

P58 - Farmwissen an innovative concept and platform for competence enhancement in Smart Farming

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Introduction

Today's agriculture has plenty of digital technologies at its disposal. But how does the farmer know which application or technology is the right one for him and his farm?

In Germany, the Federal Ministry of Food and Agriculture (BMEL) funds projects that help to research digital technologies and test their practicality; these are called experimental trial fields. The focus is on knowledge transfer, i.e. putting the acquired knowledge into practice and building up competencies. Two of these projects, the project "Farm Management and Material Flow Management - Networked Agriculture in Schleswig-Holstein" (BeSt-SH) and "Experimentierfeld Südwest" (EF-Südwest) have taken this as an opportunity to bundle the knowledge and competences of all projects and make them available on the central, freely accessible platform "FarmWissen" on www.farmwissen.de (translates FarmKnowledge). Because if we take a closer look at digitisation in agriculture, it quickly becomes clear that some challenges to the successful establishment of a new technology inhibit its use [1].

The basic idea of FarmWissen is to bundle knowledge about established and future-oriented digital applications and technologies and to present them in a way that is easy to understand. The benefit of such a knowledge transfer strategy lies in the possibility of individual farm-specific knowledge transfer, independent of time and place. The content on digitalisation in the agricultural sector should also play a decisive role in vocational, technical and higher education as well as in training and further education.

The components of FarmWissen consist of practical examples, which include detailed step-by-step instructions with a detailed list of ingredients, similar to a recipe for cooking, a FarmWiki, in which a detailed explanation of the individual ingredients of the practical examples or recipes takes place, and complicated preparatory work for individual examples is explained with images and video material in detailed tutorials.

Concept and competence enhancement thru FarmWissen

The FarmWissen strategy is made up of different components. The practical examples, the FarmWiki, the OpenDataFarm and edu@FarmWissen have different focal points in knowledge transfer. The focus is on informing, demonstrating and qualifying users.

The idea behind FarmWissen is to bundle knowledge about digital technologies in agriculture and present it in a comprehensible way; this has given rise to the concept of a "recept platform". Here, findings from practice, extension, trials and manufacturer presentations are used as a basis for developing concepts, explanations and examples on specialist topics relating to digitalisation in agriculture. The target group here is the practitioners themselves, but the content can also be used in further education and teaching to impart knowledge. The so-called practical examples have emerged from this idea. These function as "recipes" for solving practical problems on farms. Thus, the focus is not on the technology used, but on the benefits behind it. As with a recipe, the necessary ingredients are listed within the practical examples. It is precisely listed which data, which technology and which application are used and, above all, which skills the practitioner needs to implement this example on his farm. This is followed by step-by-step instructions on how to use the digital technology.

In addition to the practical examples, the FarmWiki consists of a glossary and tutorials. The glossary explains technical terms related to digitisation in agriculture. These terms were written on the basis of scientific sources and go through a correction process so that technical accuracy is guaranteed. The amounts are linked to the practical examples, so that one immediately receives a practical example for interesting terms. The tutorials serve to explain preliminary work within the practical examples; these can take the form of instructions or a video. In order to make the knowledge visually experienceable, the concept of the OpenDataFarm was developed in a further step.

The core objective of the digital farm "OpenDataFarm" is to build up the Hofgut Neumühle teaching and experimental farm (LVAV) as a 3D model and to back it up with real data, thus capturing

and dynamically demonstrating the operational data and material flows from a wide variety of data sources. This type of visual information and data preparation establishes an understanding of the data and data flows that occur on a farm.

Another important point is to bring the generated knowledge about digital techniques in agriculture into practice. One strategy is to start with this directly in vocational and technical schools. This is where edu@FarmWissen comes in. A concept has been developed that prepares the contents of the platform in a didactic way for vocational and technical schools and converts it into a curriculum.

These individual modules can be integrated into edu@Farmwissen for competence-oriented teaching to provide early competence development in digital agriculture [2].

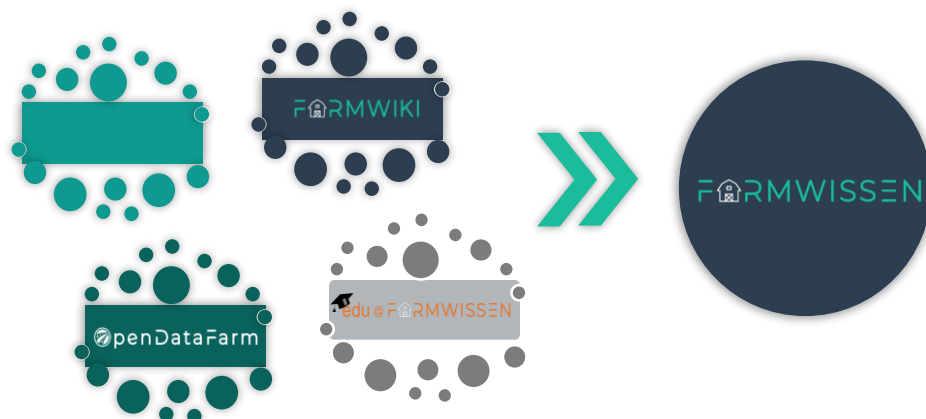


Figure 1. Structure and Modules on FarmWissen

Outlook

FarmWissen has already become an overall concept for all digital experimental trial fields. The project is clearly pursuing the platform idea. The open community of the experimental trial fields is the beginning of a success story for FarmWissen. Through the successful cooperation, a basic concept has emerged and the foundation for further cooperative approaches has been laid. From this point of view, new collaborations can emerge in the future. In order to answer as many practical questions as possible on FarmWissen, there is also an openness towards third-party providers. In addition, FarmWissen will continue to develop. At the moment, the content is only available in German. A filter and search function is already being developed in order to find solutions to individual questions more quickly. In addition, a live format for FarmWissen is conceivable, so that experts from extension, science and practice can exchange views on certain specialised topics. Another idea is workshops for the users of the platform, so that the practical examples can also be used as practical exercises and detailed questions can be clarified in direct exchange.

Acknowledgements

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References

1. Schleicher S, Gandorfer M (2018). Digitalisierung in der Landwirtschaft: Eine Analyse der Akzeptanzhemmnisse. In: Ruckelshausen, A., Meyer-Aurich, A., Borchard, K., Hofacker, C., Loy, J.-P., Schwerdtfeger, R., Sundermeier, H.-H. F. & Theuvsen, B. (Hrsg.), 38. GIL-Jahrestagung, Digitale Marktplätze und Plattformen. Bonn: Gesellschaft für Informatik e.V.. (S. 203-206).
2. Erpenbeck J, Sauter S, Sauter W (2015). *E-Learning und Blended Learning. Selbstgesteuerte Lernprozesse zum Wissensaufbau und zur Qualifizierung*. Wiesbaden: Springer.
3. Federal Ministry of Food and Agriculture (2022): Position Paper Data management in Agriculture, Available from: https://www.bmel.de/SharedDocs/Downloads/EN/Digitalisation/position-paper_data-management-agriculture.pdf?__blob=publicationFile&v=2