should therefore do everything we can to preserve them for future generations. We have seen some exciting forward-looking research approaches on this topic here at the conference," adds **Prof. Bridget Anne Emmett**, Principal Scientist at the UK Centre for Ecology & Hydrology and Chair of the conference.

"A transformation of agricultural ecosystems affects many parts of society. Sustainable food systems require transformed value chains and practices all the way to the consumer. The political and legal framework has a key role in this: it must provide clear orientation and create reliable conditions for novel, sustainable business models", says **Prof. Peter Feindt** of Humboldt-Universität zu Berlin, Co-Chair of LANDSCAPE 2024.

Visions initiate sustainable change, innovations drive it forward

Objectives such as the Sustainable Development Goals (SDGs) of the UN Decade on Ecosystem Restoration and the EU Green Deal play a central role in shaping the vision of future sustainable land use.

Technological innovations such as precision farming and digital tools and production system innovations such as no-till farming, crop and landscape diversification and broad crop rotations offer solutions for preserving biodiversity and improving sustainability and resilience. Sustainable approaches to microbiome and nutrient management pave the way for further improvements in soil health. Advances in plant breeding and robotics can help farmers make sustainable decisions and reduce the use of resources such as synthetic chemical pesticides, mineral fertilizers, energy and water.

Change can only happen together with key actors

Cooperation with key stakeholders is central to the transformation of agroecosystems. Research investigates how and why farmers make decisions and is dependent on a close exchange of knowledge. In the living lab format, for example, scientific teams will work more closely with practitioners, politicians and society from the start of a project in order to jointly develop applicable and innovative solutions during ongoing operations.

New, digital models of collaboration and solutions for knowledge exchange as well as data collection, processing and provision help researchers to develop sustainable solutions for agriculture and nature conservation together with practitioners, politicians and society. Numerous research projects look at the social consequences of land use change and apply these findings to increase social acceptance, for example of land use for the energy transition.

In addition to an extensive lecture program in 32 scientific sessions, five workshops and three master classes were offered before the conference. Following the conference, participants had the opportunity to take part in two excursions. The

transformation of agriculture through crop diversification and the use of digital technologies were presented and discussed in the patchCROP landscape laboratory and the ZALF experimental station in Müncheberg. The second excursion led to the Uckermark, an agricultural region north of Berlin. Prospects for organic and conventional cattle farming were discussed at the Kerkow estate, a conventional cattle farm and the ZALF experimental station in Dedelow.

Organization and support

LANDSCAPE 2024 was organized by a team from ZALF. The rooms were kindly provided by the Humboldt-Universität zu Berlin. The Scientific Committee of LANDSCAPE 2024 played an important role in the preparation of this conference: Fourteen renowned scientists from all over the world contributed to the selection of sessions, posters, workshops and master classes and helped to ensure the scientific quality, thematic diversity and international balance of the program.

We would like to thank all supporters, speakers and participants for making LANDSCAPE 2024 such a success and are looking forward to the next edition of the conference.

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- Humboldt-Universität zu Berlin (HU)
- German Research Foundation (DFG)

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Further information:

https://landscape2024.org

At the LANDSCAPE 2024 conference in September 2024, international researchers discussed the transformation of agroecosystems for an improved balance between agriculture, environmental protection and social demands. Source: © Tony Haupt / ZALF | Image source in color and print quality: http://www.zalf.de/en/aktuelles

Prof. Frank Ewert, Scientific Director of the Leibniz Centre for Agricultural Landscape Research (ZALF) and Chair of the conference during the closing session on September 19, 2024. Source: © Dr. Toni Klemm / ZALF | Image source in color and print quality: http://www.zalf.de/en/aktuelles

Welcome note by Prof. Bridget Anne Emmett, Senior Scientist at the UK Centre for Ecology & Hydrology and Co-Chair of the conference. Source: © Dr. Toni Klemm / ZALF | Image source in color and print quality: http://www.zalf.de/en/aktuelles

First row from left to right: Keynote speaker Prof. Robert Finger (ETH Zurich), Chair Prof. Frank Ewert (ZALF) and Co-Chair Prof. Peter Feindt (Humboldt-Universität zu Berlin) during a panel discussion. Source: © Dr. Toni Klemm / ZALF | Image source in color and print quality: http://www.zalf.de/en/aktuelles

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About the Leibniz Center for Agricultural Landscape Research (ZALF) e. V. in Müncheberg, an institution of the Leibniz Association.

ZALF is researching the economically, ecologically and socially sustainable agriculture of the future - together with stakeholders from science, politics and practice.

As a contribution to overcoming global societal challenges such as climate change, food security, biodiversity conservation and resource scarcity, we develop and design cultivation systems in a landscape context that combine the need for crop production with sustainability. To this end, we combine complex landscape data with a unique set of experimental methods, new technologies, computer-aided models and socio-economic approaches.

ZALF research is systems research: from processes in soils, plants and water, to interrelationships at the field and landscape level, to global impacts and consideration of complex interactions between landscape, society and economy. www.zalf.de