



SoilCare

SOILCARE FOR PROFITABLE AND SUSTAINABLE CROP PRODUCTION IN EUROPE

SOIL HEALTH RELATED PROBLEMS ON SITE



SOIL COMPACTION

SOIL-IMPROVING CROPPING SYSTEMS FOR INCREASING SOIL HEALTH IN SKANE COUNTY, SWEDEN

The main soil threat in the region where the study site is located is soil compaction. SICS that are being tested within the context of the SoilCare project include sub-soil loosening which is composed of two treatments:

1. **Subsoil loosening and subsoil loosening combined with the injection of organic material (straw pellets).**
2. **Several long-term experiments (LTE) with various crop rotation, use of animal manure, no removal of crop residues in non-manured plots, and regular lime applications.**

The SICS above present important practices that might benefit soil health if widely taken up. The main aim of this study was to formulate policy alternatives and actions and to facilitate the adoption of SICS.



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Policy analysis:
PROMOTING SICS ADOPTION
IN SKANE COUNTY, SWEDEN

FACTORS AFFECTING THE UPTAKE OF SICS

Research indicates that there are several factors that shape the success or failure of policy instruments in Southern Sweden, and the uptake of SICS tested in the sites in general. These factors include:

Farmers' perception of new innovative techniques:

One of the SICS trialled at the study site was subsoil loosening, tested on its own and in combination with the injection of organic material (straw pellets). Subsoil loosening takes place to a depth of about 50 cm with the added organic treatments. This means that some of the subsoil is brought up to the arable layer, while some arable soil is mixed into the subsoil. Many farmers consulted pointed out that this technique was not always well perceived since, traditionally, farmers would not plough so deeply and mixing subsoil with topsoil was an uncommon practice.

Inflexible subsidy system

Several farmers consulted during the study agreed that economic aspects were the main drivers for adopting or changing practices and noted that the existing subsidy system was not adaptive enough. For instance, the Swedish Board of Agriculture is only providing subsidies for a restricted number of cover crop species which are not necessarily the most appropriate for the area and main crops used at a specific farm.

Lack of compensation for all soil benefits delivered

Stakeholders highlighted that not all the soil (or environmental) benefits delivered by SICS were rewarded by the current payment system. The sequestration of carbon in the soil through cover crops, for example, is currently not supported.

Well functioning but limited advisory services

Farmers pointed out the good relationships and level of cooperation they have with Swedish farm extension services. At the same time, it was noted that their knowledge of different SICS might be limited. Cover crops were cited as a topic where farmers were seeking expertise and advice from Denmark which was considered to have the most advanced knowledge in this area.

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POLICY SHORTCOMINGS AND OPPORTUNITIES FOR FACILITATING THE UPTAKE OF SICS

The table below provides an overview of the extent to which policies promote the full range of SICS covered by the SoilCare project (blue dots). The analysis shows that several policies regulate, incentivise and encourage the use of cover crop, crop rotation, integrated nutrient and pest management practices as well as reduced tillage management. The SICS tested at the study site (red dots) are subsidised through the different CAP instruments, primarily the greening measures which provide financial rewards to farmers adopting reduced tillage practices, crop rotations and catch crops. In addition, several national policies and initiatives regulate and promote the application of integrated nutrient measures and crop rotation. There are no policy instruments that would explicitly encourage, regulate, or incentivise smart residue management practices.

Red circles = SICS uptake promoted through existing mandatory, economic, or voluntary policy instruments in Skåne County, Sweden. Blue circles = SICS uptake promoted as part of the wider SoilCare project.

| | CROP ROTATION | GREEN MANURES, COVER CROPS, CATCH CROPS | INTEGRATED NUTRIENT MANAGEMENT | EFFICIENT IRRIGATION | CONTROLLED DRAINAGE | REDUCED/NO TILLAGE | INTEGRATED PEST MANAGEMENT | SMART WEED CONTROL | SMART RESIDUE MANAGEMENT | CONTROLLED TRAFFICKING | INTEGRATED LANDSCAPE MANAGEMENT |
|--|---------------|---|--------------------------------|----------------------|---------------------|--------------------|----------------------------|--------------------|--------------------------|------------------------|---------------------------------|
| CAP GAEC Cross-compliance standards | ● | ● | | | | ● | | | | | |
| CAP greening payment requirements | ● | ● | ● | | | ● | | | | | |
| Rural Development Programme 2014-2020 | | | ● | | | | | | | | |
| Focus on Nutrients Initiative | ● | | ● | | | | | | | | |
| Environmental Quality Objectives | | | ● | | | | | | | | |
| National Action Plan for the Sustainable use of Pesticides 2013-2017 | | | | | | | ● | | | | |



Based on the results of this study, the following policy recommendations can be made:

SET UP A MORE FLEXIBLE SUBSIDY SYSTEM



REVIEW AND BROADEN THE ENVIRONMENTAL BENEFITS ELIGIBLE FOR PAYMENTS

Set up a more flexible subsidy system: Payments for farmers should cover the use of a larger group of cover crops and taking into account local conditions. Currently, the system only provides subsidies for a restricted number of cover crop species which are not necessarily the most appropriate for the area and individual farms.

Review and broaden the practices and associated environmental benefits eligible for payments: In 2015, the Environmental Quality Objectives report emphasised that payments under the CAP should provide more targeted support and higher levels of compensation for farmers who deliver greater environmental benefits. The proposed post-2020 CAP, and most notably the Strategic Plans which Member States will need to draft, provide greater flexibility to define the requirements farmers will need to meet in order to receive CAP funding. This opens up opportunities to review and broaden the practices and environmental benefits farmers will need to deliver in order to receive payments. Cropping systems which produce important benefits such as sequestering carbon and which are currently not covered by subsidies, could be added to the measures available to farmers applying for CAP payments.

ESTABLISH MECHANISMS FOR EFFECTIVE KNOWLEDGE DISSEMINATION AND EXCHANGE BETWEEN FARMERS



INVEST IN AND BUILD CAPACITY OF FARM ADVISORY SERVICES

Establish mechanisms for effective knowledge dissemination and exchange between farmers: some of the practices benefitting soil will require farmers to learn about these techniques, their application to different conditions as well as their benefits to change their misconceptions about these methods; for example, in this Swedish study site where a new “non traditional” sub-soiling technique was tested. Since farmers tend to place a lot of trust in their peers, establishing a network of model farms demonstrating how to use and adapt different SICS in the region would effectively support farmers in learning and sharing experiences about these practices. These activities could be linked to already existing courses organised by the region to provide training to farmers on sustainable agricultural practices.

Invest in and build capacity of Farm Advisory Services: like farmers, farm advisors also need to learn about new practices, their practical application, costs, and benefits to support farmers they assist. Strengthening the technical skills of farm advisory services and setting up mechanisms for continuous learning are, therefore, crucial.

UPDATE SUMMARY PAPERS EXPLAINING AND PRESENTING DATA AS WELL AS CONCLUSIONS FROM THE SWEDISH LONG-TERM FIELD EXPERIMENTS

Findings from the Swedish long-term field experiments should be made accessible and widely disseminated, both to farmers and advisory service workers as these results demonstrate the benefits of SICS and their applicability in the region.

