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Agroecology as a means to achieve the Sustainable Development Goals

(February 2019)

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Foto: Peter Lüthi, Biovision

About

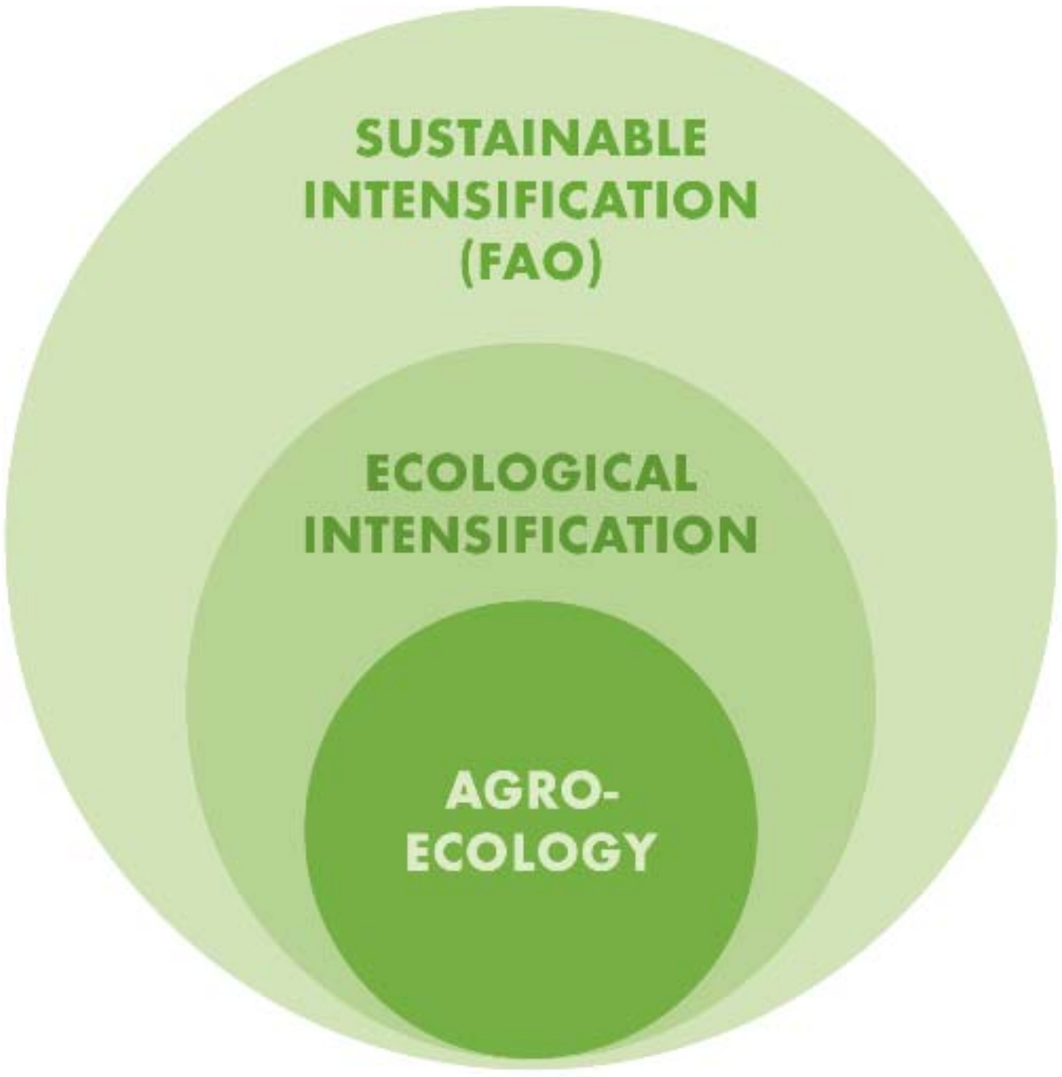
- Agroecology is …
- Role and impact of agroecology.
- Agroecology and SDGs.
- Challenges.
- Recommendations

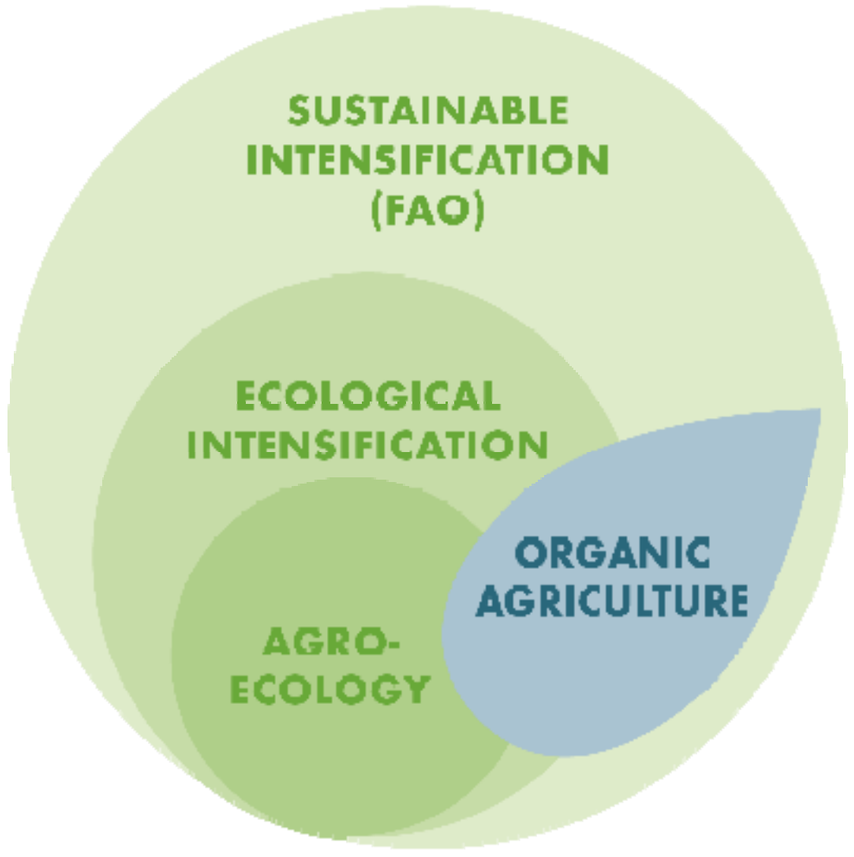
Agro-ecology is …

- Historically: Application of ecology to agricultural systems (Altieri, 1995).
- 3 forms of agro-ecology:
  - A scientific discipline;
  - Agricultural practices;
  - A social movement.
- A new buzzword adopted by actors who promote conventional agriculture?

Niggli., 2017

Sustainability strategies





Niggli et al., 2020 (to be submitted)

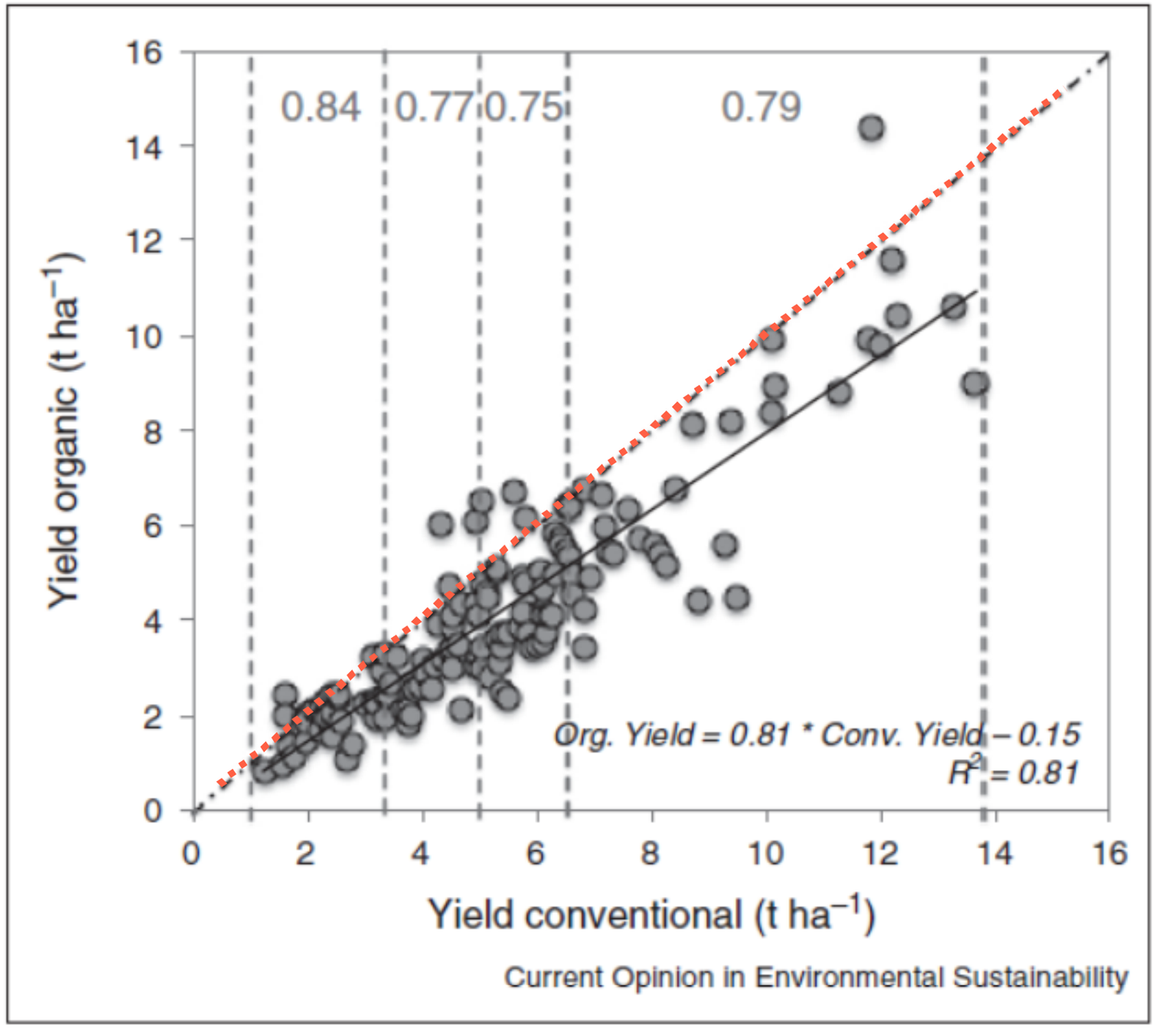
Different approaches to sustainability

- Improved technologies like minimum/ no tillage or GMO crops.
- Integrated Production (IP, IPM).
- Low Input Agriculture (LIA) or Precision Farming.
- Low External Input Sustainable Agriculture (LEISA).
- Organic Farming.
- Organic Farming & reduced tillage.
- Organic (successional) agroforestry systems.

Ecological or eco-functional intensification

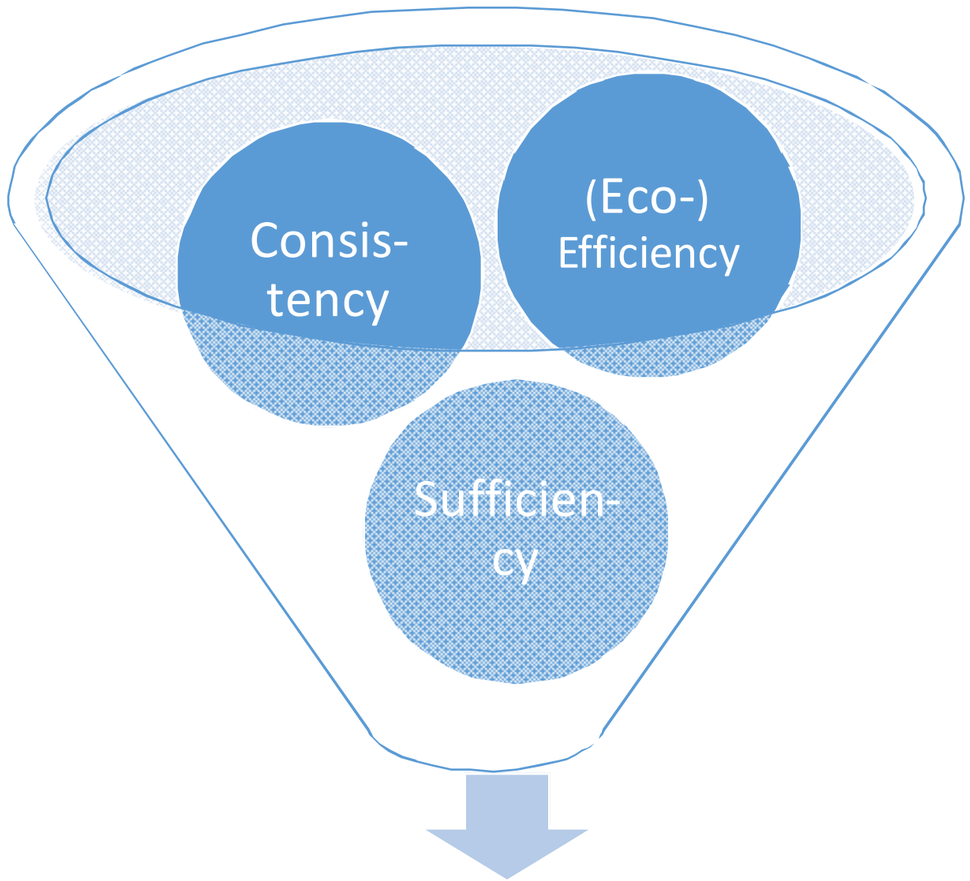
"While sustainable intensification is generally loosely defined, so that almost any model or technology can be labeled under it, ecological intensification proposes landscape approaches that make smart use of the natural functionalities that ecosystems offer. The aim is to design multifunctional agroecosystems that are both sustained by nature and sustainable in their nature." (Tittonell, 2014)

Productivity in terms of yields is a challenge for organic and agroecological practices



Tittonell, 2014

A sustainable economy is defined by 3 narratives:



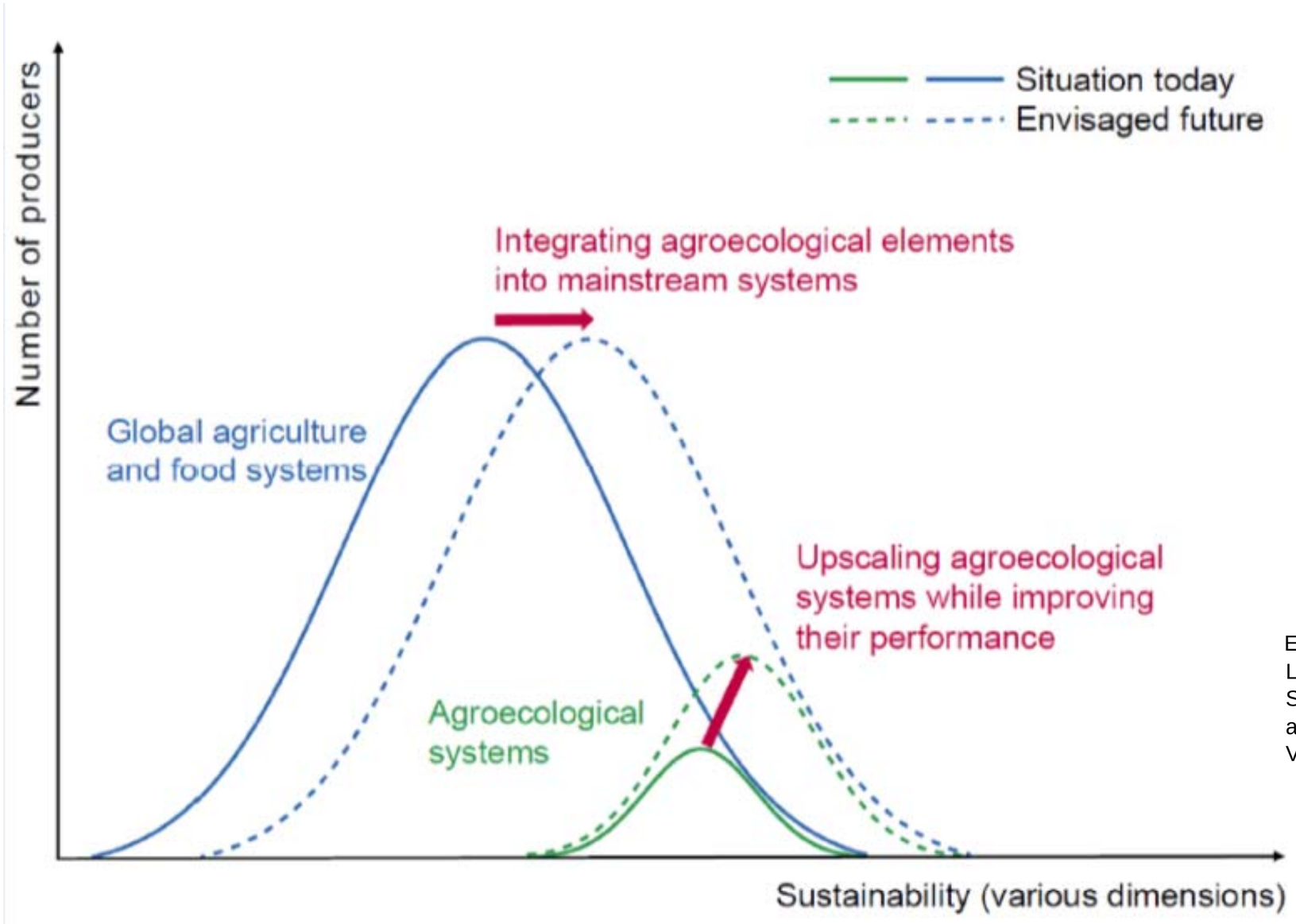
Sustainable Food Systems

(Eco-)Efficiency:
More output with less input and less environmental footprint

Consistency:
Adaptation to territorial, cultural and socio-economic context, resilience, anthropogenic and natural flow of material compatible, cradle-to-cradle.

Sufficiency:
Reduction of consumption and waste, temperance, avoidance of rebound effects

The role of agroecology in transforming agriculture and food systems



Eyhorn F, Muller A, Reganold JP, Frison E, Herren HR, Luttikholt L, Mueller A, Sanders J, El-Hage Scialabba N, Seufert V. and Smith P (2019) Sustainability in global agriculture driven by organic farming. Nature Sustainability | VOL 2 | APRIL 2019, 253–255.

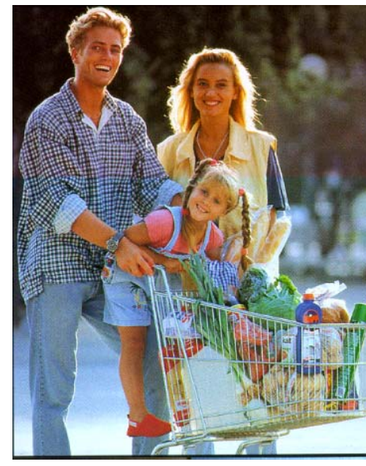
Compare agroecological and organic farming practices

Agro-ecological farming

- Many excellent principles and recommendations, vaguely worded.
- No mandatory standards.
- No bans and detailed restrictions.
- Basically open to all technologies.
- No inspection.
- Social learning process.

Organic farming

- 4 principles of health, ecology, fairness and care, more bindingly worded.
- Mandatory standards.
- Bans and detailed restrictions.
- General technology bans.
- Inspection and certification (3rd party, group certification, PGS).
- Jump in, accept it or forget it



Agroecology and SDGs

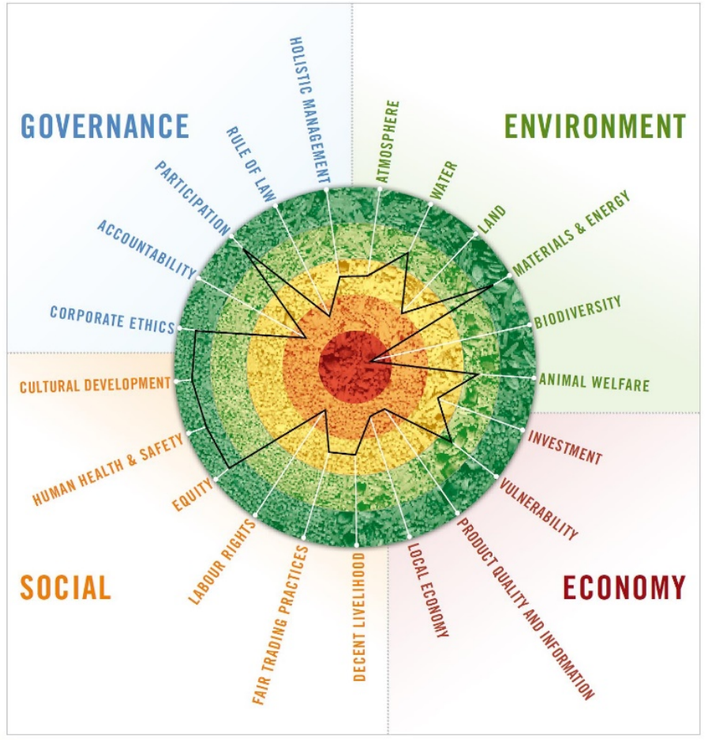
Challenges of Agroecology

1. Negative image.
2. Time lag.
3. Weak knowledge and advisory systems.
4. Labor demand.
5. Transaction costs.
6. Policy incoherence.
7. Lack of landscape level coordination.
8. Lack of incentive systems in research.
9. Lack of compensation for yield reductions.
10. Sufficiency narrative.

Recommendations (1)

A. Strengthening knowledge on agroecology:

- Appropriate innovations and novel technologies.
- Agroecology: A challenge for the scientific community.
- Agroecology be strengthened in the curricula of Universities.
- Holistic guidelines for sustainability assessments (ETH, Universities, Agroscope, FiBL, HAFL, ZHAW, private sector players).
- Impact assessment of the adoption of agroecology on global food security and on agricultural incomes.



FiBL/HAFL

Agroecology guides innovation!? (example digitalisation)

Photo Tompkins
Conservation Foundation

Recommendations (2)

B. Working with markets:

- Farmers' markets and local marketing be strengthened.
- new marketing concepts, based on proximity, sustainability and traceability.
- Governments with marketing support measures for agroecolocical products.
- International and national trade policies to foster agroecological practices, (includes external costs and ethical values. different tariffs for agroecological products.
- The CFS Principles for Responsible Investment in Agriculture and Food Systems (RAI) as well as the Voluntary Guidelines on Responsible Governance of Tenure (VGGT) to be promoted.
- A transition to Agroecology will require adequate funding mechanisms /right incentives. New and alternative funding sources and instruments.

Recommendations (3)

C. Enhancing collaboration:

- Strengthen family farmers and food producers around the world in their capacity to organize themselves for knowledge sharing involvement in decision making on policies
- Work of self-organization, exchange and co-creation at national, regional and international level needs to be supported, also financially.
- Up-scaling agroecological systems by the involvement all stakeholders and actors
- Agroecological production systems must be in the focus of national and international policy interventions.

Recommendations (4)

D. Ensuring policy coherence to create a conducive policy context for agroecology:

- Use agroecology as an overarching scientific and practical concept towards the SDGs.
- Introduce and strengthen agri-environmental policy measures.
- Introduce into international trade relations (bi- and multilateral trade agreements).
- Reduce food waste, influence eating patterns and reduce the competition between food, feed, fuel and bio-economy demands on arable crop land.