




The challenges of the agroecological transition: reforming the European Union Common Agricultural Policy (CAP)


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## Carbon farming – Tools for agroecology - regenerative agriculture

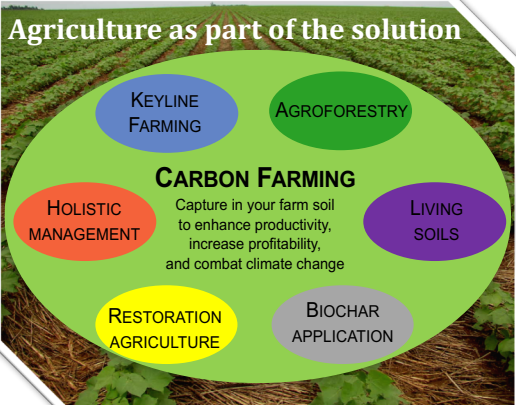


**Agriculture as Problem**



Compete with Nature  
Exhaust soil  
Monoculture  
Chemical inputs  
Farmer as a technician

**Agriculture as part of the solution**




**CARBON FARMING**  
Capture in your farm soil to enhance productivity, increase profitability, and combat climate change

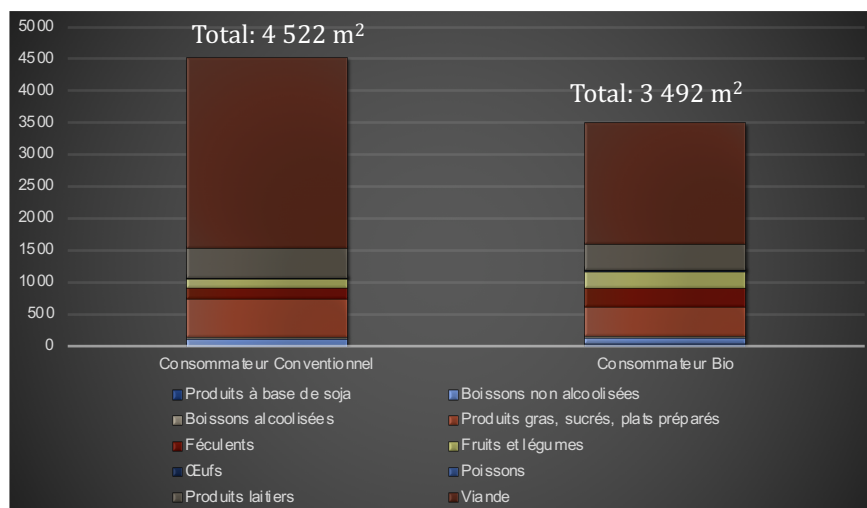
- KEYLINE FARMING
- AGROFORESTRY
- HOLISTIC MANAGEMENT
- LIVING SOILS
- RESTORATION AGRICULTURE
- BIOCHAR APPLICATION

➤ Regenerative agriculture shifts the paradigm  
....offers multiples societal benefits

*Chabbi et al. (2017) Nat Climate Change*



## The food challenge: how many m<sup>2</sup> to feed 1 person?

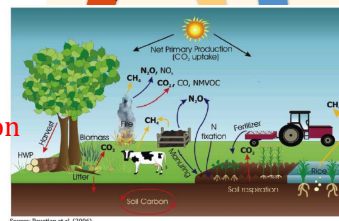
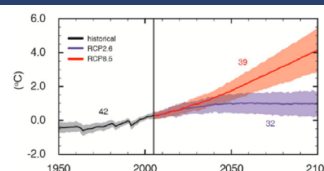


Source: BioNutrinet-Dialecte-Solagro, 2019

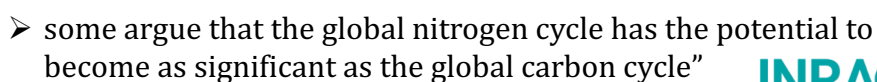
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## Climate change: challenges for agriculture

- ❑ A climate impact directly proportional to the increase in world population
- ❑ Reducing greenhouse gas emissions from the agricultural sector
  - Direct and indirect emission from fossil C
  - Methane emission (enteric and from soils)
  - **Emission of N<sub>2</sub>O in connection with the use of organic or mineral N fertilizers**
  - Carbon loss through land use changes
- ❑ Carbon storage in the soil to reduce atmospheric CO<sub>2</sub>. Possible but use with caution
- ❑ Adapting agriculture and increasing its resilience to the climate marked by
  - an increase in average temperatures
  - a change in the precipitation patterns
  - a frequent increase in extreme events



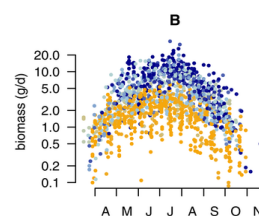
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# The question of pesticides in Europe and in France: scientific evidence

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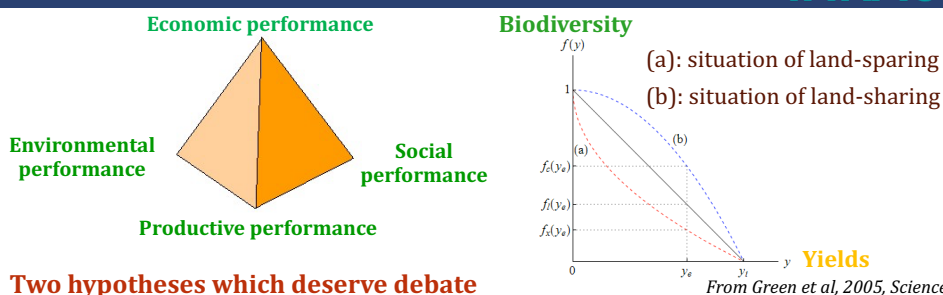
- Intensive farming systems and more homogeneous agricultural landscapes
- Negative environmental effects: biodiversity and water quality



## Evolution of insect biomass in protected areas

## Can we reconcile these different issues?

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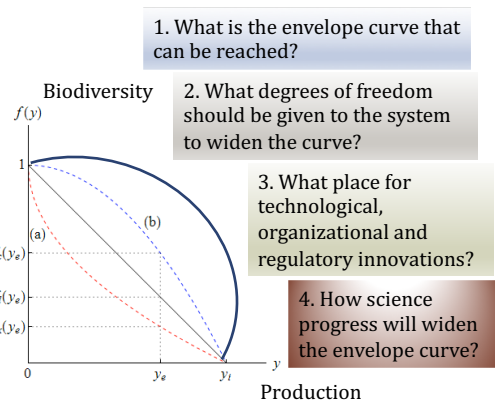
### Two hypotheses which deserve debate

- ❑ Assumption of an inevitable **negative relationship** between economic performance and environmental performance
  - Ex: "... by limiting the environmental impact"
  - This explains the place given to economic development based on economies of scale.
- ❑ Hypothesis of a **synchronization of impacts**
  - However, the structural environmental effects are always delayed over time
    - *Environmental debt*
  - The 4<sup>th</sup> dimension of sustainability is therefore missing: inter-generational equity (Ignacy Sachs, 1972)

## SUSTAINABLE DEVELOPMENT GOALS



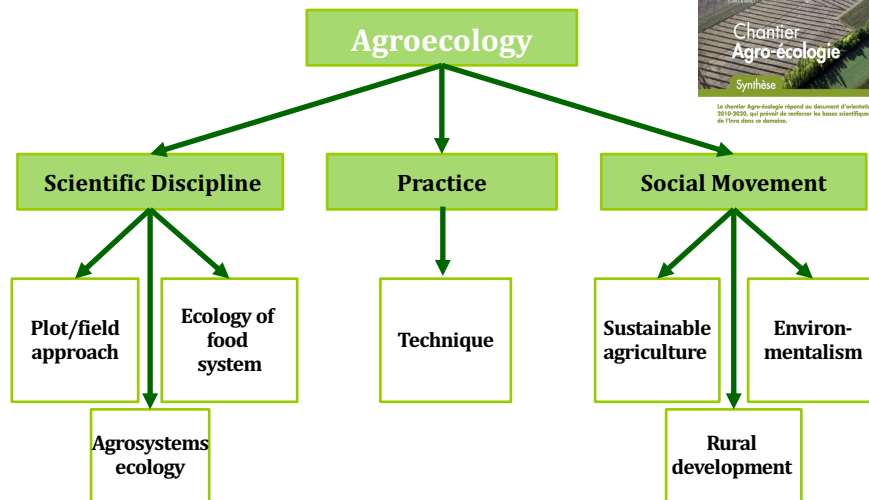
By promoting the SDGs, it is given the feeling that all combinations are possible:  
 "A sedative concept" according to Eastes R-E and Pellaud F (2019, The Conversation



The question therefore becomes:



## Agro-ecology: one concept, different meanings



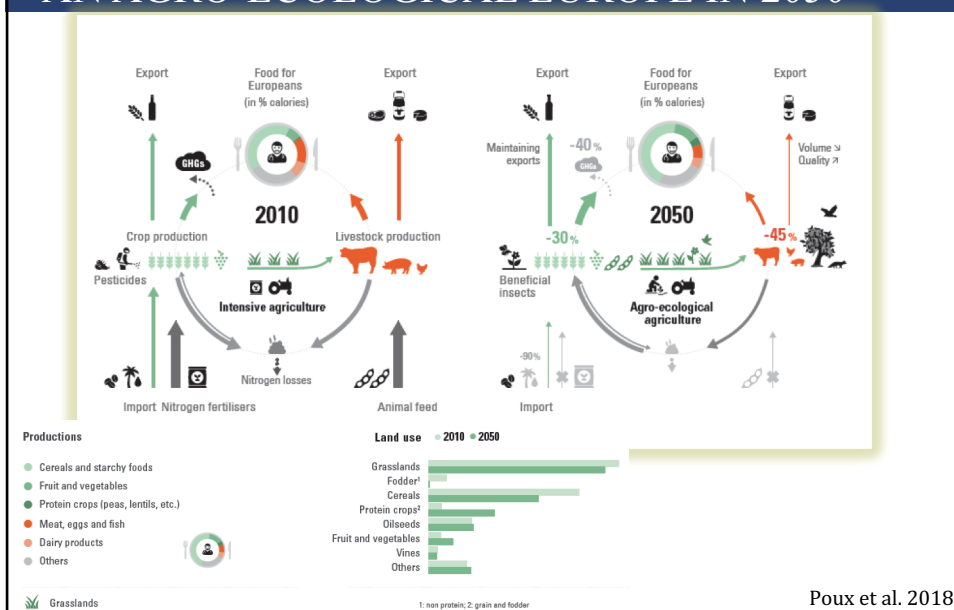
## Agro-ecology as an emerging scientific interdisciplinary field

- Ambition: to combine agricultural and ecological sciences
  - two historically disjointed fields of study
- Crop or livestock systems seen as ecosystems ...
  - in which the natural environment is transformed, valued and impacted by agronomic practices
- It's about (better) understanding how these agroecosystems work ...
  - how do they obey existing ecological theories?
  - how do they generate new theories?
- ... and how agro-ecological engineering makes it possible to better harmonize natural regulations, agricultural practices and other human interventions
  - to design more sustainable systems (economy, environment & social)

## Multi-performance of agriculture: mobilizing agroecology to reconcile economy and environment, using genetics, precision farming, digital farming

- Combining ecology and agronomy and mobilizing all disciplines and technologies
  - agro-ecology, genetics, agro-equipment, information technology, ergonomics, public economy, ...
- ... To design, evaluate, disseminate multi-performance production systems
  - productive (quantitative and qualitative), health, environmental, economic, social... performances
- Innovative design: framework of the approach
  - Avoid a priori hypotheses (fixing effects)
  - Within broad categories of agricultural production systems, there is wide variability
  - Encourage systematic exploration of high performance production systems

## TYFA : A SCENARIO FOR AN AGRO-ECOLOGICAL EUROPE IN 2050



## Post-2020 CAP: Insights from Research

- ❑ The future CAP that (start on January 2021 with budget adjusted downwards by 5% in current euros) will address the following issues :
  - i) environment and climate change; ii) risk management; iii) overnutrition and iv) innovation
- ❑ No one will dispute the ambition of the future CAP which can be summed up in one word, sustainability in terms of:
  - *Economy*: increasing farm incomes, increasing competitiveness... (e.g., *except increase market orientation*);
  - *Environment*: facing the climate challenge, better managing natural resources (water, air and soil) and better preserving biodiversity;
  - *Social equity*: ensuring the renewal of generations of farmers, revitalizing rural areas and meeting new societal expectations.

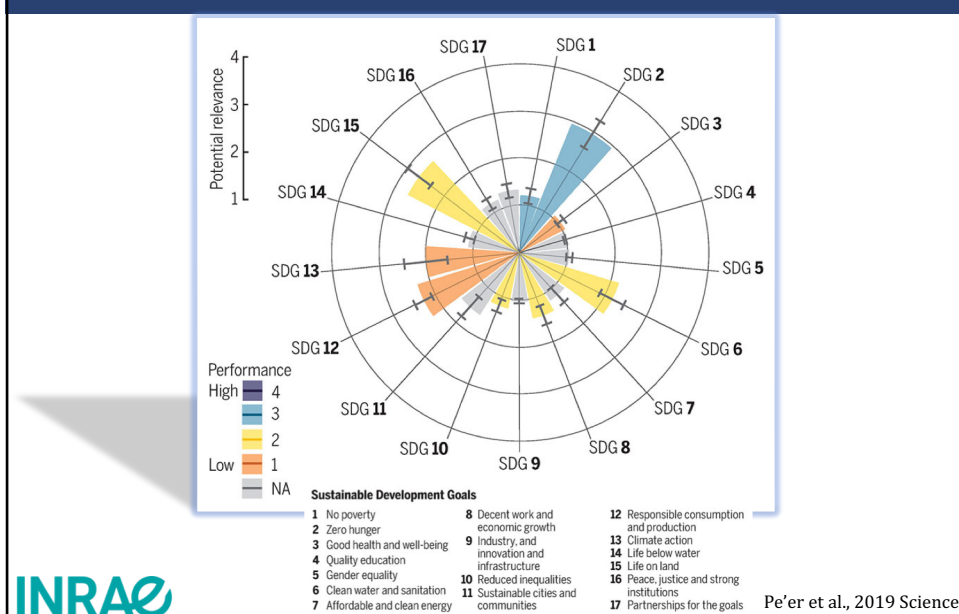


## BUT...

- ❑ The CAP is really not at all environmental (despite the headings and community and green rhetoric of the Commission in the introductions to the various documents).
  - It ignores the collapse of biodiversity by not allocating money for Natura 2000, the European network of protected sites, and massively reduces ring-fenced funds for the environment.
  - It makes no credible attempt to support the promised transition to sustainable farming, and leaves the door wide open to perverse subsidies.
  - It completely overlooks the need to change consumption patterns ranging from unhealthy diets to food waste.
- ❑ National agricultural strategies aiming to finance the main green action ("eco-schemes") compulsory for all aid, in practice the details left to Member States to empty out everything that can be environmental and climate related goals
  - Similar issues raised by BirdLife in its 2018 analysis are still there (e.g. low budget 40% of the CAP for the environment and lack of priorities)

- ❑ The Commission's commitment that "40% of the CAP will be good for the climate" has almost no substance: the CAP is not up to the environmental challenges
  - the scheme does not distinguish environmental goods according to their nature of global or local public goods
  - climate change and the preservation of biodiversity require governance and funding on a European scale,
  - diffuse and occasional pollution of soil, water, and air will be better managed in the context of co-governance and co-financing on a lower geographic scale.
  - No measure explicitly targets support for innovation (e.g., Pillar 1).

## Aligning the next CAP reform with the SDGs

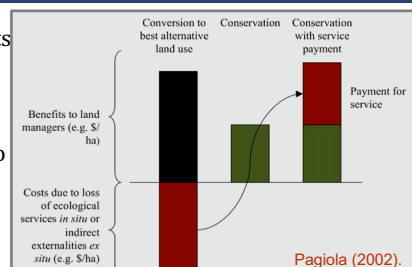




## Payments for Ecosystem Services (PES)

The current infatuation for the concept of PES fits into the following contextual elements:

- Scarcity of natural resources and climate change invite all actors to pool their efforts to meet these challenges. PES can participate in the implementation of ecological compensation.
- Lack of recurrent remuneration for work in agriculture and the lack of added value on the market for agroecological systems (apart from organic farming) lead farmers to seek additional income.
- Herds (Farms) suffer from low public acceptance and regularly accused of damaging the environment. PES can promote the integration of farms and strengthen the circularity of the economy in the regions.
- **But this requires the establishment, costly, of private or public standards defining these services.**
- **It involves mobilizing private and / or public funding and contracts that escape the CAP and the constraints inherent in the notification of public aid to agriculture.**



## Closing thoughts

- Promoting the transition to agroecology and ensuring its coherence becomes an urgent objective.
- Despite the PAC effort (and a series of reforms since 1992), European agriculture faces challenges of considerable magnitude that it has not managed to effectively address to date:
  - the globalization of agricultural economies and the emergence of new players on the international scene
  - the increase risks of all kinds climatic, health, economic, etc and ways to deal with it,
  - the environmental sustainability of European agriculture - agro-ecosystems continue to deteriorate, despite the (MAECs) measures,
- CAP failure to address adequately the most relevant SDGs associated with it,
- PES must become vectors for investment in changing practices and not simply tools to compensate for the opportunity costs of renouncing the practices in question.





