

FInAL – Innovative integrated cultivation strategies to promote insect diversity

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Insect diversity and abundance are decreasing with negative consequences for ecosystem functioning. Especially changes in cultivation practices, often summarized as intensification, are discussed as major drivers of insect decline. However, agricultural landscapes, covering over 50 % of Germany, have the potential to provide valuable habitats for insects, if managed accordingly.

The FInAL-project aims to develop and demonstrate innovative agricultural cultivation practices that sustain, support and increase insect diversity and biomass as well as ecosystem functions provided by insects. This is to be achieved primarily by the integration of renewable resources and integrated pest management.

Therefore, a large-scale, long-term transformation process will be launched on the landscapes scale within three 3x3 km size landscape laboratories across Germany. In close cooperation between researchers and stakeholders, especially farmers, locally adapted measures to promote insects will be conceptualised in a co-designing process and then implemented. In a multidisciplinary approach, impacts of the landscape transformation on biodiversity, its economic viability, and the social acceptance are going to be evaluated. Monitoring the transformation processes in landscape laboratories for ten years will allow the detection of long-term impacts of the transfor-

mation, refine measures to facilitate insects, establish value-chains for alternative crops, and enable comprehensive comparisons with reference landscapes that will be established in the vicinity of the landscape labs.

In the first years of the project, a baseline survey is carried out for all relevant parameters of the study. The Julius Kühn-Institut, Institute for Strategy and Technology Assessment, will investigate the abundance of pests and beneficial insects in-field. It is planned to conduct a monitoring for pests and crop damage in particular in cereal and oil seed rape. In addition, new methods for integrated pest management will be developed which are specially designed to promote the diversity and abundance of insects and will be integrated into the transformed production systems including renewable resources.

As can be imagined, the consistent landscape monitoring in FInAL will generate hundreds of datasets with different research foci. The institute for Strategy and Technology will be responsible to provide a data infrastructure supporting the project consortium in managing their data throughout the entire data life cycle. A joined Database Management System will help to collect, document, process, analyse, share, and publish the research data as to be FAIR – Findable, Accessible, Interoperable, and Re-Usable.