



Sustainable farm Management Aimed at Reducing Threats to SOILs under climate change

Project overview and messages

Jan Peter Lesschen, Wageningen University and Research

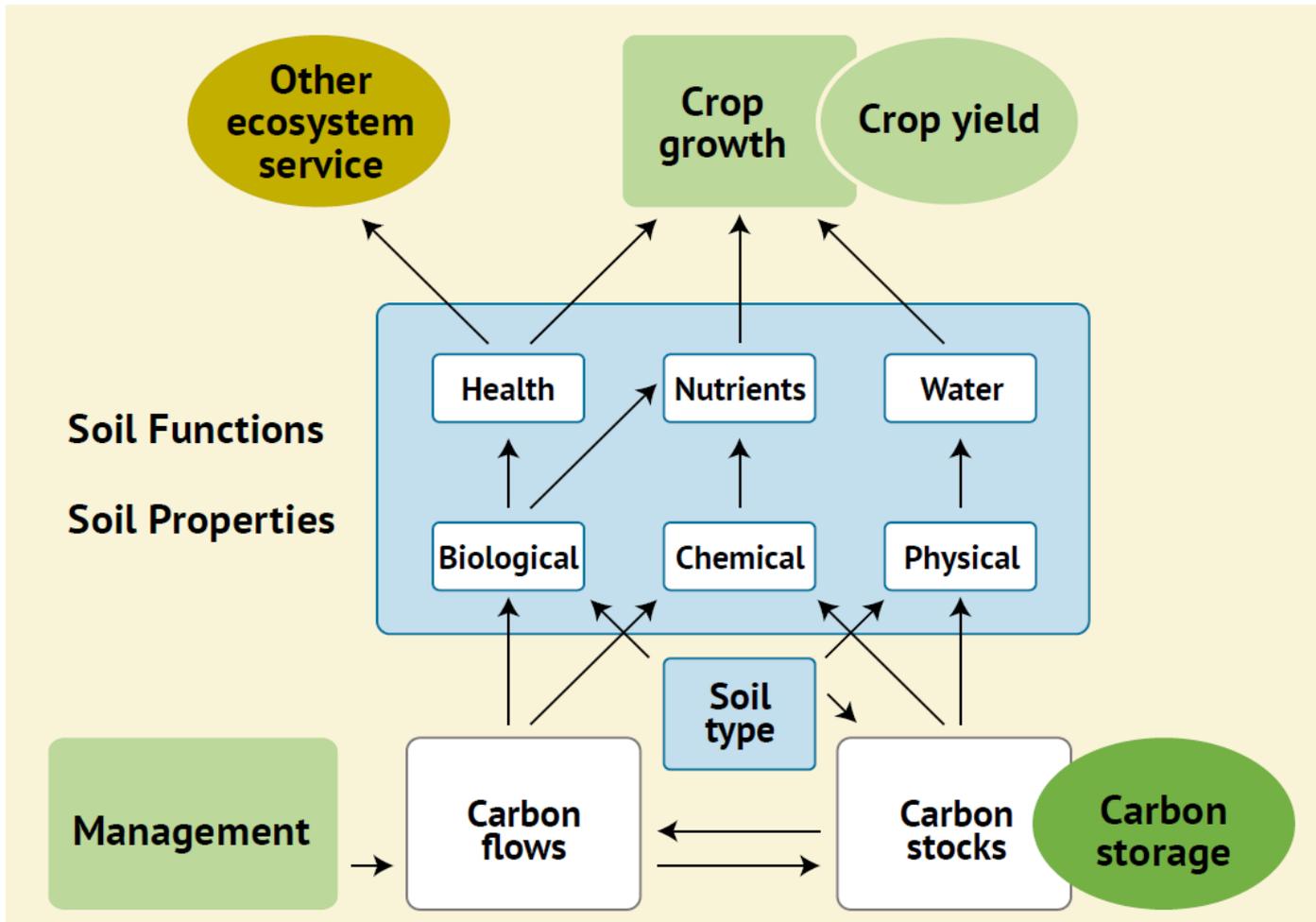
Jørgen E. Olesen, Aarhus University



SmartSOIL overview

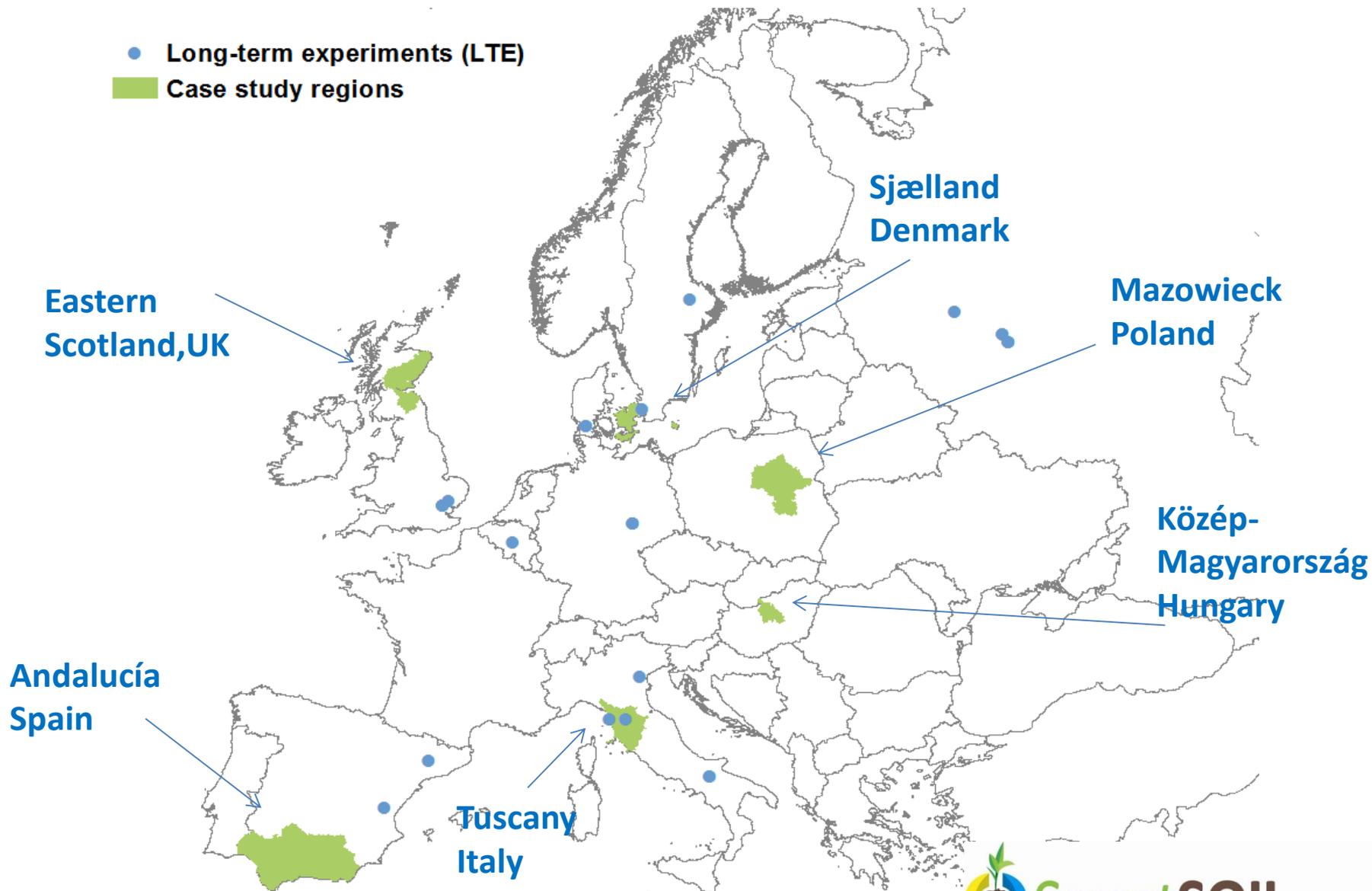
- An interdisciplinary approach, combining scientific insights and understanding of the farming socio-economic context, to identify management practices that can optimise soil carbon storage and crop productivity.
- Developed a decision support toolbox to support farmers, farm advisory and extension services, and policy makers in decision-making on soil management
- Case study regions and long-term experiments
- Focus on mineral soils in arable systems. Climate change mitigation was one of overall objectives, not the only focus
- 12 partners, 4 year FP7 project concluded in October 2015

Understanding soil functions



SmartSOIL case studies

- Long-term experiments (LTE)
- Case study regions



Crop Rotation



SmartSOIL

SmartSOIL FACTSHEET
INCREASING SOIL ORGANIC MATTER THROUGH IMPROVED CROP ROTATION

What is it?
Crop rotation is the sequential sowing of different crops in the same parcel over the course of several growing seasons. It is a key strategy to improve soil health and reduce the risk of soil erosion. It also helps to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment. Crop rotation can also help to improve the soil's ability to store water and nutrients, which can lead to higher yields and better quality crops.

What are the benefits?
Crop rotation can help to improve soil health and reduce the risk of soil erosion. It also helps to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment. Crop rotation can also help to improve the soil's ability to store water and nutrients, which can lead to higher yields and better quality crops.

Read it here

Residue management



SmartSOIL

SmartSOIL FACTSHEET
RESIDUE MANAGEMENT: IMPROVING SOIL ORGANIC MATTER AND REDUCING SOIL EROSION

What is it?
Residue management refers to the way in which crop residues are handled after harvest. It can involve leaving the residues on the field, plowing them under, or removing them. Residue management can help to improve soil health and reduce the risk of soil erosion. It can also help to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment.

What are the benefits?
Residue management can help to improve soil health and reduce the risk of soil erosion. It can also help to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment.

Read it here

Manure & compost



SmartSOIL

SmartSOIL FACTSHEET
RESIDUE MANAGEMENT: IMPROVING SOIL ORGANIC MATTER AND REDUCING SOIL EROSION

What is it?
Manure and compost are organic fertilizers that can help to improve soil health and reduce the risk of soil erosion. They are made from animal manure and plant residues, respectively. Manure and compost can help to improve the soil's ability to store water and nutrients, which can lead to higher yields and better quality crops.

What are the benefits?
Manure and compost can help to improve soil health and reduce the risk of soil erosion. They can also help to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment.

Read it here

Cover & Catch crops



SmartSOIL

SmartSOIL FACTSHEET
BOOSTING ON-FARM SOIL ORGANIC MATTER WITH COVER/CATCH CROPS

What is it?
Cover and catch crops are plants that are sown in the same parcel as the main crop. They are used to improve soil health and reduce the risk of soil erosion. Cover crops can help to improve the soil's ability to store water and nutrients, which can lead to higher yields and better quality crops.

What are the benefits?
Cover and catch crops can help to improve soil health and reduce the risk of soil erosion. They can also help to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment.

Read it here

Conservation Agriculture



SmartSOIL

SmartSOIL FACTSHEET
CONSERVATION AGRICULTURE: BUILDING SOIL ORGANIC MATTER AND REDUCING PRODUCTION INPUTS

What is it?
Conservation agriculture is a farming system that aims to improve soil health and reduce the risk of soil erosion. It involves leaving crop residues on the field, reduced tillage, and crop rotation. Conservation agriculture can help to improve the soil's ability to store water and nutrients, which can lead to higher yields and better quality crops.

What are the benefits?
Conservation agriculture can help to improve soil health and reduce the risk of soil erosion. It can also help to reduce the need for synthetic fertilizers and pesticides, which can be harmful to the environment.

Read it here



Key recommendations for policy

- 1. Increase awareness of the role of soil organic carbon in delivering soil quality and soil fertility (and multiple ecosystem services) among policy makers and address the issue in policy**
- 2. Support pilot projects and provide incentives to farmers for implementing monitoring schemes and bookkeeping at farm level to monitor their carbon budgets (e.g. through RDPs, European Innovation Partnership (EIP) initiatives)**
- 3. Increase the baseline and mandatory requirements for farmers related to soil quality in the Common Agricultural Policy (CAP)**

Key recommendations for policy

- 4. Improve the Rural Development Programmes (RDPs) so that they address soil quality management in a more coherent and targeted manner, including possible targets and benchmarking for soil protection objectives**
- 5. Improve the participation of farmers and other soil stakeholders in the process of designing and implementing RDPs**
- 6. Increase learning amongst farmers and advisers through: a) cooperation and demonstration opportunities to problem-solve around soil quality management, and b) training and demonstration to enhance awareness and understanding of the importance and benefits of soil organic carbon**

SmartSOIL partners

<http://smartsoil.eu>



 **SmartSOIL** Team



Aarhus University, Denmark (Project Coordinator)
Lead: Jørgen E. Olesen



University of Aberdeen, UK (Scotland)
Lead: Pete Smith



University of Copenhagen, Denmark
Lead: John R. Porter



Alterra, Netherlands
Lead: Peter Kuikman



University of Florence, Italy
Lead: Marco Bindi



Ecologic Institute, Germany
Lead: Ana Frelih-Larsen



Universidad Politécnica de Madrid, Spain
Lead: Ana Iglesias



Scottish Agricultural College, UK (Scotland)
Lead: Dominic Moran



Countryside & Community Research Institute, UK
Lead: Julie Ingram



Warsaw University of Life Sciences (SGGW), Poland
Lead: Zbigniew Karaczun



Le Groupe-conseil baastel sprl, Belgium
Lead: Olivier Beucher



Research Institute for Agricultural Economics, Hungary
Lead: András Molnár