



The LifeWatch ERIC Biodiversity
& Ecosystem eScience Conference

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Agroecological transition in Europe and the role of Lifewatch-ERIC

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There is a consensus on the need to change the model of industrial agriculture.

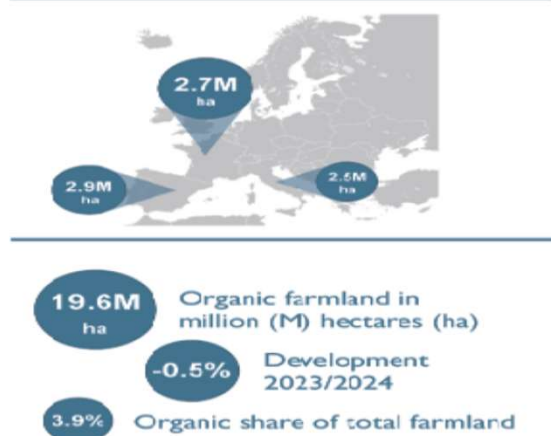
- Promoting sustainable production methods
- Fostering a change toward a more environment and social-friendly diet
- Reducing the energy profile of food chain by establishing shorter and more equitable food chains
- Agroecology Partnership as a relevant piece of the transition (LW-ERIC involved)



What basis do we have for this metamorphic change?

Organic Agriculture in Europe 2024

Organic Farmland



Farmland in million (M) hectares Top 3 countries



Organic Producers

The number of organic producers remains stable

490'637

Organic producers

93'978

Organic processors

Number of producers Top 3 countries



Organic Market

The European market increased slightly in 2023/2024

58.7

Europe's organic retail sales in billion euros

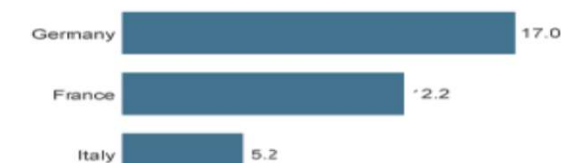
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Per capita spending in euros

4.1%

Organic market growth 2023/2024

Market in billion euros Top 3 countries



Market growth in percent Top 3 countries 2023/2024





The new peasants

Many of them manage their agroecosystems using agroecological principles under the umbrella of certified organic agriculture



The new peasants are characterized by the struggle for autonomy and *decommodify* and by the quest for local solutions to global problems. This movement is becoming ever more widespread, especially in the countries of industrialized agriculture.

Urban and periurban agriculture



Alternative food networks

To “new peasant” movements and local markets in rural communities, should be added urban social groups, especially consumers, and their alternative food networks which are widespread across Europe.

All these experiences are producing new patterns of food production, distribution, and consumption that are constructing an alternative food regime.



The constraints of agroecological alternatives

- Many such experiences have unfolded within a process called *scaling out* according to some transition theories, but their impact on food consumption is still low. They should be multiplied!!! But it's no a easy task...
- Organic farmers face higher comparative costs (**yield gap**) which are not adequately compensated
- Alternative **distribution channels** are still underdeveloped.
- **Consumption** of organic products (except in some Central European countries) is still minority and has great difficulties to generalise because of the price.
- A large number of production and consumption experiences (social innovation) have been developed, but they are small and **fragmented**.
- Urban and rural experiences are not properly connected. The agroecological experiences developed in the north (mostly urban) are **disconnected** from those developed in the south (mostly rural).

In total, consumption of organic products accounts for an average of 3% of aggregate food consumption in the EU as a whole. This is a good proxy for alternative food consumption, which, as can be seen, is still very low

So, they do not follow a linear or additive growth process and the massification or scaling out of these experiences does not guarantee a leap in scale.



The main goal..

**Scaling up
agroecological
experiences**



SCALING UP

Obstacles and limitations

Some of the main barriers to scaling up agroecological initiatives:

- Changes to the agricultural model: a dramatic decline in the number of family farmers and a lack of generational succession
- Insufficient knowledge regarding the management of agroecosystems
- Land use patterns do not encourage closed-loop systems and lead to a dependence on external inputs
- The organic food chain is not in place
- A limited experience and adequate knowledge regarding the design of agroecological public policies
- Etc./



• The main threat

Family farming is disappearing at an alarming rate in EU due to CAP.

Negative consequences for maintaining the rural population and for the provision of agroecosystem services.

We need to develop instruments that support family farming and establish alliances to change the current approach of public policies.



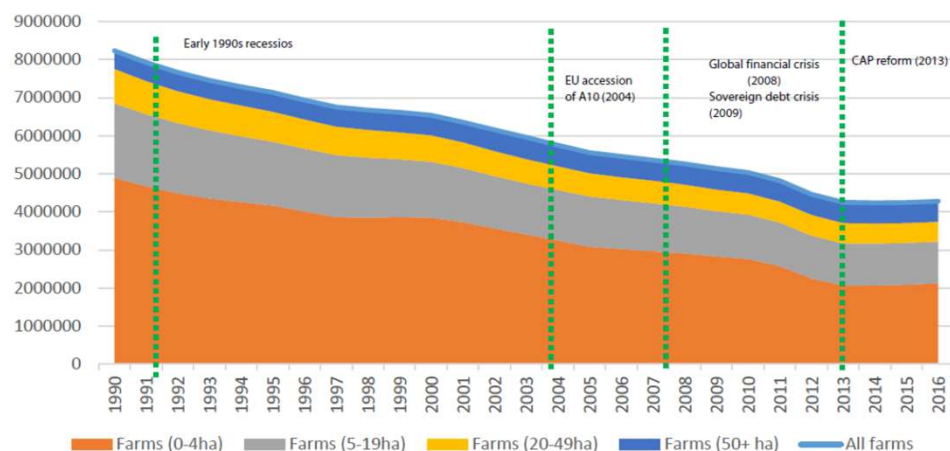
New models of agriculture and new technology packages



- Intensive livestock farming
- Smart agriculture
- GMOs and synthetic biology
- Big data, blockchain,
- Automation (robotics, drones, etc.)
- Regenerative agriculture
- Sustainable intensification



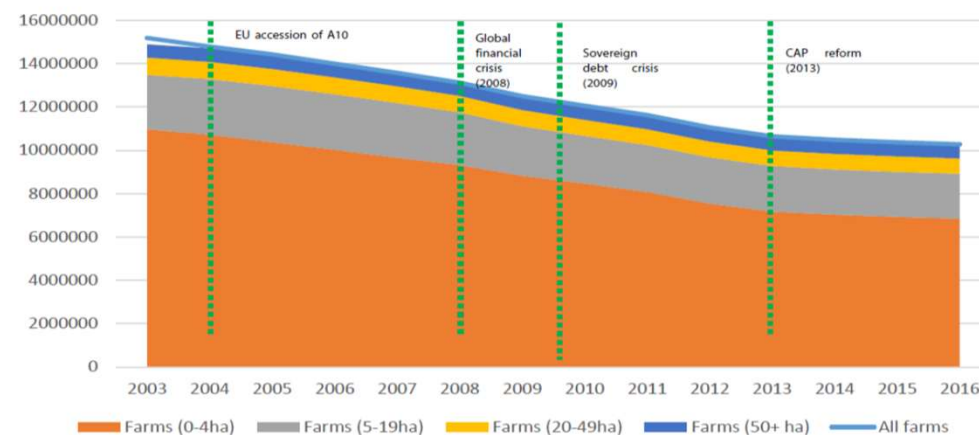
Figure 7: Number of farms and farmer per size class 1990 to 2016 in EU-14⁹



The number of farms in the EU-27 fell between 2003 and 2016, from 15 million to 10 million (-32%). 92 per cent of these farms were family farms

By 2040, the EU could lose a further 6.4 million farms, leaving an estimated 3.9 million farms across the EU – a staggering 62 per cent decline compared with the 2016 figures.

Figure 4: Number of farms and farmer per size class 2003 to 2016 in EU-27

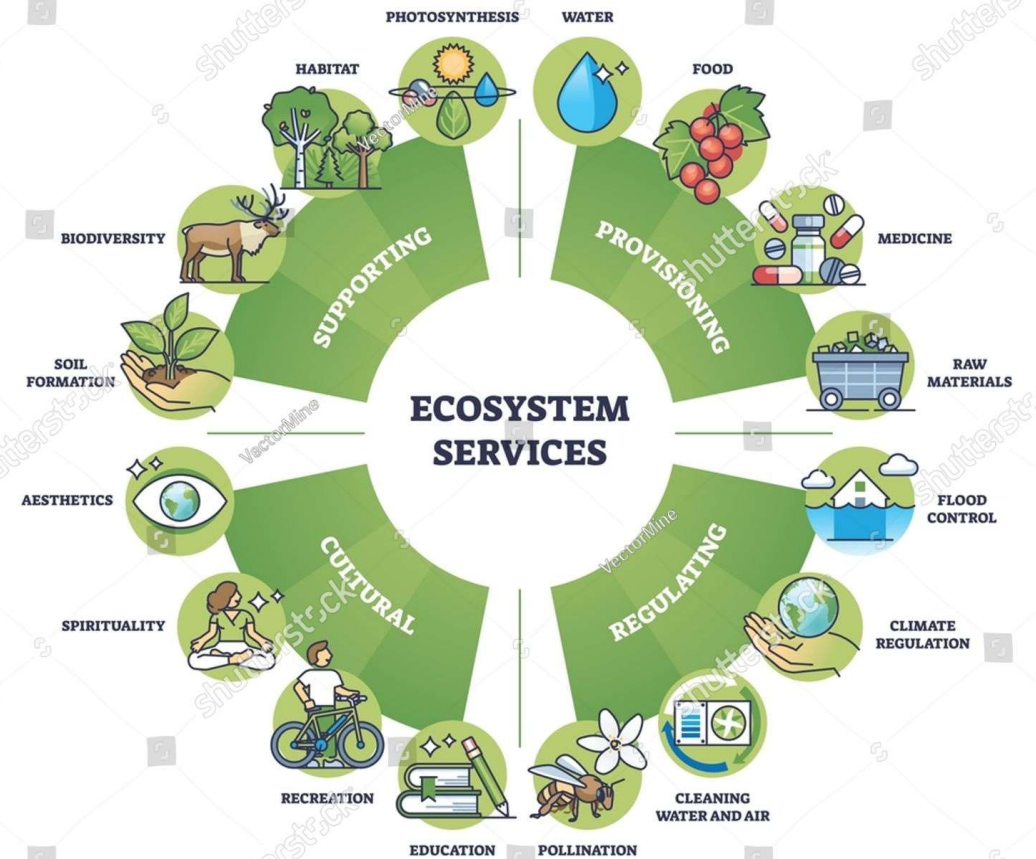


**If we don't take action,
60 per cent of European
farms could disappear
by 2040.**

Agroecosystem services and family farm decline

The continued decline in agricultural income has had a negative impact on the provision of agroecosystem services:

1. the fall in income reduces farmers' investment in work to maintain the biophysical resources in good condition;
1. job losses, mainly within family farms, have driven family members who help with reproductive work – which is often unpaid – out of agriculture
2. Large farms do not provide agroecosystem service because the market does not compensate them



Agroecological Transition Priorities

In addition to the necessary transition to organic production based on agroecological principles, it is imperative to implement the following measures:

1. Prevent the destruction of family farms and facilitate generational replacement
2. Promote adaptation to climate change
3. Strengthen alternative food systems, promoting their scaling up (SALbAs)
4. Create a suitable regulatory framework to facilitate the development of alternative food systems.
5. Strengthen agroecological movements and build alliances to increase their influence



Prevent the destruction of family farms and facilitate generational replacement

- Preventing the “land rush”, for example by limiting the massive flow of investment funds and banks into the land market
- **Communalization (or public provision) of digital technologies; Creative Commons and democratic control over these types of technologies and genetic material**
- Ban on the planting of genetically modified seeds and regulation of gene editing
- Legislation against piracy and preservation of agricultural genetic heritage
- Etc...



Prevent the destruction of family farms and facilitate generational replacement

URGENT

- Measures to protect family farms. These include income support (various instruments: payments for services; food procurement plans; access to credit and insurance; etc.)
- Measures to strengthen farmers' autonomy (composting facilities; seed exchange and improvement; producer organizations; etc. Closing the loop)
- **Food-related knowledge production (e.g. supporting Agroecological Living Labs tasks, etc.).**
- Etc...



Strengthen alternative food systems, promoting their scaling up (ALAs)

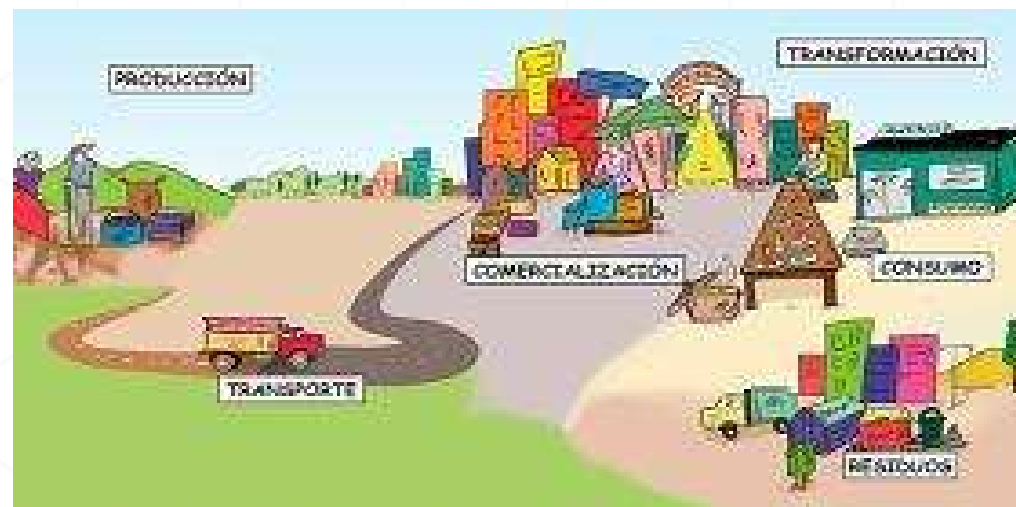
The ALAs must be developed in two directions: downstream and upstream (all links in the agri-food chain)

Upstream:

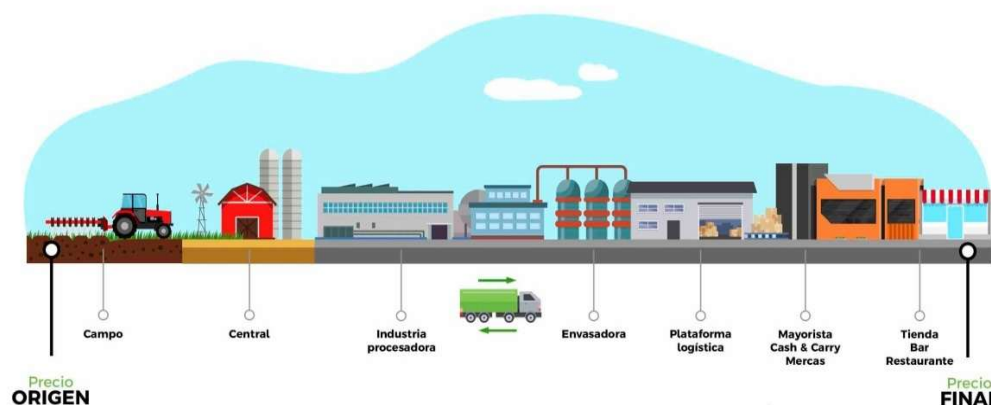
- Community conservation and breeding of seeds and livestock breeds
- Crop planning
- Exchange of organic materials, composting plants, etc.
- Agreements between farmers and ranchers (production of raw materials for feed, manure, etc.).Etc..

Downstream:

- Collective marketing
- Food collection centers or hubs
- Shared production facilities
- Shared transportation infrastructure
- Etc.



CADENA DE VALOR AGROALIMENTARIA



[VER TABLA DE DATOS](#)

As research infrastructure,
Lifewatch-ERIC can make a decisive contribution to the agroecological transition.

End users of RI:

- Farmers
- Researchers
- Agroecological living labs
- Public administrations
- agrifood companies and cooperatives
- Logistics Companies
- Etc.

Building VRE fA for:

- supporting agroecological living labs
- supporting *Agroecology Partnership* for monitoring agroecological transition



LifeWatch can provide vital support in the following areas

At farm level: (creation of a VRE at the farm level: open source and free to use)

Climate change adaptation:

- scenario development;
- identification of critical periods and required water quantities;
- etc..

Calculation of animal feed requirements and pasture productivity

Farm management (crop rotation, economic and biophysical accounting, diversification, and biodiversity enhancement...)

/.../



At landscape level:

Supporting the design of agroecological landscapes to promote the closure of biogeochemical cycles.

Crop Planning and the Use of Local Inputs

Defining and evaluating agroecosystem services

Collecting available agroecological knowledge and making it accessible to all potential users through databases and applications that facilitate the sharing and exchange of data and research

Etc...



At food network scale

Developing a digital tool for managing local agroecological food systems with a focus on planning and coordinating food supply

Developing and managing logistics, and bringing agricultural products closer to consumers

Energy analysis for shorter food supply chains to address inefficiencies and promote economies of scale and scope

The design and economic viability of agroecological logistics deserve special and urgent attention.

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Providing food to large cities is a challenge that goes beyond the scale of the landscape and requires the coordination of larger territories. “Biodistricts” or “biorregions” have been proposed to meet this demand, but little progress has been made in making them operational.





Some examples:

- Water requirements calculation program (e.g., Cropwat)
Digital tools for calculating organic fertilization
Fertilization adjustment program during crop development (based on leaf and sap analysis, etc.)
Digital tools for designing beneficial biodiversity elements (tree, shrub, and herbaceous hedgerows for pollen collection, beneficial insects, etc.)
Repository of computer and web resources and tools for livestock farm management
Software for calculating production and distribution costs
Supply management program for short supply chains
Digital tool for checking organic product prices in real time
CAP digital notebook adapted to organic production with useful cultivation tips (this could generate and systematize a great deal of information provided by the sector)
- /.../



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THANK YOU!

Questions?

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