UNISECO

UNDERSTANDING & IMPROVING
THE SUSTAINABILITY OF AGRO-ECOLOGICAL
FARMING SYSTEMS IN THE EU

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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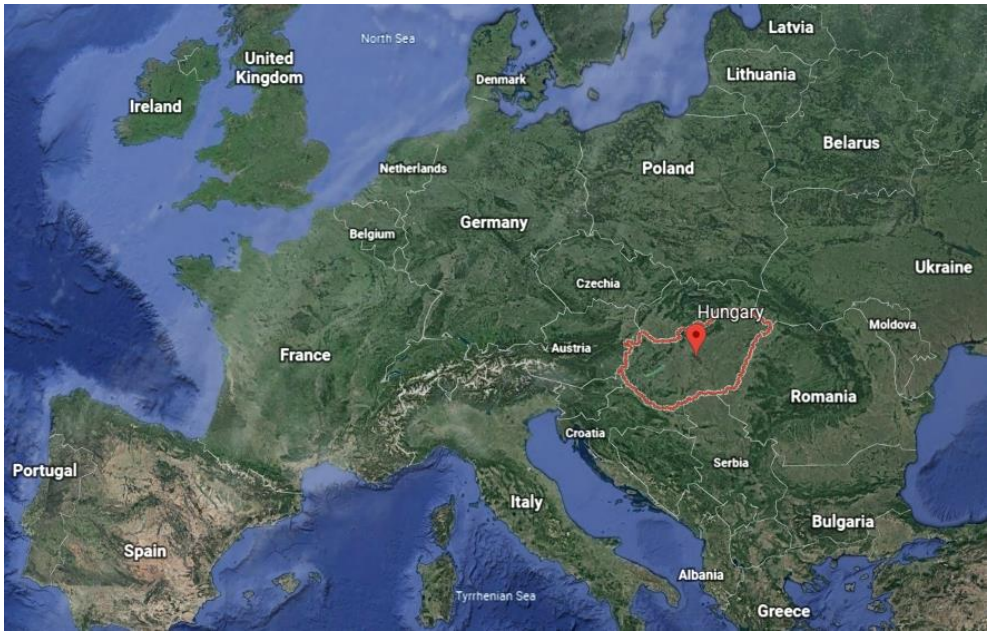
The case study context

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?



The case study context: sustainability issues

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

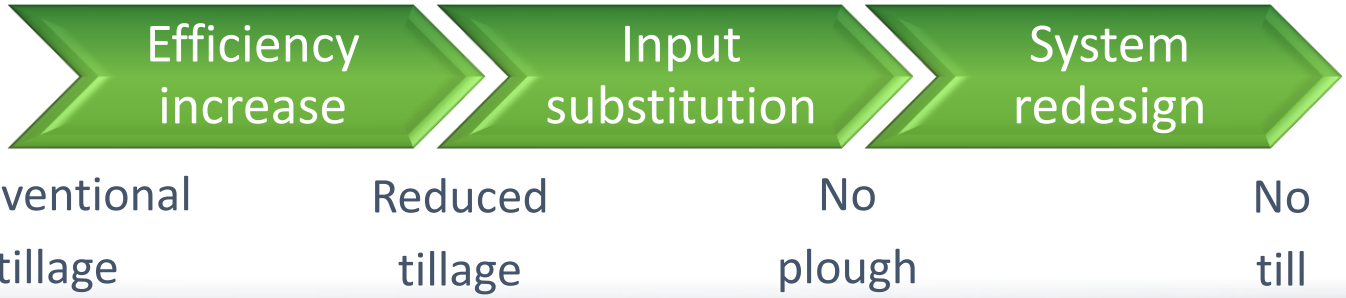
The context of the case study in Hungary

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

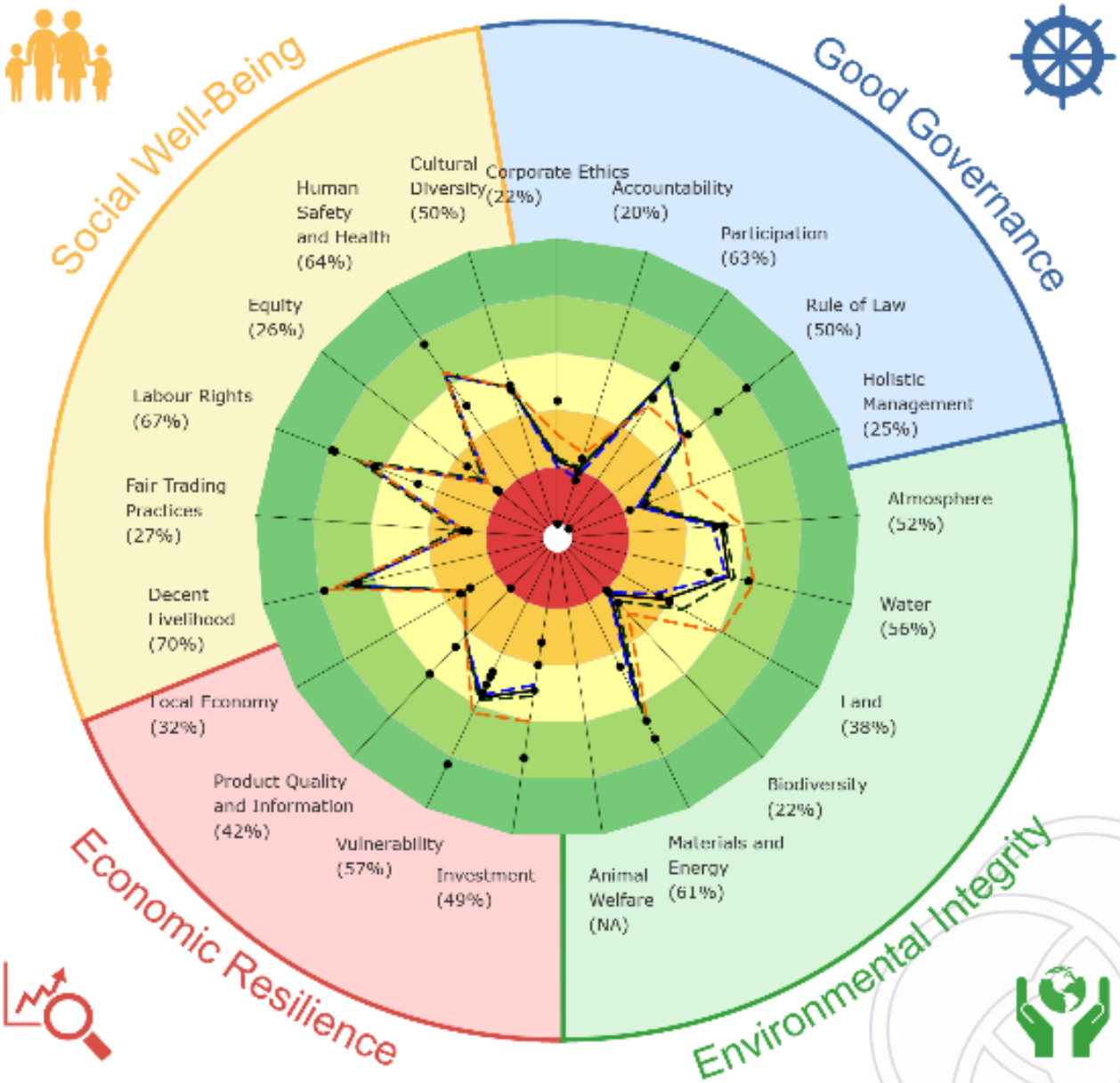


Sustainability implications and trade-offs of practices

- 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.

Sustainability implications and trade-offs of 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



Source:
FiBL SMART: Sustainability Monitoring and Assessment Routine

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.

Governance and market barriers

- lack of environmental clauses to rental agreements
- soil as natural resource has underrepresented social/institu 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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Understanding and Improving the Sustainability of Agro-ecological Farming Systems in the EU

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
https://cordis.europa.eu/project/id/773901 https://zenodo.org/communities/uniseco-h2020/

UNISECO in the EIP-Agri projects database:
https://ec.europa.eu/eip/agriculture/en/find-connect/projects/understanding-and-improving-sustainability-agro

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

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