Leibniz Centre for Agricultural Landscape Research (ZALF)

Economics vs. Sustainability? Support German Farmers to implement Efficient Land Use Strategies

Extension proposal for DAKIS Subproject 3.1

Presented at the AAEA Extension Competition 2023

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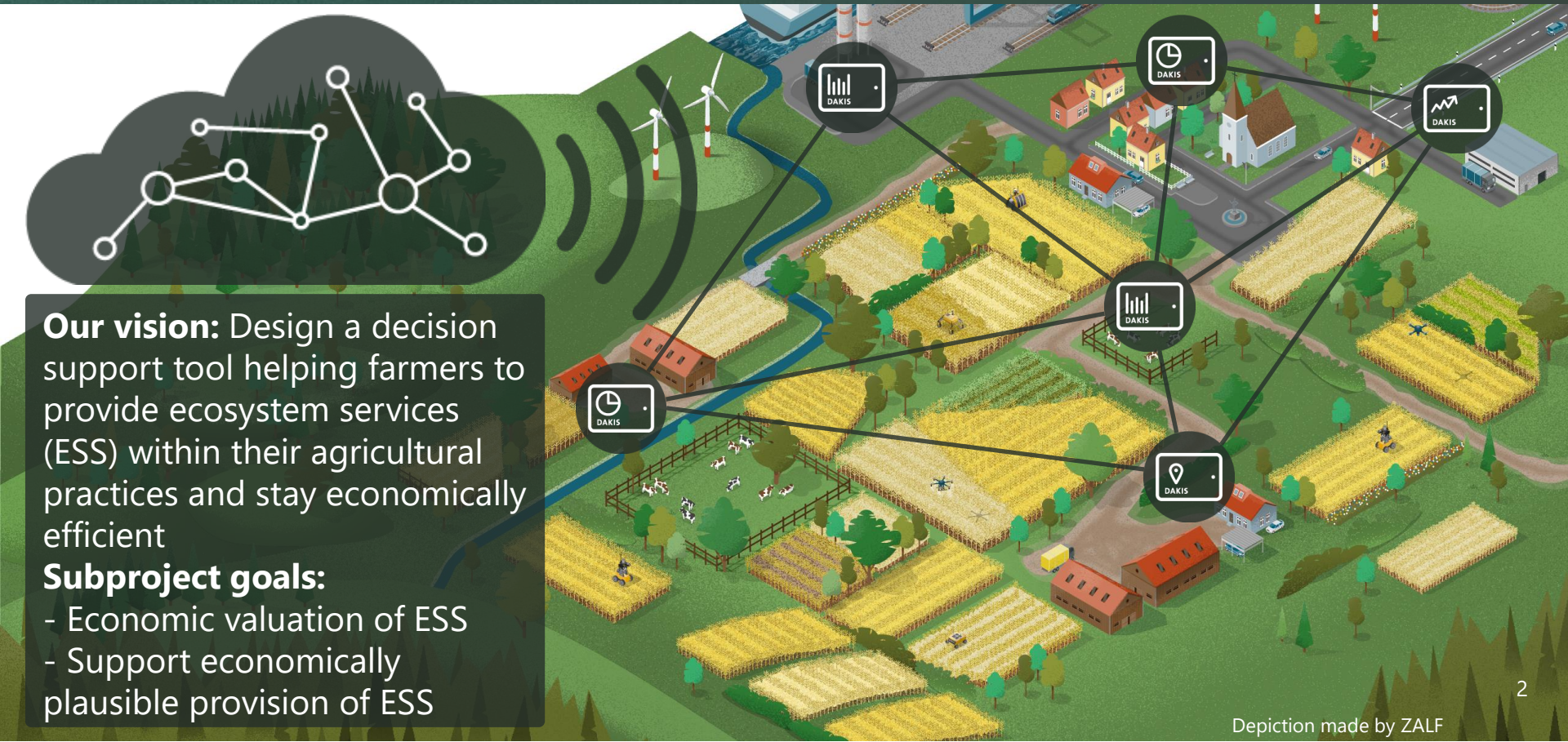
DAKIS: Provision of Ecosystem Services through New Technologies in Agriculture



Our vision: Design a decision support tool helping farmers to provide ecosystem services (ESS) within their agricultural practices and stay economically efficient

Subproject goals:

- Economic valuation of ESS
- Support economically plausible provision of ESS

Depiction made by ZALF

The DAKIS Project

- DAKIS = **D**igital **A**gricultural **K**nowledge and **I**nformation **S**ystem

- Funded by the German Federal Ministry of Education and Research, application for the second phase ongoing
- Part of the project compound „Agricultural Systems of the Future“
- **Subproject 3.1: Optimization of cultivation and operational planning**
- Economic valuation and reach plausability of ESS for farmers
- Outreach program

Agrarsysteme der Zukunft

DAKIS
Digital Agricultural Knowledge and Information System

zalf Leibniz-Zentrum für Agrarlandschaftsforschung (ZALF) e.V.

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

Extension in Germany

- Differences in East and West Germany and in between federal states
- For example, agricultural chambers in the west
- Typical activities are stakeholder and expert workshops, presence on fairs, articles on websites and in magazines
- In some cases private advisors are additionally funded on federal state level

- Development of extension activities in the central projects Pro-AKIS (German level) and iConnect (European level)

Our Team for the Economic Dimension of DAKIS: Optimization of Cultivation and Operational Planning

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Problem Statement

- **General problem:**
- Climate change, need for soil regeneration
- Need for implemetation of more sustainable agricultural practices
- **General idea:**
- A pathway to more sustainable practices could be the implementation of ecosystem services (ESS) in agricultural practices

•Specific for our farm economics group:

•How can we make those sustainable solutions economically plausible?
•How can we convince agricultural stakeholders to implement those practices?

The need for policy makers to support innovation and change

The need for farmers to provide ESS in their practices

The need for agricultural stakeholders to accept and support the agricultural changes, which are visible in the landscape

Project Mission for Solving those Issues

Mission of the farm economics group:

- **Research:** identify how to make the promotion of ESS economically plausible

- **Outreach (for the second project phase):**
- Present economically plausible options for ESS provision
- Inform farmers, policy makers and farm advisors about the DAKIS vision and its economic implications

Target Audience

Farmers

- Arable land farmers
- Affinity to technology

- **We provide:**
- Economic implications of ESS provision
- Plausible options for the provision of ESS
- DSS on farm level
- Costs and benefits of externalities

Policy Makers

- Policy makers on federal state level, country level (and european level)

- **We provide:**
- Economic and social plausability of the ESS provision on farms
- Policy recommondations

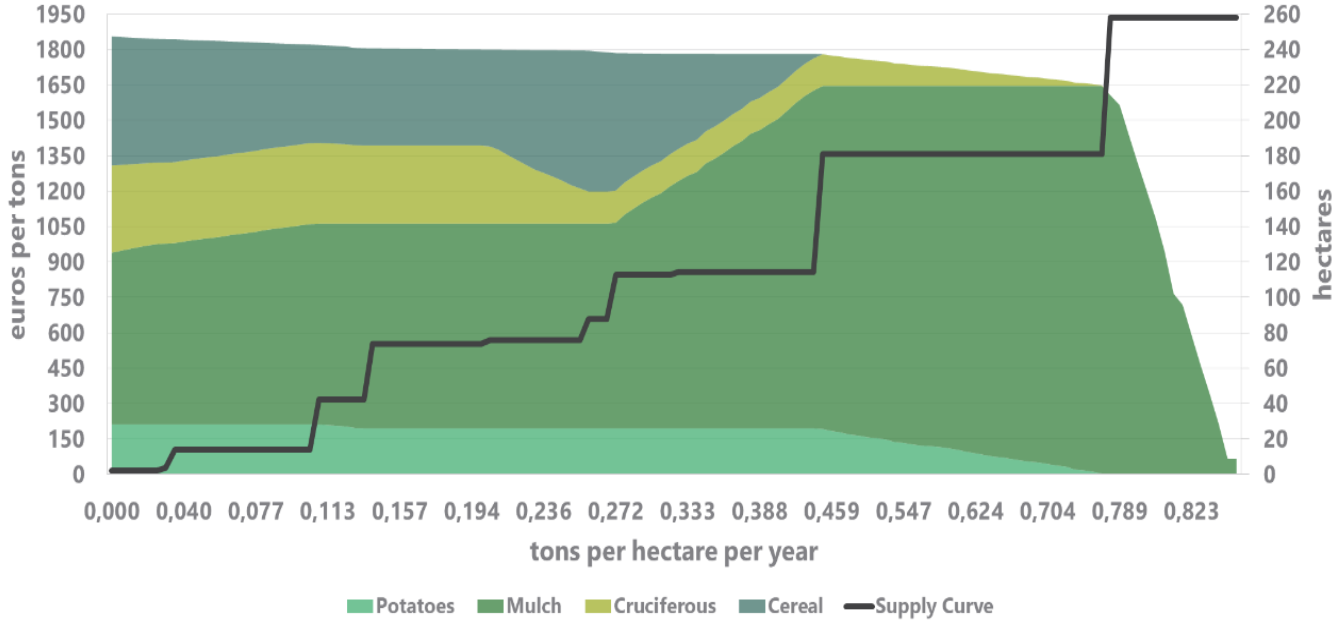
In DAKIS Phase 2:

Non-academic Farm Advisors

- Small and medium sized advisory companies
- Interest in implementation of more sustainable practices

- **We provide:**
- Economic implications of ESS on the landscape level
- ESS implementation on landscape level
- Consider neighborhood farms simoultaneously

Results concerning the economic valuation of ESS



Planning for future research

- Explore attitude of farmers to ESS provision more in detail
- Targeted DSS design and outreach content

Working paper: Hosseini et al., 2023

Planned Delivery Methods

Presentations on Fairs:

- **Agritechnica 2023**
- Direct channel to **farmers and farm advisors**

- **Grüne Woche 2024**
- Possibility to reach **farmers, farm advisors** and other agricultural stakeholders

Articles in the web

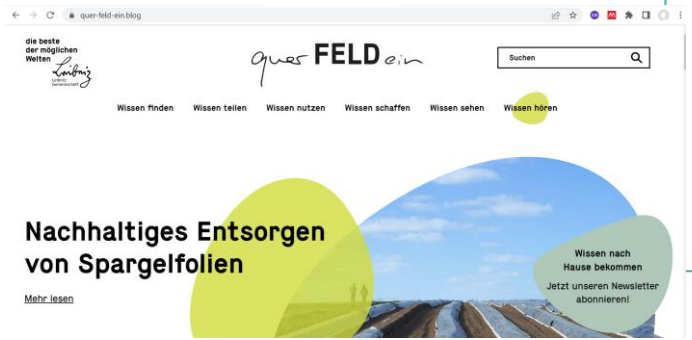
Workshops with the advisory board and other farmers for a joint learning

- Example applications of the operational planning system
- Discussion of features and possibilities

Planned Delivery Methods

Report to the Ministry

- Contains all **policy** relevant findings of the project
- Suggests specific policies



Embedded in outreach and research activities of ZALF: ZALF Transfer, Leibniz Magazines and Living Labs

- **Transfer:** DAKIS activities in the ZALF Transfer Newsletter
- Possibility for direct contact

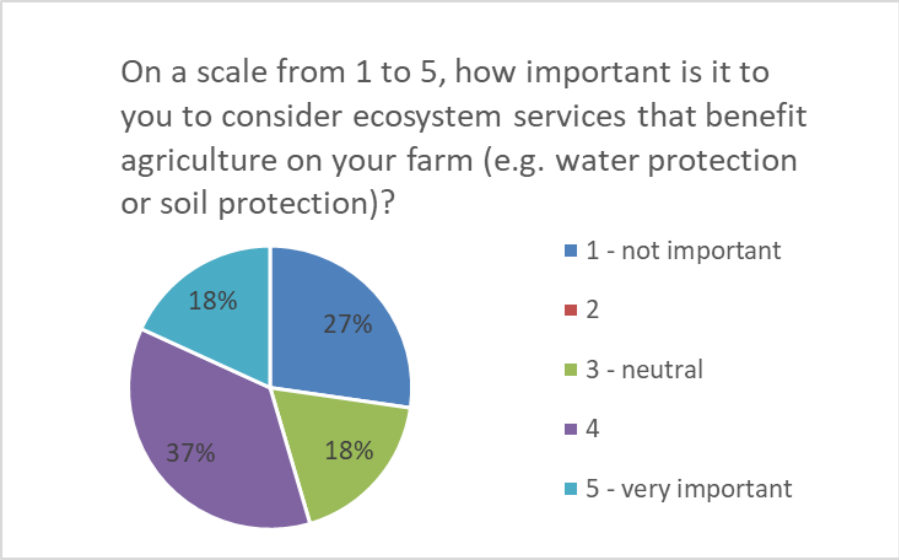
Living Labs: DAKIS implementation in real agriculture (potentially in phase 2)

Articles in the **Web Magazines of Leibniz**

Project Evaluation

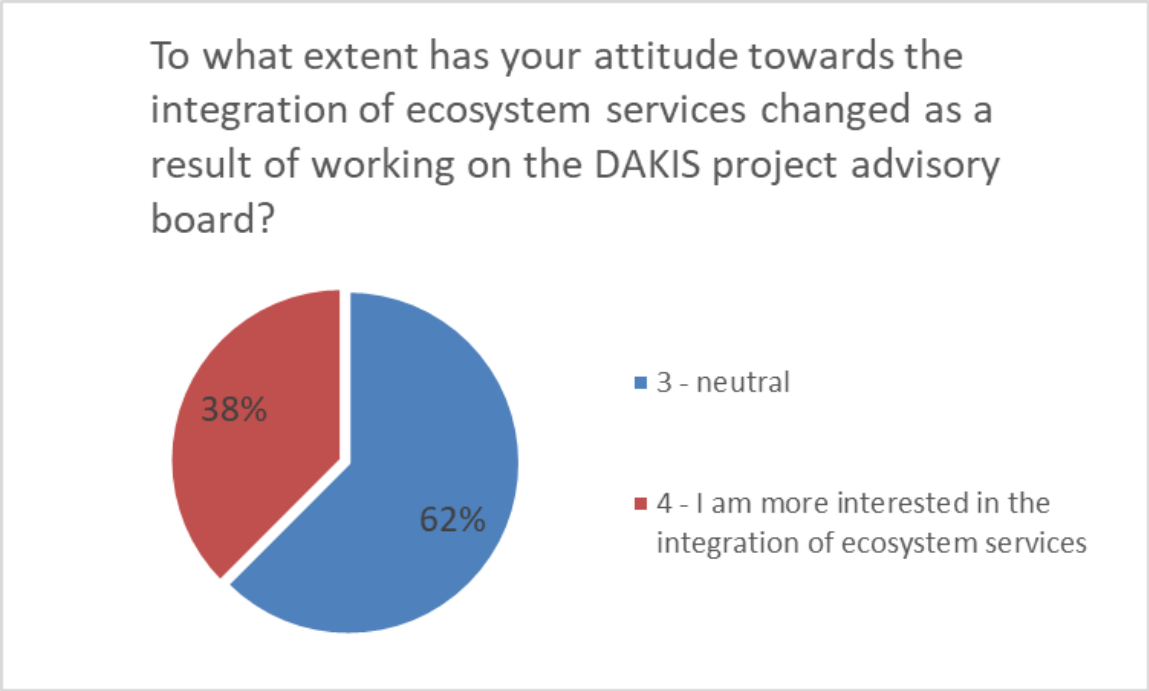
Within Workshops:

- Receive direct feedback from DAKIS advisory board and farmers
- Ongoing qualitative and quantitative surveys



Survey from February 2023, 12 Participants

Project Evaluation



Thank you for your attention!

Leibniz Centre for
Agricultural Landscape Research
(ZALF)

Questions?
Comments?
Contact us:

DAKIS
Digital Agricultural Knowledge and Information System

Agrarsysteme der Zukunft

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Appendix: Assumptions and expected behavioral change

Assumptions and Challenges:

- The european union will continue to subsidize agriculture and will provide continous support
- Farmers are likely to implement more sustainable practices

Expected behavioral change

- Higher probability that farmers will use new technologies
- More knowledge about the provision of ESS and economic implications
- Higher willingness of the farmers to provide ESS