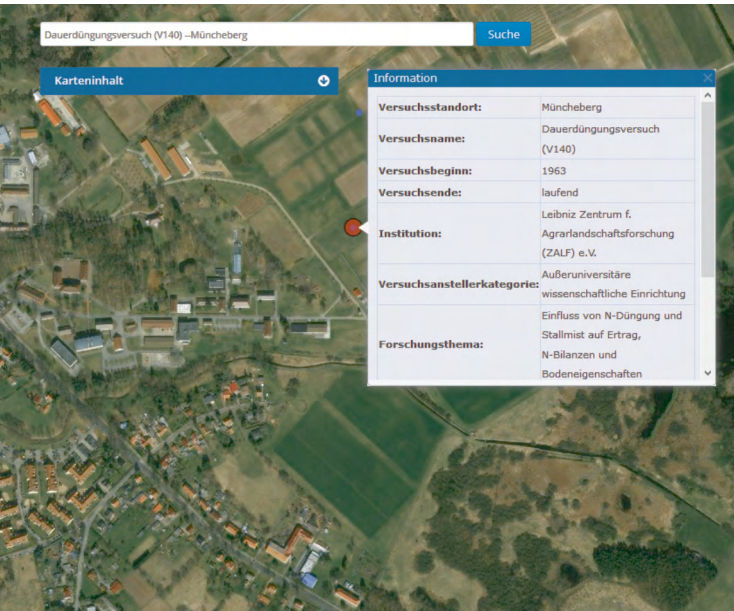
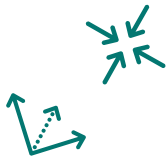


BONARES—SOIL AS A SUSTAINABLE RESOURCE FOR THE BIOECONOMY

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Information from approx. 200 long-term field experiments in Germany will be provided in a Web GIS application.



BONARES stands for »Soil as a sustainable resource for the bioeconomy«. The aim of BONARES is to broaden the scientific understanding of soil ecosystems in order to improve soil productivity and natural soil functions and to develop new strategies for sustainable soil management. In addition to 10 collaborative research projects involving more than 40 German research institutions, the BONARES Centre was established in 2015 as a collaborative project coordinated by the Helmholtz-Centre for Environmental Research. It promotes the scientific integration of the collaborative research projects, establishes a repository for research data, develops methods for modelling and sustainability assessment of soil functions and integrates the project results into a central web platform. The programme is designed for three funding phases of three years each. The second funding phase started in 2018 after an international scientific advisory board had certified that the centre had been successfully launched. In the virtual BONARES centre, ZALF is responsible for the following tasks:

1) A repository for soil-related research data will be established and operated, using the latest international standards for the life cycle management of research data and making the research data freely available by means of an extensive metadata scheme. The authorship of the data providers will be guaranteed via DOI allocation. The data repository is developed for the BONARES program, but will be globally available for the management of soil-related research data.

2) Meta-information of long term field experiments will be provided on a web GIS application. Research data can be

Healthy soils are prerequisite for sustainable agriculture and for the efficient utilization of natural resources like water, energy, land and nutrients. In order to maintain healthy soils, a systemic understanding of the biological, chemical and physical processes interacting in the complex soil system and their dynamic interactions with soil management is required. BONARES investigates the functionality of soils to improve the evidence base for sustainable soil management. The BONARES funding initiative integrates 10 interdisciplinary collaborative projects as well as the BONARES Centre. It is funded by the Federal Ministry of Education and Research (BMBF).

entered into the data repository and thus made available for scientific re-use. In Germany, there are more than 200 long-term field experiments, some of which have been running for more than 100 years. These experiments form an extremely valuable database for current research questions, e.g. related to climate change.

3) The project will develop tools for the sustainability assessment of expected future changes in soil functions induced by changes in soil management, e.g. in the course of digitalization or the establishment of new crop rotations. This includes the assessment of ecosystem services and resource use efficiency. To this end, scenarios for agricultural land use are also being developed, which take into account external drivers such as prices, policies, technologies, and climate.

4) The results of the BONARES programme as well as the research data repository and the practical recommendations for action will be combined in a digital platform.

Project: Centre for Soil Research (BONARES) **Term:** 2018–2021 **Sponsor:** BMBF **Lead at ZALF:** K. Helming (helming@zalf.de), U. Heinrich (uheinrich@zalf.de) **Partner:** UFZ, Senckenberg Museum of Natural History Görlitz, BGR, TUM, Univ. Gießen
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