Consortium Progress Report B-1

March 1, 2023 - Feb 28 2026

FAIRagro

FAIR Data Infrastructure for Agrosystems

1 General Information

1.1 Name of the consortium

FAIRagro - FAIR Data Infrastructure for Agrosystems (in German: FAIRe Dateninfrastruktur für die Agrosystemforschung)

1.2 Research domains and research methods addressed by the consortium

FAIRagro addresses the agrosystem community which includes agronomy, ecology and ecophysiology of plant production systems with arable and horticultural crops and grasslands, their functions within agro-ecosystems and landscapes, and related ecosystem services. Typical data collection methods include field experimentation, monitoring, proximal and remote sensing, and modelling. According to the DFG review board 2.31 we include the subject areas soil sciences, plant breeding and pathology, plant cultivation and nutrition, agricultural technology, ecology of land use, and agricultural economics, policy, and sociology. Important agrosystem research societies are partners in the consortium: German Agricultural Research Alliance (DAFA), German Phytomedical Society (DPG), German Society of Agronomy (GPW), and the German Soil Science Society (DBG). Forestry, agroforestry, animal breeding, -nutrition and husbandry and veterinary medical science are not yet represented in the consortium.

1.3 URL of the consortium website and repositories used for publishing output

FAIRagro Portal (consortiums website):	https://www.fairagro.net
FAIRagro Helpdesk:	https://fairagro.net/helpdesk
FAIRagro Search Hub:	https://search-hub.fairagro.net
FAIRagro Knowledge Base:	https://knowledgebase.fairagro.net
FAIRagro on Github:	https://github.com/fairagro
Zenodo FAIRagro Community:	https://zenodo.org/communities/nfdi-fairagro
Mastodon FAIRagro Community:	https://nfdi.social/@FAIRagro
LinkedIn FAIRagro Community:	https://linkedin.com/company/fairagro-konsortium
Bluesky FAIRagro Community:	https://bsky.app/profile/fairagro.bsky.social

2 Summary

Before the start of the NFDI consortium FAIRagro, research data in the agrosystem science were distributed across a heterogeneous landscape of institutional repositories, project databases and domain infrastructures. The way datasets were described, documented and licensed varied substantially among disciplines and organisations. While important and FAIR research data infrastructures already existed in some institutes, they were rarely coordinated at the national level, and cross-domain reuse of data remained difficult. Researchers often lacked structured support for managing, publishing and reusing their data. As a result, datasets were difficult to combine across projects, disciplines and institutions. FAIRagro was established to address these challenges and significantly improve the scope and quality of agrosystem data publication, description, and interoperability across research data infrastructures. During the first three years (2023–present), FAIRagro has considerably improved how agrosystem research data are published and documented, as well as their findability across infrastructures in Germany - thereby enhancing their reusability.

As a central project result, datasets from different repositories can now be discovered through a single search interface, the FAIRagro Search Hub. This is enabled by a shared metadata harvesting approach (FAIRagro Middleware) that aggregates datasets from participating infrastructures. Consequently, the visibility of datasets in institutional and disciplinary repositories increased considerably, making it easier for researchers to identify relevant data beyond their own disciplines. By focusing on connecting existing infrastructures rather than replacing them, FAIRagro has strengthened data reuse while preserving established community services.

FAIRagro has also established visible and widely used support structures for the research community. The FAIRagro Data Steward Service Center and the Helpdesk have become highly successful and provide direct guidance for data publication, metadata preparation, repository selection and legal questions. Agricultural researchers in Germany can now, for the first time, receive structured guidance on how to describe experiments, measurement conditions and derived variables so that others can understand and reuse the data. A comprehensive set of training courses, legal workshops and practical guidance materials complement this support and have strengthened research data management skills across institutions. The strong demand for these services demonstrates the need for coordinated, domain-specific support structures.

FAIRagro’s Use Cases played a pivotal role in showcasing typical community demands and testing and refining FAIRagro services in real research contexts. They helped identify practical barriers to data publication, metadata harmonisation and cross-domain reuse, and provided concrete examples of how FAIRagro services and standards can improve research workflows. Insights from the Use Cases fed directly into the development of services, training materials and guidance documents. Additional Use Case calls launched during the funding phase allowed

further research groups from associated research domains to bring forward emerging challenges, ensuring that FAIRagro developments continued to reflect real scientific needs.

FAIRagro has contributed to NFDI-wide discussions on cross-cutting topics by bringing in requirements and practical experience from the agrosystem sciences. In NFDI sections and working groups, FAIRagro contributes perspectives on handling heterogeneous environmental and agrosystem experimental data, integrating long-term research datasets and connecting distributed repositories through shared metadata approaches. It also brings insights from its data steward support structures, Use Case work and infrastructure integration activities, including experiences with dataset publication, data quality, licensing issues and federated service design. These contributions are discussed jointly with other consortia, for example through FAIRagro's involvement in the Biodata working group, where requirements from the agrosystem sciences are aligned with broader developments in life-science. FAIRagro co-organised the workshop "Synergies in the Life Sciences" at CoRDI, which addressed common challenges in data description, terminology and infrastructure integration across domains. Through these activities, FAIRagro helps ensure that cross-consortial solutions within the NFDI also reflect the needs of agrosystems research.

During its first funding phase, FAIRagro established key services and support structures that are now used by the research community, including cross-repository search, data steward support and community-driven Use Cases. These elements have helped improve how agrosystem datasets are published, discovered and prepared for reuse. Key services and support structures are now in place and can be extended to additional communities within the agricultural and food sciences, as well as additional data types. FAIRagro has become the main consortium to be approached by larger research projects seeking support for their RDM plans. At the same time, not all challenges could be fully addressed given the size of the community. Remaining heterogeneous repository practices, uneven metadata quality and differing legal frameworks need further attention. Continued progress will depend on maintaining coordinated support for researchers, improving data publication practices and further connecting infrastructures across domains. Building on the results of the first funding phase, FAIRagro will focus on consolidating its services, supporting researchers in making their data accessible and reusable, and extending its activities to additional research areas within the agricultural sciences, particularly including livestock-related disciplines.

3 Composition of the consortium

3.1 Applicant institution

Applicant institution	Location	Duration
ZALF: Leibniz Centre for Agricultural Landscape Research	Müncheberg	03/23 - today

3.2 Spokesperson

Spokesperson	Institution, location	Duration
Prof. Dr. Frank Ewert	ZALF, Müncheberg	03/23 - today

3.3 Co-applicant institutions

Co-applicant institutions	Location	Duration
FIZ: Leibniz Institute for Information Infrastructure	Eggenstein-Leopoldshafen	03/23 - today
FZJ: Forschungszentrum Jülich	Jülich	03/23 - today
IPK: Leibniz Institute of Plant Genetics and Crop Plant Research	Gatersleben	03/23 - today
JKI: Federal Research Centre for Cultivated Plants	Quedlinburg	03/23 - today
KTBL: Kuratorium für Technik und Bauwesen in der Landwirtschaft	Darmstadt	03/23 - today
SGN: Senckenberg – Leibniz Institution for Biodiversity and Earth System Research	Frankfurt	03/23 - today
Thünen Institute	Braunschweig	03/23 - today
TUM: Technical University Munich	Freising	03/23 - today
UNB: University of Bonn	Bonn	03/23 - today
ZBMED: Information Centre for Life Sciences	Köln	03/23 - today

3.4 Co-spokespersons

Co-spokespersons	Institution, location	Task area(s)	Duration
Prof. Dr. Senthold Asseng [0000-0002-7583-3811]	TUM, Freising	TA1	03/23 - today
Dr. Til Feike [0000-0002-1978-9473]	JKI, Kleinmachnow	TA1	03/23 - today

Prof. Dr. Jochen C. Reif [0000-0002-6742-265X]	IPK, Seeland OT Gatersleben	TA1	03/23 - today
Birte Lindstädt [0000-0002-8251-1597]	ZBMED, Köln	TA2	03/23 - today
Dr. Ulrike Stahl [0000-0002-5659-910X]	JKI, Quedlinburg	TA2	03/23 - today
Prof. Dr. Franziska Boehm	FIZ, Eggenstein-Leopoldshafen	TA3	03/23 - today
Prof. Dr. Jan-H. Haunert [0000-0001-8005-943X]	UNB, Bonn	TA3	03/23 - today
Daniel Martini [0000-0002-6953-4524]	KTBL, Darmstadt	TA3	03/23 - today
Dr. Claus Weiland [0000-0003-0351-6523]	SGN, Frankfurt	TA3	03/23 - today
Prof. Dr. Juliane Fluck [0000-0003-1379-7023]	ZBMED, UNB, Bonn	TA4	03/23 - today
Florian Hoedt [0000-0002-6068-1659]	Thünen, Braunschweig	TA4	03/23-12/24
Dr. Matthias Lange [0000-0002-4316-078X]	IPK, Seeland OT Gatersleben	TA4	03/23 - today
Prof. Dr. Björn Usadel [0000-0003-0921-8041]	FZJ, Jülich	TA4	03/23 - today
Dr. Xenia Specka [0000-0002-1890-0192]	ZALF, Müncheberg	TA5	03/23 - today
Harald von Waldow [0000-0003-4800-2833]	Thünen, Braunschweig	TA4	01/25 today

3.5 Participants

Participating institutions	Location	Duration
ATB: Leibniz Institute for Agricultural Engineering and Bioeconomy	Potsdam	03/23 - today
BLU: Bielefeld University	Bielefeld	03/23 - today
BSA: Directorate General of the Bavarian State Archives	München	03/23 - today
DBFZ: German Biomass Research Center gGmbH	Leipzig	03/23 - today
DBG: The German Soil Science Society	Leipzig	03/23 - today

DPG: German Society for Plant Protection and Plant Health	Braunschweig	03/23 - today
DWD: Deutscher Wetterdienst	Offenbach	03/23 - today
GAUG: Georg-August University Göttingen	Göttingen	03/23 - today
GPW: German Society of Agronomy	Müncheberg	03/23 - today
HSOS: Osnabrück University of Applied Sciences	Osnabrück	07/25 - today
HUB: Humboldt-Universität zu Berlin	Berlin	12/24 - today
HSWT: Weihenstephan-Triesdorf University of Applied Sciences	Freising	03/23 - today
IGZ: Leibniz Institute of Vegetable and Ornamental Crops	Großbeeren	09/24 - today
LfL: Bayerische Landesanstalt für Landwirtschaft	Freising	03/23 - today
RPTU: Rheinland-Pfälzische Technische Universität Kaiserslautern- Landau	Kaiserslautern	07/25 - today
UFZ: Helmholtz Centre for Environmental Research	Leipzig	03/23 - today
UHOH: University of Hohenheim	Stuttgart	03/23 - today
UROS: University of Rostock	Rostock	12/24 - today
VZG: Head Office of the GBV Common Library Network	Göttingen	03/23 - today
ZEPP: Central Institute for Decision Support Systems in Crop Production	Bad Kreuznach	03/23 - today

Participating individuals	**Institution, location**	**Duration**
Prof. Dr. Anna Maria Häring	German Agricultural Research Alliance (DAFA)	03-23- today
Dr. Manfred Röhrig	Informationssystem für die integrierte Pflanzenproduktion (ISIP)	03-23- today