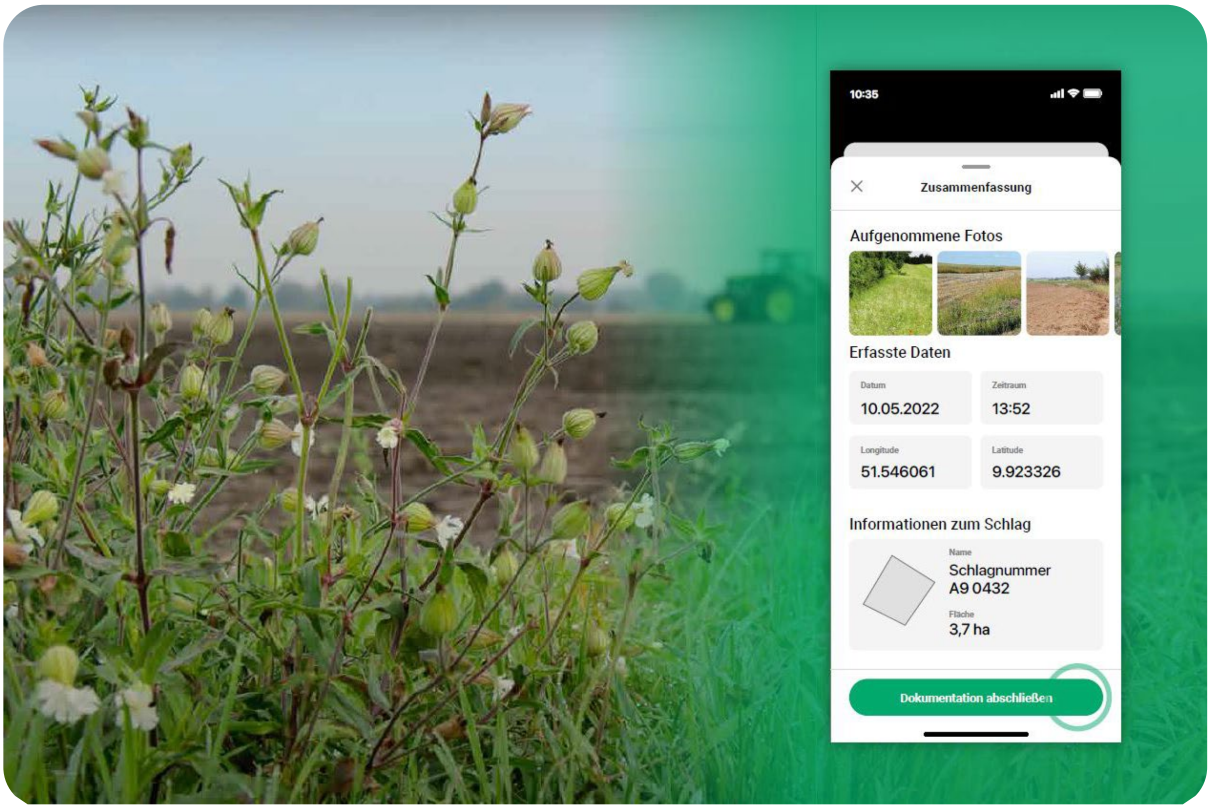
NatApp

Technology fact sheet

What is NatApp?

NatApp is an information and documentation application where farmers can access information about agri-environmental climate and other nature conservation measures as well as document them. It provides a comprehensive platform containing information on all European, German, and regional or local measures that farmers could choose to implement on their farm. Additionally, famers can use the application to allocate the measures, plan them, and report their progress through photos, GPS-tracks, and other forms of documentation. The idea for NatApp dates back 15 years to the Leibniz Centre for Agricultural Landscape Research (ZALF), as the need for a single platform offering a broad overview of all such available measures was becoming increasingly evident. Currently, the application is not yet on the market and links with other digital technologies and systems need to be implemented for it to work as intended. However, it holds a great potential since farmers still have a strong need for a comprehensive platform on available measures, as surveys show.



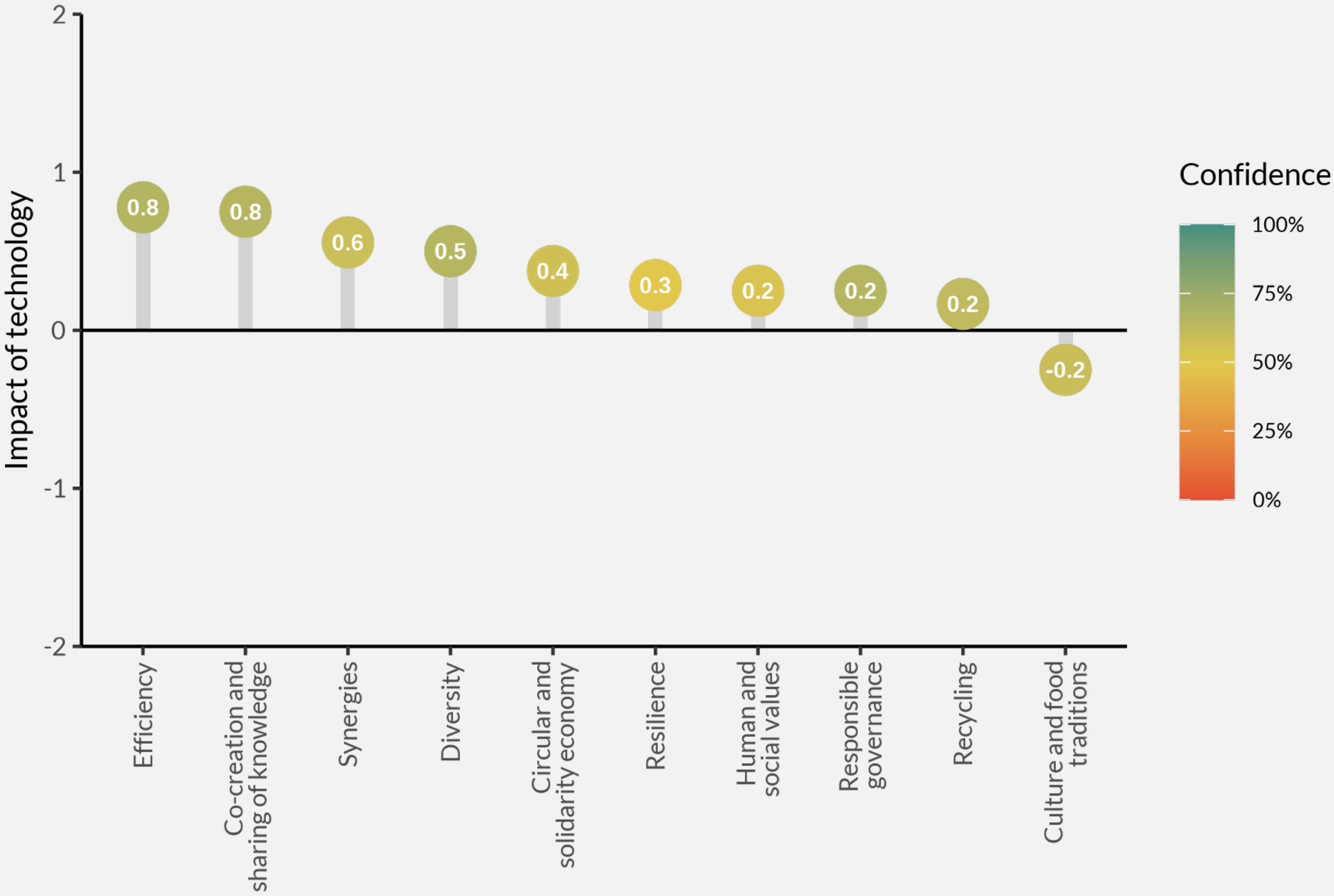
NatApp on a phone screen. The application allows measures to be easily documented by farmers in the field. Figure credit: ZALF.

What is agroecology?

Agroecology is broadly defined as a way of managing food systems more sustainably by following different environmental, economic and social principles. The assessment here is based on the **Food and Agriculture Organization's 10 elements of agroecology**, one of the most important recent frameworks for agroecology.

Agroecological performance

The figure below shows how NatApp affects the FAO's 10 elements of agroecology, based on discussions between farmers, academics and digitalisation experts during our workshop. The height of each bubble represents the average impact ranging from strongly negative (-2) to strongly positive (+2), with the exact score inside the bubble. The bubble colours reflect how confident participants were in their evaluations on average (0% - not confident at all, 100% - highly confident). Note that the figure only shows averages and does not reflect variation in individual assessments.



Examples of potential effects on agroecology

As illustrated in the figure above, NatApp's expected impacts on the different elements of agroecology range from somewhat positive to somewhat negative and are relatively balanced overall. By supporting reliable planning, diversifying income streams, and reducing bureaucracy, the application can increase the **efficiency** of farms. Since the application's main purpose is to serve as an information and documentation tool, it provides a platform for **co-creation and sharing of knowledge**. The farmers on the application can inform themselves on different measures, decide who to share their data with, and build connections. Potential risks here, however, are the pressure to share farm data and replacement of human interactions with app functions. NatApp is expected to have a somewhat positive impact on **diversity** by promoting agri-environmental climate and conservation measures, potentially encouraging farmers to apply them on their farm. The measures can contribute to environmental **resilience**, although the positive impact would be increased if weather data was also considered on NatApp, which is not yet the case. Economic resilience could be boosted through information sharing and increased planning reliability. The app is likely to have mostly positive effects on **human and social values**, as it simplifies documentation, provides transparency, and reduces stress about the validity of measures. However, there is a long familiarisation period and jobs for farm advisors could be lost. NatApp can also contribute to **culture and food traditions** by presenting measures in a simple and accessible way. There is a risk, however, that farmers overly trust the measures on the app and may overlook their suitability in the local context. Over time, the app may also have a negative impact on farmers' skills and knowledge by partly taking over decision-making.

Why does digitalisation matter?

Agriculture in Europe and globally is digitalising rapidly. While digital tools often aim to enhance farming efficiency, they bring a variety of environmental, economic and social effects ranging from changes to fertiliser use to data privacy. Digitalising agriculture can therefore enable a sustainable transition and boost the resilience of food systems, but it also introduces new challenges and risks.

OPPORTUNITIES 🚀

- NatApp provides a platform for knowledge sharing, making it easier for farmers to find and apply climate and conservation measures
- Transparency and efficiency of decision-making can be increased, while bureaucracy can be reduced through simplified documentation
- Including more functions, such as considering weather data, the application could further increase the environmental resilience of farms

CHALLENGES 🧩

- There is a risk of excessive reliance on the app, which can have a negative impact on farmers' own skills and traditional knowledge over time
- Certain jobs, such as those of farm advisors, can be replaced by the app and human interactions may become less important
- Farmers may feel pressured to share data about their farms, which would increase transparency but also brings privacy-related risks

Workshop context

Importantly, the results in this fact sheet reflect the regional context of our assessment. The workshop to assess NatApp took place at ZALF on 21 February 2024. Since the application can be used for any type of farm, the discussions in the workshop were focused on Germany as a whole and covered farming systems from arable cropping to livestock farming to horticulture and vineyards. In the context of Brandenburg, the state in which the workshop took place, agri-environmental climate measures most commonly focus on arable cropping and livestock farming (grassland farming), which were therefore implicitly included in the evaluation. Participants at the workshop had backgrounds in farming, digitalisation, and academia.

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