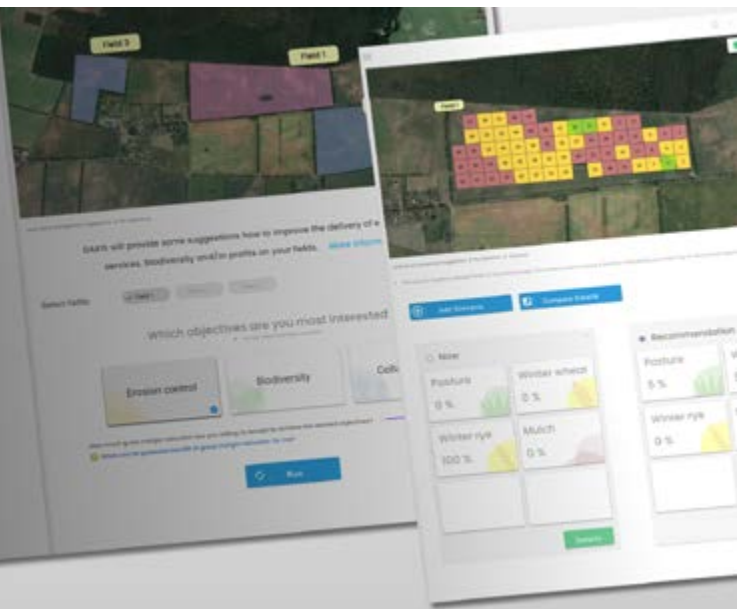


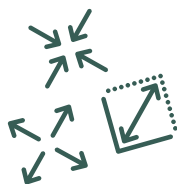
# DIGITAL AGRICULTURAL KNOWLEDGE AND INFORMATION SYSTEM

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The DAKIS user interface.

The vision of the DAKIS project – Digital Agricultural Knowledge and Information System – is an agriculture of the future in which environmental and climate protection are balanced with food security and stable farm incomes. This can be achieved by a digital revolution in agriculture – including the utilisation and interconnection of drones with autonomous field robots, intelligent sensors and other real-time landscape data. DAKIS also integrates the societal demand for ecosystem services (ESS) into the overall system and implements its vision through automated, small-scale production systems using innovative information and management methods.



In the DAKIS project, ten research institutions are working on the implementation of a decision support system (DSS) that integrates ESS, biodiversity and resource efficiency into agricultural decision-making processes, striving for the following objectives:

- 1) Biodiversity, ESS and resource efficiency are integrated into farm decision-making processes based on the development of new market values.
- 2) For the first time, specific effects of agricultural activities at the subfield level are documented, predicted and coordinated in real time. This requires new sensors and models.
- 3) Depending on the objective, cropping systems are optimised in terms of ESS, biodiversity and resource efficiency. For this purpose, new small-scale and subfield-specific cropping systems are required, which are implemented using novel robotics.
- 4) Orientation goals are optimised for farm planning and for supporting complex decisions. New farm models must emerge that aggregate information and enable short-, medium- and long-term planning.
- 5) New communication channels for cooperation between farms, consumers and society will be created. New collaborations are needed to improve ESS and biodiversity across regions.

Over the past three years, the complex components of the envisaged DSS, as well as data and information flows have

been identified. In close cooperation with members of the project advisory board from different sectors and considering first project results, we selected a practical approach based on use cases for further developing the DSS. The first use case deals with the identification and development of measures for grassland buffer strips. Further use cases on landscape elements such as hedges or agroforestry systems are currently being developed.

In addition to the complex structure of the DSS, the different data structures and the rule-based generation of information are central challenges for the next two project years. A functioning DSS prototype is to be developed for the first use cases in the selected landscape windows within the Brandenburg test region. For the prospective second funding phase within the funding measure »Agricultural Systems of the Future«, an intensified consortial exchange by means of joint workshops and activities is planned.

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