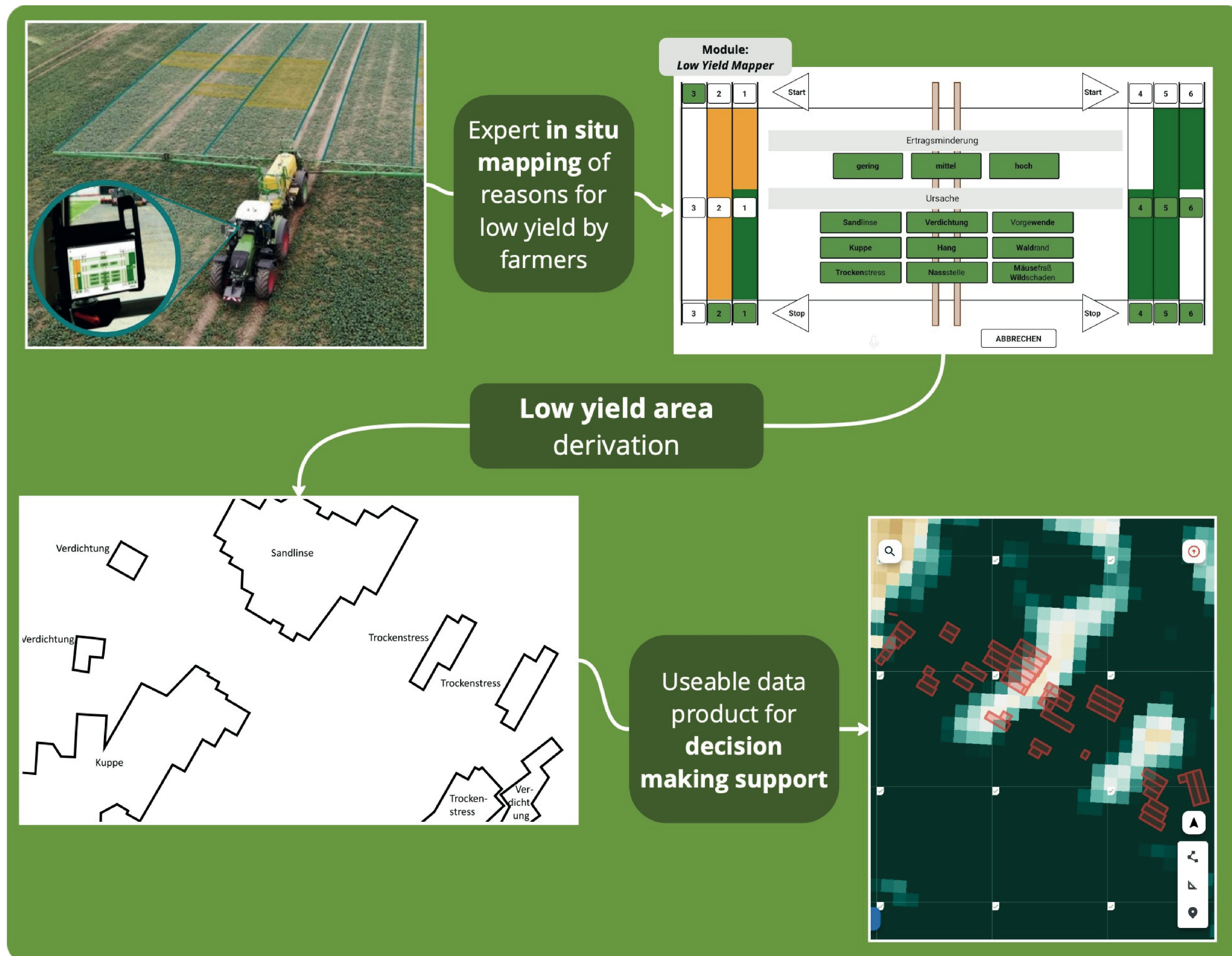


Supporting sustainable agricultural decision-making with geodata: The FieldMApp - a versatile data collection tool

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FieldMApp data life cycle - Illustrating the flow from in situ data collection with the FieldMApp module: low yield mapper, to the processed potential low yield map via the satellite-based vegetation deficit layer (VDL).

Our Partners

We are collaboratively designing and evolving the FieldMApp with industry partners to develop software that addresses the needs of both, crop consultants and farmers. Therefore, we are collaborating with consultants from **Hanse-Agro - Beratung und Entwicklung GmbH**, which provide us with consolidated insights into the needs of a wide variety of agricultural companies, covering a multitude of environmental factors and crop management strategies. Together we were able to conduct several field experiments and collect valuable data, with the help of farmers from **Daberkower Landhof AG (MV)** and **Landwirtschaftsbetrieb Knorr (TH)**.

FieldMApp: Bridging the Gap in Crop Management

Earth observation data enable a characterisation of crops in terms of vitality and expected yield, but contain insufficient information to retrieve the reasons why certain areas within acreages give rise to below-average vitality or yield. Knowing these reasons is a prerequisite for an economically and ecologically meaningful agricultural management of these areas. Expert knowledge of farmers can help to overcome this gap. The FieldMApp, a modular structured mobile application, offers with the modul 'Low Yield Mapp' an opportunity for farmers to digitalize the required in situ data and store them in a machine-readable format. With the FieldMApp geoinformation system (GIS) the resulting geodata about potential low yield areas can be visualized, e.g., in combination with current data of the satellite-based vitality deficit layer (VDL) to support the management decision of agricultural consultants and farmers.

Technical Aspects

The FieldMApp is composed of several modular system components, collectively forming the FieldMApp ecosystem. Open source technologies and open standards are leveraged to build the ecosystem, ensuring optimal integration with various services and clients.

The FieldMApp GIS capabilities are built with a modular design, allowing for easy extensions and accessibility both online and offline. It supports a variety of standardized services and data formats for vector and raster data, including GeoJSON, OGC API Features, and WMS/WMTS/TMS.

The Backend FieldMApp API is developed in accordance with the OGC API Features and SpatioTemporal Assets Catalog (STAC) standards, facilitating farmers and consultants in managing field data and processed data using familiar tools such as QGIS.

Outlook

It is planned to strengthen the role of the FieldMApp as a data collection and decision making tool for famers and agricultural consultants. For data collection the integration of XLSForms is planned, providing a flexible and expandable approach for annotating field data. Furthermore, a robust reporting pipeline is planned, leveraging both collected field data and publicly accessible data, such as weather data and satellite sensor products, to generate regular reports on agricultural areas registered within the application, tailored to the needs of sustainable crop production. Due to its generic structure, the FieldMApp can also be applied for other scopes, like environmental monitoring, disaster management or maintenance of industrial facilities.

