



**UNISECO**

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

# Strategies of agro-ecological transitions

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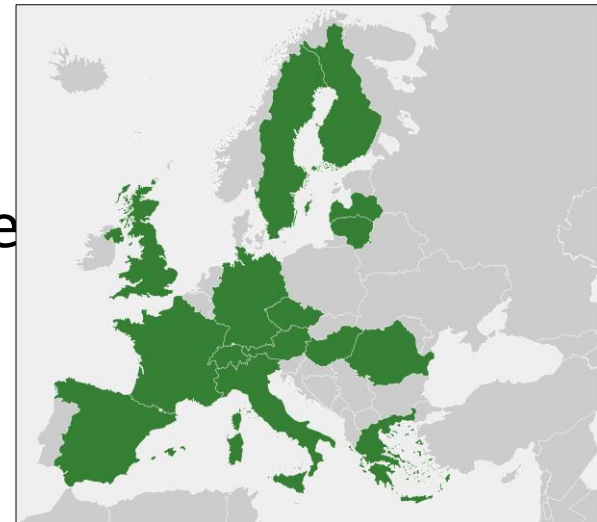
How to produce environmentally sustainable and be profitable at the same time?

→ UNISECO approached this key dilemma with a focus on *agro-ecological farming* in the 15 case studies

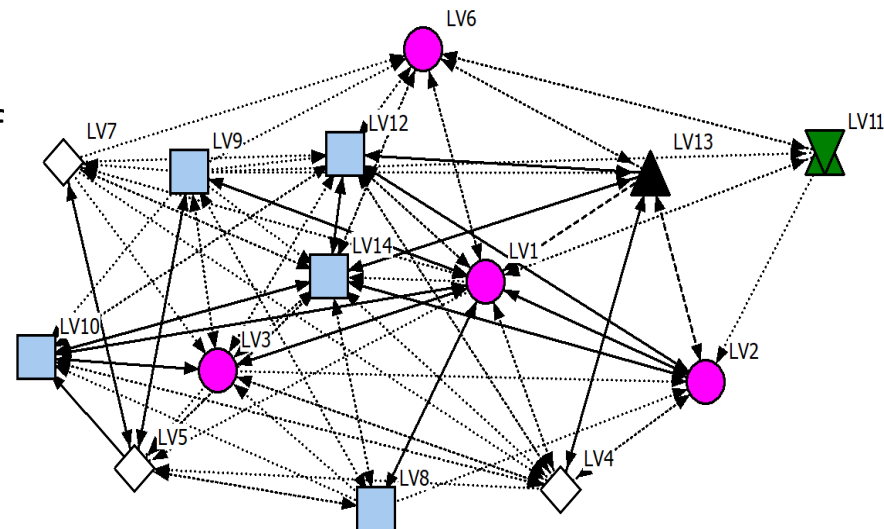
• from **two different sides of the core dilemma:**

- Case studies with weak economic farm performance
- Case studies with environmental issues (soil degradation, water pollution etc.)

• from the perspective of **various farm production types:** livestock, arable, mixed, perennial systems across Europe



- **Governance Networks** involved in agro-ecological dilemma in each CS:
  - **Network properties** (density and pattern of actor-actor links), **actor categories**, **missing actors**
- **Social Network Analysis:**
  - Participatory mapping (NET-MAP),
  - 79 interviews, 9 workshops
- **Key results:**
  - **ACTORS: authorities** are the key actors at the initial stages of transition; **AKIS** actors play an important role as mediators that link categories; in most CS **consumers** are missing actor;
  - **NETWORKS: interactions** between public and private actors are important to balance the power relations, especially in advanced transition stages.



# Diversity of agro-ecological practices

<b>Type of practice</b> (based on Wezel et al., 2014)	<b>Practices</b>	<b>Examples of case studies</b>
Fertiliser management	Organic fertilisers, compost application, green manure	AT, CH, CZ, DE, ES, FI, FR, HU, IT, LV, SE, RO, UK
Weed, pest and disease control	Mechanical weeding, organic pesticides, mating disruption methods, pesticides application control	AT, CH, CZ, ES, FI, FR, GR, HU, IT, LV, RO, SE, UK
Livestock feed and grazing practices	Grass-fed livestock, grazing on temporary and permanent meadows	CH, LT, RO, SE
Tillage management	Soil conservation / reduced tillage	AT, CH, DE, HU, SE
Soil covering and management	Cover / catch-Crops, compost application, bio-char application, grass cover in vineyards, mulching	AT, CH, CZ, DE, FR, IT

# Diversity of agro-ecological practices

<b>Type of practice</b> (based on Wezel et al., 2014)	<b>Practices</b>	<b>Examples of case studies</b>
Water management (including crop irrigation)	Drip irrigation	GR
Crop choices	Mixed and local / rare varieties	IT, SE
Crop spatial diversity	Agro-forestry (fruit production)	AT
Crop temporal diversity	Rotation including legumes	AT, CH
Livestock density	Reduced stocking rates	CH
Livestock diversity	Livestock integrated with other farm activity	ES, LV, RO, SE
Biodiversity	Buffer and flowering strips	CH, CZ, DE, HU, SE
Management landscape elements	Diverse and numerous semi-natural habitats	CH, ES, IT, SE, UK

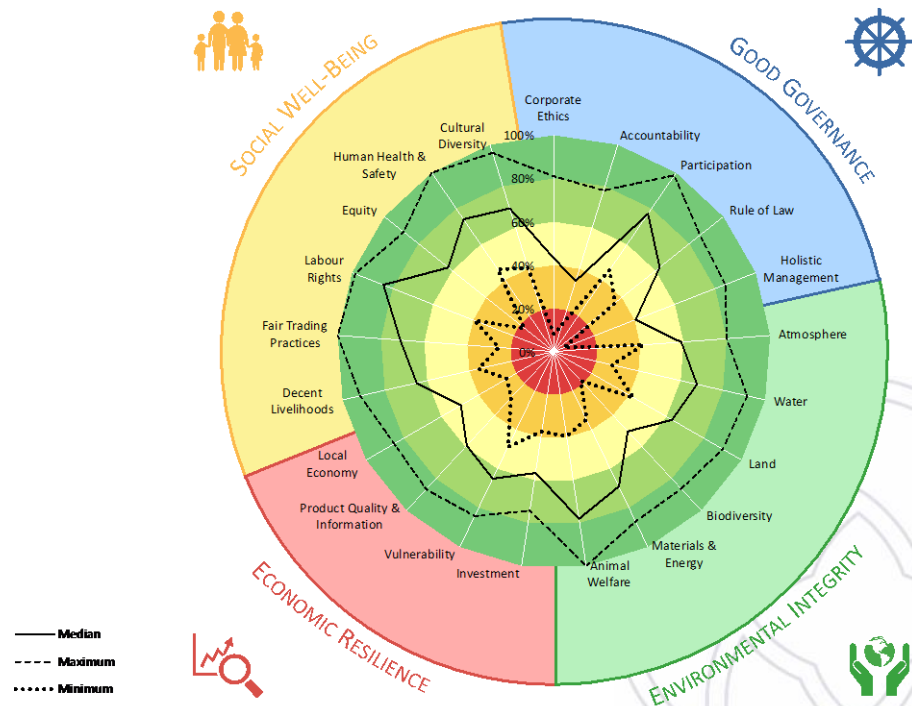


(n= 131 assessed farms)

- Agro-ecological farms tend to perform higher with regard to sustainability in:
  - Biodiversity (pesticides, fertilisers)
  - Water quality
- Less clear was the difference between agro-ecological and conventional farms:
  - Soil quality (impacted by many practices, soil condition, land use)
  - Productivity and farm income
- Agro-ecological practices can both, increase or decrease total GHG emissions on a farm.

# Some room for improvement

- Biodiversity:
  - Larger semi-natural habitats are often missing (median score 2%; on a scale 0% to 100%)
  - Targeted support for species is still not standard among farms (23% of agro-ecological farms; 33% of conventional farms)
- Soil quality:
  - Compost application rare (around 15% of farms)



## So what if...? (some new trade-offs)

- Modelled introduction of new farming practices to balance economic and environmental performance leads to new trade-offs
- Synergies (yes, there are): inter-row green cover (IT, GR), inter-row cover in combination with 2D-canopy (GR), pest-monitoring (IT)
- Aim to improve environmental performance:
  - Soil: Composting (IT; labour costs), farm yard manure application (UK; farm structure), reduced till, flower buffer strips and intercropping (DE; lower net farm income), reduced till (UK; contracted work)
  - Pesticides: No synthetic pesticides (FR; lower yield)
  - System level: Conversion to organic (RO; decrease in yield), extensification (CH; less farm income)
- Aim to improve economic performance:
  - Feed: More temporary grasslands (LT; biodiversity)





- Semi-structured interviews and 4 sets of workshops in each case study to co-construct strategies in the local contexts
- Identified more than 100 key barriers across six main types of barriers
- Focus on socio-economic and policy factors, which local actors can address
- Three main themes of barriers and drivers emerged:
  - 1) Knowledge and social capital
  - 2) Value added, processing and markets
  - 3) Policy design



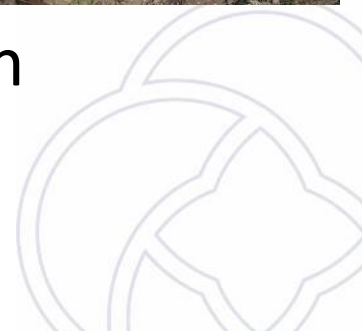
## Barriers

- Lack of specific knowledge on agro-ecological practices and market opportunities
- Attitudes towards agro-ecological farming and strong tradition in conventional practices
- Limited willingness to cooperate
- Farmers fatigue (especially small farmers)



## Drivers

- Sharing of experience and information between farmers in some cases.



## Barriers

- Cost-price squeeze, market saturation and sales uncertainty
- Investments needs – difficult to afford technology.
- Access to land
- Low awareness of consumers
- Markets not mature
- Lack of storing and processing facilities



## Drivers

- Similar initiatives to learn from, slow demand growth



## Barriers

- Bureaucracy of policy support and unclear definitions and requirements of support
- Low differentiation of Pillar II support
- Milk cooperatives not allowed to sell to traders
- Low promotion of agro-ecological practices in protected areas



## Drivers

- Increasing knowledge and experience with innovative contract design (e.g. cooperative, result-based, rental agreements).



## Governance changes proposed in strategies

### Internal to Socio-ecological system studied – initiated by SES actors

Creation of formal and informal networks for knowledge transfer and sharing

Farmers agree on hiring advisors, attracting research/education actors (e.g. for open days and strategic discussions)

Cooperation of actors to create digital hub for knowledge exchange.

Piloting new technologies on demonstration farms.

Cooperation of advanced farmers with educational institutions

### External to Socio-ecological system studied

Local authorities coordinating education and raising awareness of landowners.

Policy support for creation of networks and capacity building in cooperation

Support for better targeted advisory service (e.g. to facilitating cooperation, lacking knowledge transfer, using demonstration farms, platforms).

Support to farmers for better access to advisory services to address knowledge gaps.

Pilot testing instruments to foster farmer and non-farmer actors cooperation.

## Governance changes proposed in strategies

### Internal to Socio-ecological system studied – initiated by SES actors

Collective processing, marketing, storage, machinery use and similar activities.

Initiate cooperation with all key value chain actors outside SES (e.g. processors)

Develop regional fairs as platforms and markets for niche products.

Create procurement platform for organic matter exchange and composting centre.

Creation of rural land associations to match supply and demand for land.

### External to Socio-ecological system studied

Support for collective initiatives (e.g. marketing, processing)

Creation of cooperation platforms for different value chain actors including short value chains and supermarkets with secure and stable growing contracts

Green public procurement implementation – for agro-ecologically produced goods.

Support promotional campaigns and advertisements, regional labels/certification.

Support farm investment related to transition to agro-ecological farming.

## Governance changes proposed in strategies

### Internal to Socio-ecological system studied – initiated by SES actors

Bottom up initiatives to better understand the needs of government staff.

Get involved as trusted peers (farmers) in monitoring and controlling policy measures.

Actively participate on consultation on the CAP strategic plans design.

### External to Socio-ecological system studied

Implement measures allowing trusted farmers to participate on monitoring and controlling policy measures (e.g. result-based AEMs).

Implement new AECM promoting agro-ecological practices (e.g. mating disruption in orchards, biodiversity support).

Removal of administrative barriers behind policy instruments.

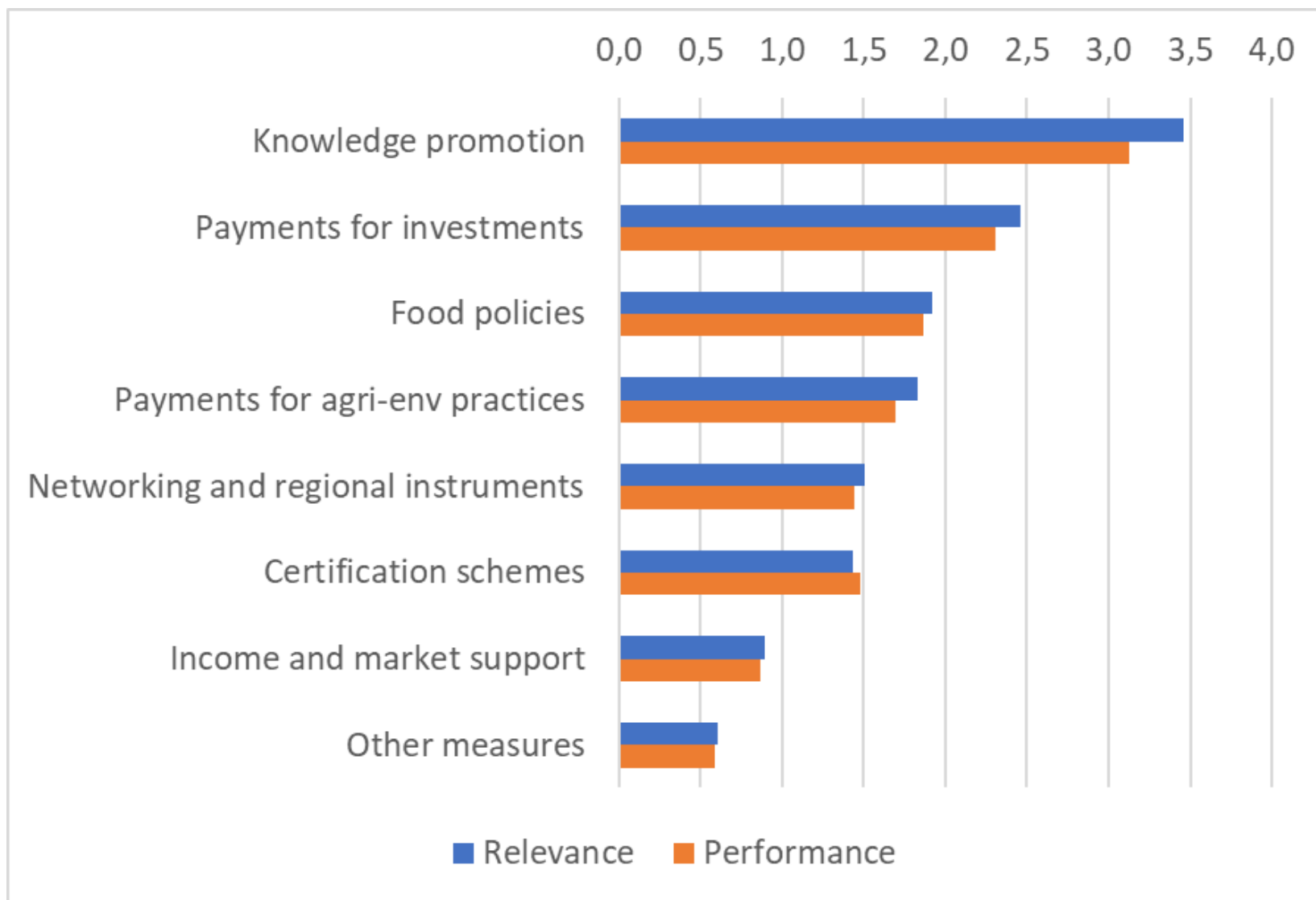
Inviting all stakeholders to the CAP debates.

Promotion of diversification, innovation, consumers awareness, benefits of AEFS products and added value.

- Identification of **MPIs**
- Ranking (**Multi-Criteria Analysis**):
  - **Relevance**: urgency and priority
  - **Performance**: effectiveness, undesired side-effects, targeting, efficiency, feasibility
- **Semi-structured interviews/workshops** with **127** local stakeholders to support the strategies and develop recommendations on:
  - Necessary **changes in MPIs design** and on **governance structures**
  - **Implications for future policies and strategies** at different levels (local/national/EU)







Challenges	MPis
<p><b>Knowledge creation:</b> Research, demonstration fields and advisory services around agroecological issues accompanied with incentives and information for value chain actors and consumers</p>	<ul style="list-style-type: none"> <li>- Practice-based payments</li> <li>- Payments for investments</li> <li>- AKIS</li> </ul>
<p><b>Knowledge diffusion:</b> Facilitating the introduction of agroecological approaches and practices in value chains</p>	<ul style="list-style-type: none"> <li>- Certification schemes</li> <li>- Food policy</li> </ul>
<p><b>Capacity building:</b> collective action, peer-to-peer learning and networking to re-design the food system</p>	<ul style="list-style-type: none"> <li>- Regional policies</li> <li>- Networking instruments</li> </ul>

- Improving farmer **knowledge** on the benefits of agro-ecological practices and economic opportunities is a key aspect for successful transition strategies
- Horizontal and vertical **collaboration in the value chain** are of crucial importance to address key barriers
- Tailored policy support to increase the capacity of local actors to create **agro-ecological networks**



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## FINAL CONFERENCE ONLINE

18-19  
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Understanding and Improving the Sustainability of Agro-ecological Farming Systems in the EU



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