AGROECOLOGY PARTNERSHIP

BIOdiversity of soils and FArming Innovations for improved Resilience in European wheat agrosystems - BIOFAIR

Objectives

- Assessing the impacts of **climate change** and **innovative farming practices** on plant productivity, nutritional quality and fitness.
- Studying the **soil functioning** and the related soil microbiome as well as micro- and meso-fauna **biodiversity**.
- Understanding the reported changes in **productivity**, **quality** value of the cereal grains and the **suppressiveness capacity** of such soils against **(a)biotic stresses**.

Main Findings

Key Scientific Findings

Reduced wheat yields under drought; minor gains from elevated CO_2
Grain micronutrient & B-vitamin content decreased under climate change
Higher root disease risk in future climates (e.g. take-all fungus)
Soil biodiversity shifts with climate; more activity ≠ more productivity

Farming Practices & Soil Health

Reduced tillage improves biodiversity but may reduce yield
SOC-enhancing practices increase microbial activity but risk CO_2 emissions
Organic systems show better drought resilience in some contexts

Stakeholder Impact

3 co-creation workshops shaped experimental design
Baking tests confirmed lab results with industry stakeholders

Policy & Practical Relevance

Informs EU policies on soil health, food security, and climate adaptation

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