Studies of agroecology in long-term organic cropping systems

An international scientific workshop to celebrate the 25 years anniversary of the long-term experiment on organic arable crop rotations at Aarhus University – Foulum

Innovating and developing cropping systems for the benefit of high production of quality foods as well as the support of soil resources and other services such as low environmental footprint and climate impacts requires deep understanding of the ecological functions of cropping systems. This is of importance in systems that rely on organic farming principles, where agroecological approaches are critical to maintain long-term fertility, for ecosystem services and the support of productivity. Ongoing long-term experiments (LTE) have provided evidence on the short- versus long-term implications of the interacting processes between soils, plants and the soil fauna. They have also provided important information about soil, nutrient and crop management and effects on yields, nitrogen balance and soil carbon. Finally they have served as living laboratories for the innovation of sustainable cropping practices.

7-8 June 2022, Aarhus University, Campus Foulum, Tjele, Denmark

LTEs are notoriously difficult to maintain and keep relevant for research and practice. This is related to the following challenges and dilemmas:

- LTEs are costly to maintain, and can only be justified if optimally used for research
- LTEs require fixed treatments for interpretation, but flexibility to maintain relevant for practice
- Interpretation of results from small plots, with respect to weeds, pests and diseases
- Testing new hypotheses and ideas in LTEs without destroying the experiment
- Comparing results across different LTEs when design and management differs
- Local versus general context for defining research issues and LTE design

Register here

There are also several opportunities than can increase the use and relevance for LTEs in research on agroecology:

- The green transition calls for knowledge on long-term effects of agroecological approaches
- New digital technologies for managing and monitoring field experiments
- New genomic technologies for studying biodiversity of soils and of soil-plant interactions
- Use of results from LTEs for policy support and informing farm management

In 2022, the long-term experiment on organic arable cropping systems at Foulum will have completed 25 years, and this in an opportunity to jointly discuss some of these challenges and opportunities in an international workshop. The aim is to give recommendations on the future development of LTEs for agroecological research.

Organized by:

DEPARTMENT OF AGROECOLOGY
AARHUS UNIVERSITY

ICROFS
International Centre for Research in Organic Food Systems

Time plan of the workshop

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7 June

08:45 - 09:00 Welcome.

09:00 -10:30 Introduction to the experiment in DK and selected result
Cropping system perspective, Jørgen E. Olesen, Aarhus University
Nutrient cycling, Peter Sørensen, Aarhus University
Weeds, Bo Melander, Aarhus University

10:45 -12:00 Learnings from other organic LTEs.
The DOK trial in Swtizerland, Hans-Martin Krause, FiBL
The CRUCIAL experiment, Jakob Magid, University of Copenhagen
LTEs in organic farming in USA, Kathleen Delate, Iowa State University

12:00 -13:30 Combined field visit and lunch. (depending on weather)

13:30 -15:00 Managing organic LTEs and cropping systems experiments
Experiences from an LTE in Scotland, Christine Watson, SRUC
The deep root lab experience, Dorte Dresbøll, University of Copenhagen
Experimenting with novel cropping systems, Maria Ernfors, SLU
Working with on-farm experimentation, Antoine Messéan, INRAE

15:30 -17:00 Knowledge gaps
The system perspective, Thomas Döring, Bonn
Biogeochemical cycles, Klaus Butterbach-Bahl, Aarhus University
Crop protection in a systems perspective, Göran Bergkvist, SLU

8 June

09:00 -12:00 Structured discussions with focus on future ideas and perspectives for organic LTE. With Inspiration talks, focus on research opportunities.

12:00 -13:00 Lunch.

13:00 -14:00 Celebration of anniversary (in Danish)

14:00 -16:00 Innovation living lab (in Danish)

Practicalities

The first day will be open to participation and the second day will have a limit of about 30-40 participants. The workshop takes place at Foulum. Accomodation at hotels in Viborg.

Outputs: Perspective paper in LTEs for agroecology and organic farming; Defined better joint use of LTEs; Ideas for new uses of LTEs and their management.

Organisers: Jørgen E. Olesen, Chiara De Notaris, Jim Rasmussen, Peter Sørensen, Jakob Sehested.

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Register here: