Initiating transition to agro-ecological farming systems in market oriented arable farming with soil conservation practices - a case study in Hungary -

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Farming system:
• Arable systems, specialist crop production (grain-protein-oil), market-oriented farming

Dilemma:
How to integrate agro-ecological practices in highly market-oriented systems to improve soil quality without significant negative impacts on the economic viability of farms?
Main sustainability issues:
• Soil quality, soil health, extreme weather events causing erosion or water stress
• New ways to water management and tillage practices are being sought by individual farmers to meet the challenge of climate change damages to production in mid-sized arable farms

Stage of transition examined:
• Main context reflects initial stage of agro-ecological transition
The case study participatory approach

- 9 farm visits - in-depth sustainability assessments
- In-depth interviews and stakeholder workshops – Social Network Analysis, Social-Ecological-Systems analysis
- National conference on the future on soil conservation farming
Key actors involved in the Multi-Actor Platform

- Farmers
- Private companies
- State institutions
- NGOs
- Academia

Agro-ecological practices identified

- Transition stages in soil conservation farming

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<tr>
<th>Efficiency increase</th>
<th>Input substitution</th>
<th>System redesign</th>
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<tbody>
<tr>
<td>Conventional tillage</td>
<td>Reduced tillage</td>
<td>No plough</td>
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<tr>
<td>Reduced tillage</td>
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• Maintaining soil quantity and health, retaining water effectively are inherent and direct economic interest of farmers.

• Adoption of soil conservation farming practices are seen as first step for conventional arable farmers in the transition to long term sustainable resource management and agro-ecology.

• Examples and experiences of knowledgeable young flagship farmers to combat climate/environmental challenges are key to spreading the word about these alternative management practices.

• They recognised the economic benefits resulting from their environmental interventions. This attitude of farmers is considered to be a main driver for the spread of soil conservation farming practices.
• The no till farm model scored the highest in terms of both economic resilience and environmental integrity, followed by the scores of the reduced tillage farm model.

• The conventional tillage farm model scored the lowest in all aspects.
Barriers of implementation at farm level

Social-cultural: Lack of openness for conservation farming practices due to the traditions and customs of arable farming.

Technological knowledge: Lack of practice-specific knowledge and/or know-how: there is a lack of full consensus on the benefits of soil conservation farming practices. Low supply of skilled rural labour.

Economic barriers: Viable size is needed to be able to invest in specific machinery. Unknown economic returns to practice adoption. Limited willingness to cooperate.

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Governance and market barriers

• lack of environmental clauses to rental agreements
• soil as natural resource has underrepresented social/institutional value
• Fostering soil conservation is not a political priority
• Lack of market and price premium for products from soil conservation farming
• Passive role of consumers, no conscious consumers, no label for soil conservation farming.
Key actions and instruments to address barriers

Fostering shift in mindsets, improving know-how
• demonstration farms, real-scale experiments and solutions, soil information system

Research and advisory development supporting the transition
• extension services, unbiased advisory and research

Capacity building
• modernised teaching and practical curricula, support for agricultural education at all levels
Key actions and instruments to address barriers

Provision of financial conditions for technological change
- specific support schemes for investment,
- credit and bank guarantees for investment in specific machinery

Improving policies for enhancing transition
- overall strategy among actors and decision makers, specific support for soil conservation practices

Changes needed at the food system level
- Market instruments: carbon quota, soil conservation label
- Public awareness rising about importance of soil conservation
- More cooperation between the actors of the food network e.g.: field days for farmers, national platform for soil conservation farming
Key lessons learnt

Greater transfer of knowledge and experiences is needed

*Farmers need knowledge and advisory support to accompany them along the systemic change, as well as scientific evidence to underpin the economic viability of such practices.*

Involvement of actors in the whole food system is needed, stimulated by specific incentives

*Many actors in the agri-food system are relevant to assist farmers to bring the widespread adoption of soil conservation farming practices to a success.*

Innovative design changes to existing rural development measures have the potential to successfully promote transitions

*If accompanied by measures of research and advisory development, raising public awareness and demand for crops produced this way.*
Further information and contact

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Case study webpage:
https://uniseco-project.eu/case-study/hungary

Case study storymap:
https://arcg.is/1KLDDn0

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ABOUT UNISECO:
UNISECO is a European research project aiming to develop innovative approaches to enhance the understanding of socio-economic and policy drivers and barriers for further development and implementation of agro-ecological practices in EU farming systems.

Project timeframe: 1 May 2018 – 30 April 2021

UNISECO in the EIP-Agri projects database:

VISIT THE UNISECO AGRO-ECOLOGICAL KNOWLEDGE HUB: https://uniseco-project.eu

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