Transitions to sustainable farming and food systems: Socioeconomic key issues and drivers

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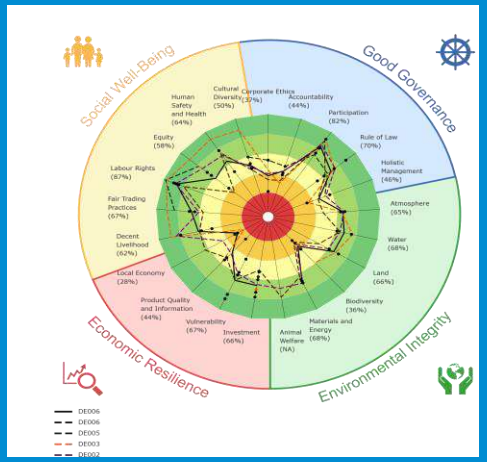

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Sustainability dimensions of farming systems

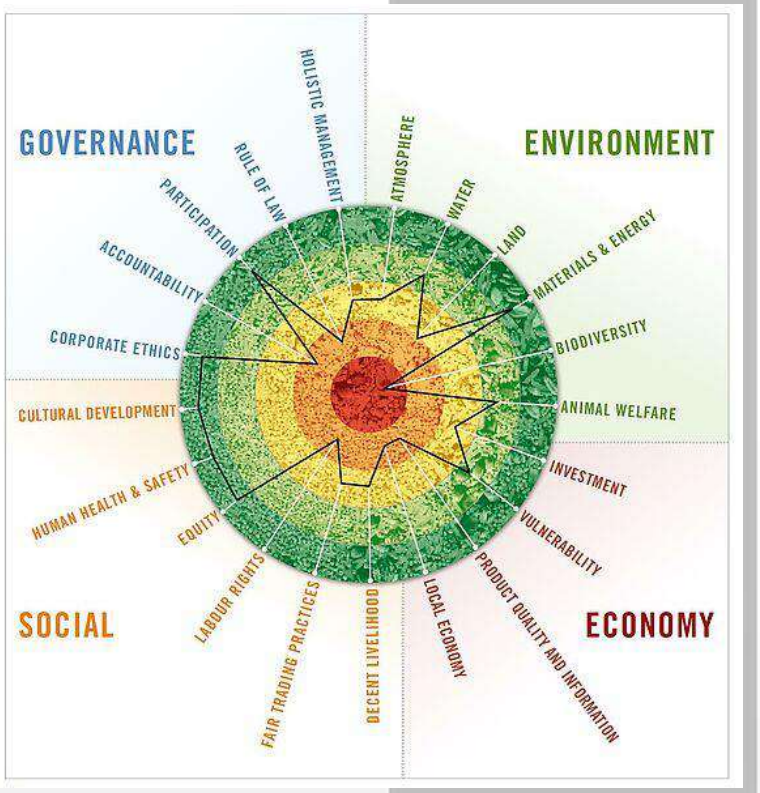
- Transitioning to more sustainable agricultural production systems, while becoming more resilient and competitive (EC, 2023).
- Legislation and incentives to:
  - Reduce negative externalities generated by agriculture and the food system
  - stimulate the uptake of more sustainable farming practices
- Need to address multiple sustainability challenges, covering environmental, social and economic aspects.
- Economic aspects such as productivity closely linked with other dimensions

Source: EC (2021)

Source: EC, https://agridata.ec.europa.eu/extensions/compass/compass.html

Sustainability dimensions of farming systems

- Sustainability dimensions and assessment frameworks
  - Economic
  - Environmental
  - Social
- Governance: Fourth dimension of the sustainability of farming and food systems
- Multifaceted impacts of transitions at farm and territorial levels across the different dimensions of sustainability



Source: FAO (2013)

Reflections on key issues and questions

- What are key aspects of transitions to sustainable farming systems?
- What are the impacts, trade-offs and synergies, at farm level?
- What are key socioeconomic drivers and barriers of the uptake of sustainable farming practices?
- Which market mechanisms and types of policy instruments are best suited to contribute to accelerating more effective environment/climate delivery on farms and to improving farmers' livelihoods?

Key aspects of transitions to sustainable farming and food systems

Key dimensions of transitions to sustainable farming and food systems

- **Scale:** field, farm, landscape, territory, global
  - Complexity of ecological processes
  - Multi-scale linkages impacting on productivity of agriculture
- **Practices:** Combination of practices delivering different synergies and trade-offs between productivity and other sustainability dimensions.
  - What is the desired level and combination of impacts / benefits? What are the "optimal" combinations of practices that provide these benefits?
- **Systems:** Systems level analysis to capture interactions between ecological and social (and socio-economic) systems
  - Farming systems and food systems
- Local **context** and wider **settings** of the systems

Potential for increasing environmental sustainability in EU farms

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European Commission, Joint Research Centre, Ispra (VA), Italy

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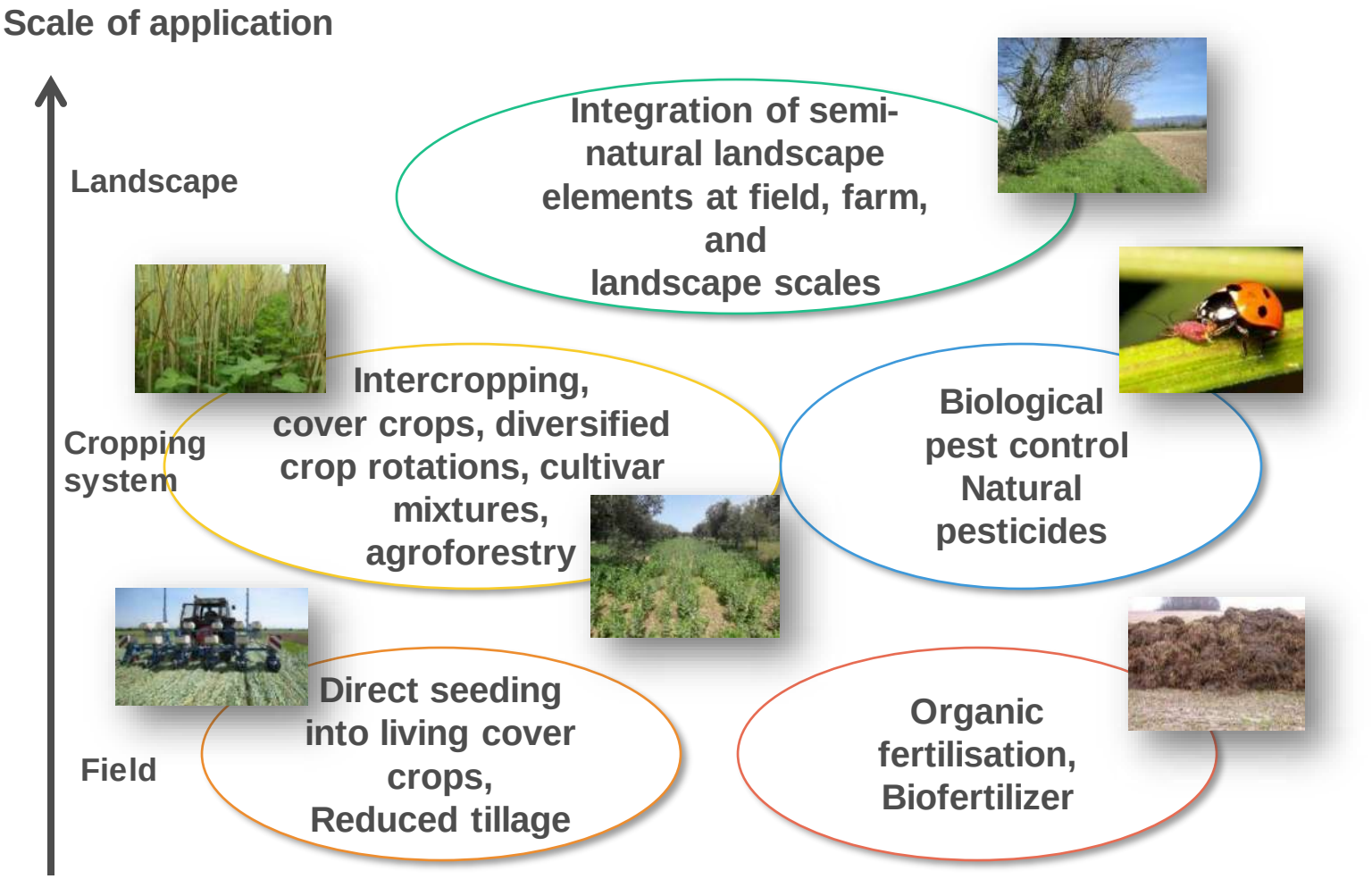
European Commission

Assessing the uptake of ecological approaches in the EU – environmentally friendly practices



Courtesy of Article4(1)b 2014, Agronomy for Sustainable Development)

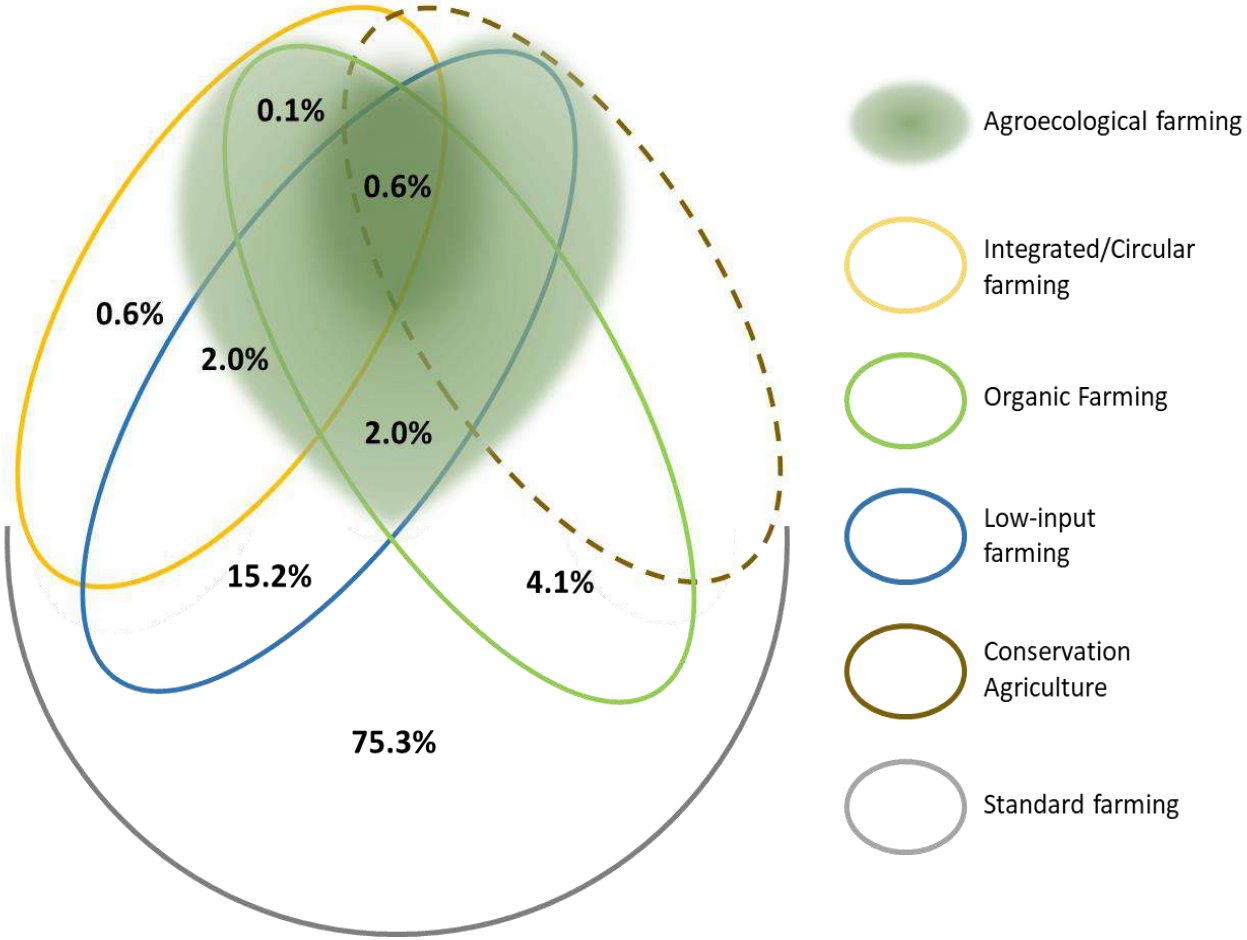
Main principles of ecological farming

The LIFT typology is based on how farms are performing with respect to five key principles:

1. Higher self-sufficiency and circularity (e.g. feed, fertilisation)
2. Decrease of total input consumption
3. Increasing soil health
4. Avoidance of harmful inputs
5. Increased support to functional biodiversity (pollination, natural pest control)

Agroecological farming is defined as the approach that incorporates all the principles

Uptake of ecological approaches in the EU



Based on FADN 2015 farm level data, 77431 farms

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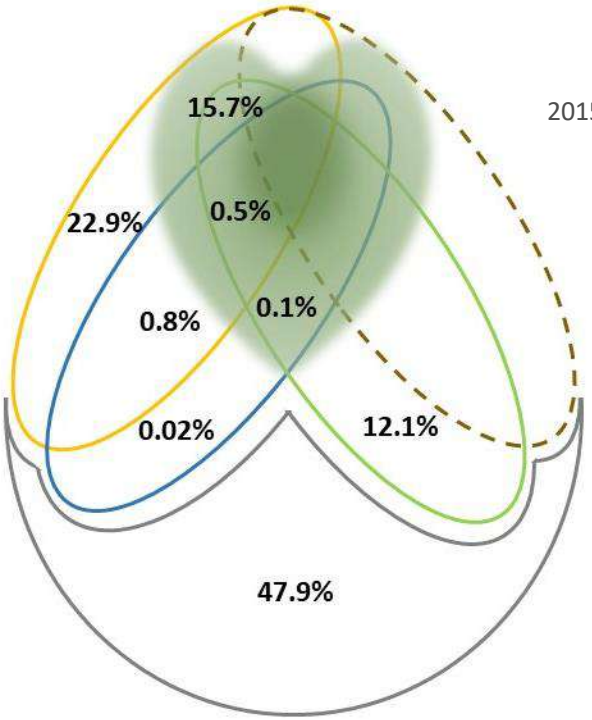
Uptake of ecological farming

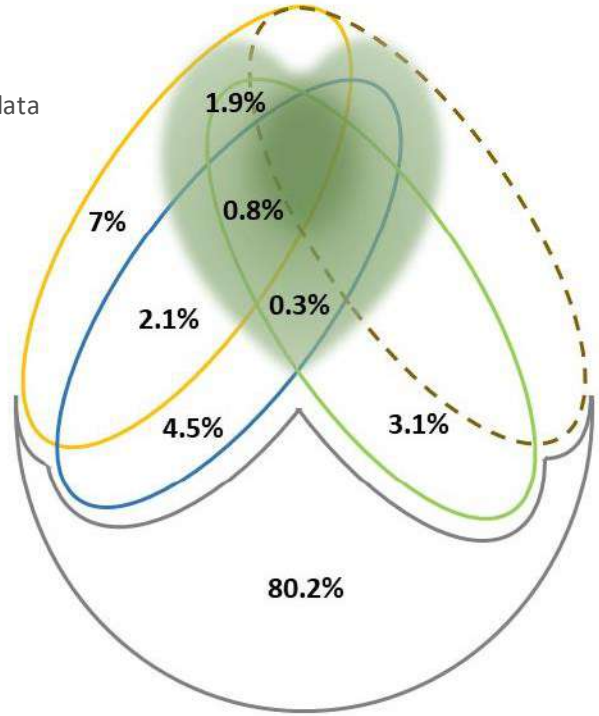
practices by EU farms: a pan-European typology. *EuroChoices*, **21**, 64–71.

Regional assessment (examples)

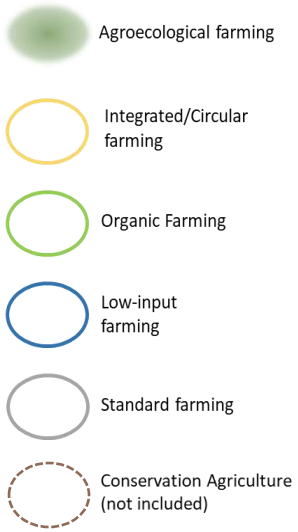
2015 FADN data



Distribution of the FADN **Austrian dairy farms** in the types of farming approaches (t = 2011-2015, n = 4073)



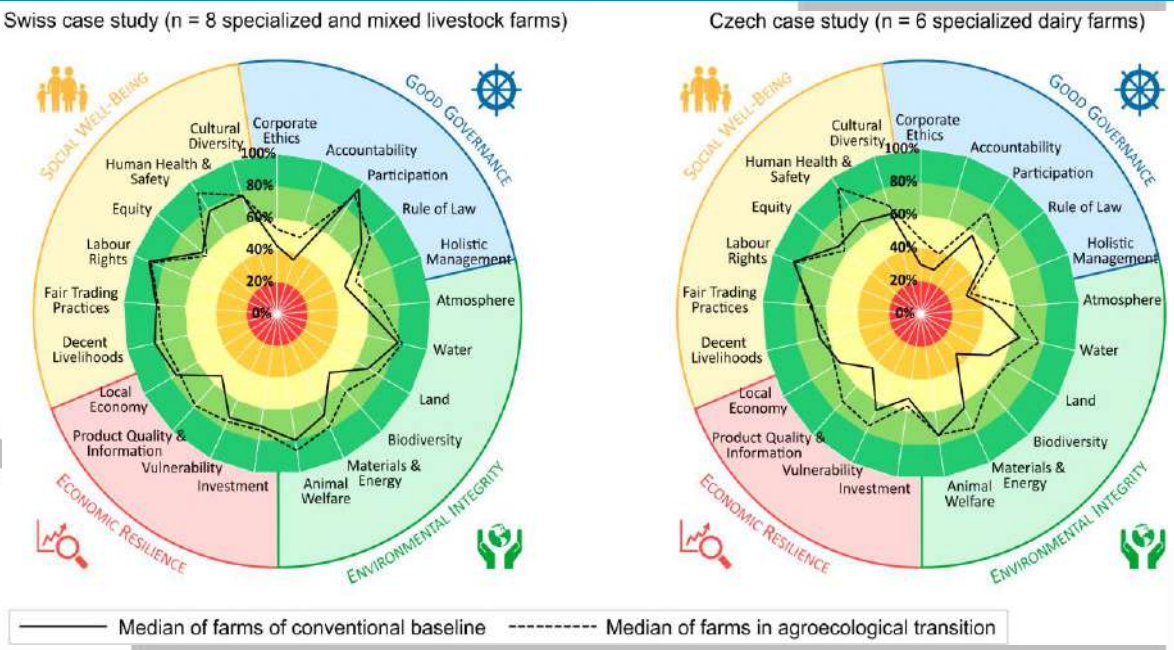
Distribution of the FADN **French dairy farms** in the types of farming approaches (t = 2011-2015, n= 5280)



European Commission

Examples of impact assessments at farm level

- In UNISECO, sustainability assessment tools such as SMART were applied using data collected on farm.
- Reflecting the local context of transitions, the assessments contributed to the understanding of the reasons behind trade-offs on farms.



Source: Niedermayer et al (2022), Landert et al. (2020)

- **Higher environmental performance** at the expense of **negative economic effects** (e.g. increased labour costs, composting; contracting cost, farmyard manure; lower yield, no synthetic pesticides) but also **economic benefits** (e.g. lower fertilizer cost and lower dependency on external inputs)
- **Negative short term effects** on yield (e.g. on vineyards) can hinder long term sustainability benefits
- Diversified strategies with **combination of practices**: synergistic loops and economies of scope.
- **Outcomes depends on factors** such as choice of crop type, farm size, farm infrastructure and climate.

Examples of strategies to address economic challenges

- **Improvement of the economic viability in high biodiversity small-scale mixed farming through increased market access through cooperation (Mixed farming system, Romania)**
  - Compost production / use and traditional orchard pastures and extensive grazing
  - Creation of **brand recognition and social aspects** attracting young farmers
  - Role of NGOs in promoting good practice, marketing and educating consumers

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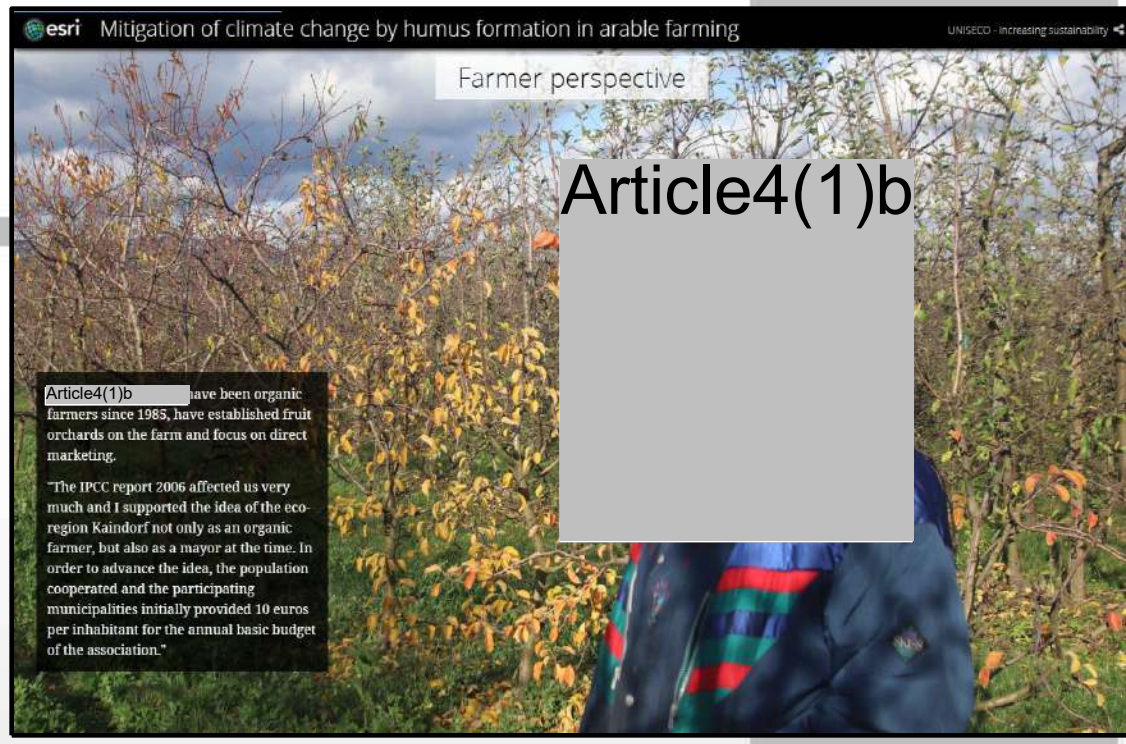
Examples of strategies to address economic challenges

- **Diversifying livestock farms by incorporating more types of crops for direct human consumption (Livestock systems, Sweden)**
  - Diversification of farming systems: More crops for direct human consumption
  - **Cooperatively investing in processing facilities** for crops to increase added value
  - **Testing centres and incubators** for product development of sustainable products

Examples of strategies to address economic challenges

- **Mitigation of climate change by humus formation and regenerative arable farming (Intensive arable systems, Austria)**
  - Establishing agroforestry systems
  - **Innovative knowledge networks** with an agroecology advisor as an intermediary
  - Soil organic carbon certification Ökoregion Kaindorf

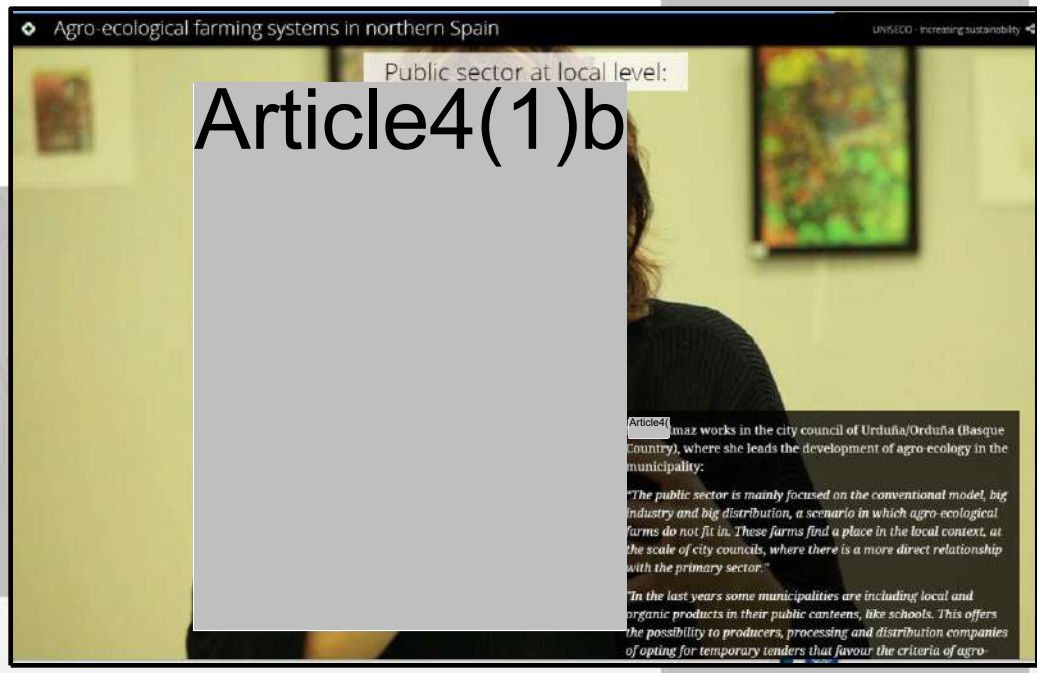


Examples of strategies to address economic challenges

- **Improving the sustainability of land use in winegrowing areas for transitioning to agroecology (Mediterranean perennial systems, Italy)**
  - Inter-row green cover, composting of farm residues, crop diversification
  - **Pilot projects for the provision of meals** from short supply chains
  - **Create rural land associations** to match supply and demand for uncultivated land

Examples of strategies to address economic challenges

- **Reducing the socio-economic fragility of agroecological farm while maintaining environmental sustainability (Mixed farming system, Spain)**
  - Use of local crop breeds/seeds, intercropping
  - Awareness raising amongst administration and municipalities, coordinating role
  - **Public procurement** of agroecologically produced goods



Socioeconomic drivers of transitions

- **Value chains:** Value added, processing and marketing
  - Cost-price squeeze, market saturation and sales uncertainty
  - Investments needs – difficult to afford technology.
  - Access to land
  - Awareness of consumers
  - Maturity of markets
  - Storing and processing facilities

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Socioeconomic drivers of transitions

Key aspects of transitions to sustainable farming and food systems

- **Governance** of the transition of farming and food systems
  - External governance – e.g. policy framework and instruments
  - Internal governance – organisational structure, rules and engagement of actors within the farming and food systems
  - Social innovation – e.g. new forms of cooperation enhancing sustainable productivity

Socioeconomic drivers of transitions

Key aspects of transitions to sustainable farming and food systems

- Involvement of actors and **co-creation of knowledge**
  - Influence on the transition process and on decision-making
  - Capacities of the actors involved to enhance productivity sustainably
  - Relevance for addressing local problems and contexts of transitions
  - Importance of networks, cooperation, trust, values, emotions, managing conflicts in transitions

Socioeconomic drivers of transitions

- **Human capital and actor capacity**
  - Co-creation of knowledge of the environmental benefits and economic opportunities
  - Human capital is key to the design of land management practices that can maximise synergies and minimize trade-offs
  - Utilising synergies between practical knowledge and scientific evidence
- **Social capital and collaborative actions**
  - Social capital plays important role in the uptake of sustainable land management practices, increasing the negotiating power within value chains of producers and greater acceptance by retailers of variability in produce.
  - Actors' networking ability depends on multiple conditions, such as willingness to cooperate, individualism, rivalry, trust.

Conclusions on policy incentives and market mechanisms

- **Policy incentives and market mechanisms**

  - Tailored policy support to **increase the capacity of local actors** to create agroecological networks and territories – coordination of AKIS
  - **Cooperation** measures can create synergies between and within different food chains, to sustain capacity building, and to encourage consumer involvement
  - Agri-environment payments and payments for investments should be further targeted to specific farm types to favour broader changes and **to ensure the permanence** of new practices
  - Additional funding and new CAP measures are not the main priorities, but benefits from adjustments and targeting to embrace transition to sustainable farming and food systems

  - Scope of CAP does not address aspects of required changes at **food systems level** – transformational change requires policy focus to shift from agricultural to food policy
    - **Key enablers of transitions**: changes in diets and reducing food wastes

Contact

Thank you for your attention.

Contact and email:

Article4(1)b

Gerald Schwarz: Article4(1)b

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