



How to build additional soil fertility in organic cropping systems

FertilCrop



Aim of the project:
How to build additional soil fertility
in organic cropping systems

Introduction

FertilCrop aims at improving soil fertility using synergies provided by improved crop management techniques.

The improvement of organic farming systems by building a higher level of soil fertility is important to develop more sustainable agroecosystems that safeguard soils and guarantee unrestrained crop growth. FertilCrop evaluates farming systems that efficiently build soil fertility based on field trials and farm networks in 13 European countries.

Background

Improving the productivity of organic farming systems is highly important for the development of a more sustainable food and feed supply and for safeguarding the soil and other limited resources, which future food production depends on. We want to better understand the dynamics of nutrients and humus and the functional role of the living soil in order to manage soils to support crop growth.

Main activities

FertilCrop focuses on the interactions of crops with:

- ▶ the accompanying vegetation;
- ▶ soil organisms that build soil structure; and
- ▶ microorganisms that indicate soil fertility and drive the nutrient dynamics

Improved systems will be tested with:

- ▶ modeling tools to predict crop growth; and
- ▶ farm prototyping exercises.

In FertilCrop we will also develop field tests for farmers to evaluate soil quality.



Expected societal benefits of the project

FertilCrop is a transnational research project that makes use of the wide-ranging knowledge on soil management from 13 participating countries. New and existing field studies from 20 research partners across Europe are used. The fragmented infrastructure across the participating countries will be compiled at the level of field experiments, weed, crop, and soil analyses and computer-based modelling. The project team comprises expertise from various disciplines that are relevant to develop, evaluate, and disseminate new agricultural management techniques.

The farmers are in the focus of this project, and their opinion on our approaches will be considered. We will share our novel ideas and research results with them. In the view of soil fertility loss worldwide, this project is timely and will provide new insights into better soil management for the future production of food and feed.

Expected results and impacts

In FertilCrop, we are combining scientific and practical knowledge for the further improvement of organic cropping systems. FertilCrop will help to increase and stabilize yields in an environmentally friendly way and to close yield gaps between organic and conventional farming.

FertilCrop will provide strategies to improve and techniques to assess soil fertility while protecting the environment. Combining improved management techniques will help farmers to overcome the barriers to adopting organic farming practices. Depending on the physical and climatic environment, techniques such as reduced tillage, green manures, adapted crop rotations, and mixed cropping will contribute to a better use of the biological processes governing the ecological services of agroecosystems.

Expected long-term impacts

FertilCrop promote the development of the organic sector in Europe in a more productive and environmentally friendly way as a result of knowledge gains in the domain of crop-soil interactions.

We expect that the management options and diagnostic tools adapted to on-farm use that FertilCrop is aiming to provide will help the farmers to find the best decisions for their local situations.



Taking soil samples,
Photo: Thomas Alföldi



Herbologists in doubt.
Photo: Andreas Fließbach



Soil profile evaluation, photo: Thomas Alföldi

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How to reach target groups

Results of FertilCrop will be discussed with farmers at field days and disseminated via the internet and print media. New insights that are deemed useful to the farming community will be transferred to the practice directly through the participating farmer groups and by aiming at speeding up the scientific publication process.



Soil profile evaluation, photo: Thomas Alföldi

Further information

This project is funded via the ERA-net CORE Organic Plus, which is a network of 20 countries on initiating transnational research projects in the area of organic food and farming systems. In 2014, CORE Organic Plus selected FertilCrop and 10 other projects.

Read more at the CORE Organic website:

<http://www.coreorganic.org/>

and find publications from the project at

<http://coreorganicplus.org/research-projects/fertilcrop/>

and at: <http://orgprints.org/view/projects/FertilCrop.html>