OBJECTIVES

MICROSERVICES aims to assess the impact of climate change on the crop-soil-microbiome nexus under various agricultural management regimes. This is to **strengthen our capacity** to predict and mitigate future climate change impacts on soil biodiversity and resulting agroecosystem functioning.

Such knowledge will be key to develop a sustainable and climate-resilient agriculture.

MICROSERVICES' objectives are to:

- **Provide** scientific insights into future impacts of climate change on the crop microbiome & associated ecosystem services,
- **Promote** political & public awareness of the importance of microbial diversity for sustainable agriculture,
- **Establish** interactions between research institutions, agricultural stakeholders, & policymakers to influence policy agendas at the national and European level.

PARTNERS

Agroscope

Agroscsope

ELO European Landowners' Organization

European Landowners' Organization

ETH zürich

ETH ZURICH

INRA SCIENCE & IMPACT

INRA

LEITAT managing technologies

LEITAT Managing Technologies

National Observatory of Athens

UNIKASSEL VERSITÄT

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MICROSERVICES

PREDICTING CLIMATE CHANGE IMPACTS ON THE CROP MICROBIOME AND CASCADING EFFECTS ON ECOSYSTEM SERVICES DELIVERY IN AGROECOSYSTEMS.

ABOUT US

Starting in April 2021 and scheduled to run until March 2024, MICROSERVICES is funded under the **2019-2020 BiodivERsA joint call fall for research projects** under the BiodivClim ERA COFUND programme.

7 organisations across 6 countries, Belgium, Germany, Greece, France, Spain, and Switzerland, are involved in the project, which is coordinated by ETH Zürich

PROJECT ACTIVITIES

Regional climate models provided by **Earth Observation data** will identify specific ecoregions within Atlantic, Continental, and Mediterranean biogeographic zones to create **gradients of forecasted climate progressions**.

Wheat cropping sites along these climate gradients and across management regimes will be identified and sampled in **collaboration with stakeholders from across the EU agricultural value chain.**

Drought effects will be simulated using rain-out shelters in one of the world's longest running agricultural field experiment, **comparing different conventional & organic farming systems** since 1978, the DOK trial in Switzerland.

The multi-level crop-soil-microbiome nexus responses will be assessed by **harnessing ground-breaking methods across scientific disciplines.** from isotope labelling to implementing Earth Observation tools to machine learning algorithms.

FNSNF
Fonds national suisse
Schweizerischer Nationalfonds
Fondo nazionale svizzero
Swiss National Science Foundation

AGENCE NATIONALE DE LA RECHERCHE
ANR

CONTEXT

Climate change exerts substantial pressure on Earth's biodiversity, especially for agroecosystems, where the accelerated pace of climate change along with unsustainable land use directly **threatens global food production**.

One way to mitigate this is to **harness microbial functions**, i.e. enhancing crop growth, disease resistance, & greenhouse gas mitigation, into agricultural production, while progressively decreasing the amount of external chemical inputs (e.g. fertilisers).

The extent to which climate change affects the crop-associated microbiome remains **underrepresented in ongoing debates** about climate change and conservation policy making.

MICROSERVICES aims to tackle this issue in a **cross-disciplinary and collaborative way**, paving the way for more accurate **agricultural policy decisions**.

Federal Ministry of Education and Research

GSRI
GENERAL SECRETARIAT FOR RESEARCH AND INNOVATION

AGENCIA ESTATAL DE INVESTIGACIÓN