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MINISTÈRE
DE L'AGRICULTURE
ET DE
L'ALIMENTATION

Agro-ecology and 4 per 1000, the French experience

Ludovic Larbodière
French Ministry for Agriculture and Food

GHG emissions and absorption in agriculture in France
Current figures

- **French agriculture**
  - •436,000 farms, average size 65 ha
  - •agricultural production represents 70,3 Mds€
  - •agricultural land represents 54% of French area (forests: 31%)

- **Emissions of Ag in France : 20 %** of french total emissions **(LULUCF part of grasslands and croplands incl.)** (85 Mt CO_2 eq out of a total of 422 Mt CO_2 eq)
  - •47% of CH4 (enteric fermentation, waste management)
  - •44 % of N2O (fertilizers, manure, crops residus)
  - •10 % of CO2 (without energy consomption)

- **LULUCF (Soils and Forestry)** are an important carbon sink: decrease of French emissions by 8%

Carbon sequestration – current figures and potential

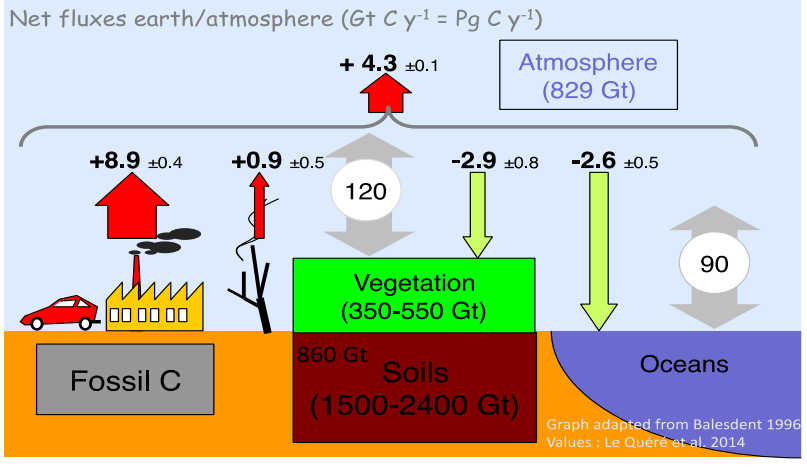
- **Carbon (C) sequestration**
  - in agriculture: 12 Mt CO_2 eq,
  - in forestry: 55 Mt CO_2 eq

- **First estimation of the mitigation potential capacity** by 2030
  - Evolution of *agricultural practices* -> 12-15 Mt CO_2 eq
  - Avoid the release of stored C through *soil artificialisation* (« soil sealing ») and conversion of grasslands to cropland -> 8-10 MtCO_2eq
  - evolution of *forest management* and use of its biomass -> 25-30 MtCO_2eq
  - combating *food waste* -> 8-10 MtCO_2eq

Potentially, C sequestration potential can amount to 16% of French GHG emissions

4 per 1000 for food security and climate

- International initiative launched in 2015 during the COP 21.
- A simple idea: an annual increase of 4 ‰ of the world soil surface carbon stocks would nearly compensate for the annual CO2 increase in the atmosphere



- Objective : mobilize stake-holders to encourage agricultural practices that contribute to soil carbon sequestration => good for climate change mitigation, adaptation and for food security.
- An international and multi-stakeholders platform : 183 members (Consortium), 359 partners (Forum) and 14 well-kown scientists (Scientific and technical committee).

Implementation of 4 per 1000 in France : The Agroecology projet

Objective : Seek the triple economic, environmental & social performance to :
- reconcile environment and economy ;
- responsibilize farmers through a bottom-up initiative (not only regulations)
- respond to consumer and citizens' expectations (healthy and tasty products, good for biodiversity and climate, respecting animal welfare…)

Key principles of agroecology :

- **Systemic approach** at plot, farm, landscape and food chain levels.
- Develop **positive interactions** in the agricultural ecosystem to reduce input and energy use, and respect natural resources
- Enhance **biodiversity and biological regulations** (diversity of crops, breeds, different layers of vegetation…)
- Enhance **economic performance** of the farm

=> Innovative and knowmedge intensive agriculture

Agroecology projet: a strong political framework

- A strong orientation for the French agricultural sector since 2012
- Fully **included in the law** *[so called "Loi d'Avenir pour l'agriculture, l'alimentation et la forêt" 2014],* **reaffirmed recently in a new law « EGAlim »** *[october 2018]*
- An ambitious national project : conduct the transition of french agriculture **combining economical, environmental and social high performance.**
- **A national multi-stakeholder governance system** with action plan and indicators.
- **Mainstreaming agro-ecology** to public funding projects, applied and fundamental research, farmers education, advisory services…

Agroecology project

A **detailed action plan drawn up in with 17 work areas** and integrating 10 specific action plans elaborated with all stakeholders :

Ecoantibio	Ambition bio 2017
Ecophyto	Agroforestry
Develop biogas	Protecting pollinators
Seed diversity	Animal welfare
Protein crops	Training program for farmers

Involves **all stakeholders** from production to transformation so as to **“produce more with less”**, with the objective that a majority of French farmers adopting agroecology practices by 2025.

In France, agroecology is taken into account for setting-up aid and investment grants and for mobilising public policy tools

Agroecology projet: some of the national policy tools

Agroforestry plan with 5 pillars : knowledge, training, advisory services and promotion, economic value of agroforestry production, international spread.

Protein crops: Nitrogen is a key factor to lower the needs of external nitrous inputs. This plan promotes the culture of legumes and limitation of mineral fertilizer use with the objective of 500,000 ha of protein crop area in 2022

Biogaz plan: digestate can be a substitute to mineral fertilizers, with the concern of avoiding any soils pollutions.
Objective of 1,000 units by 2020.

=> 90 units in place in farms in 2012 500 operational in 2018

Agroecological practices benefiting soil carbon sequestration

Conservation tillage

Mix species

Sylvo-pastoralism

Diverse landscapes

Biogaz

Agroforestry

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Collective approach: Economic and environmental interest groups (GIEE)

- Voluntary groups of farmers organised around a shared project for improving or consolidating their farming methods in order to improve their economic, environmental and social performance,
- Recognition at local level -> specific call for proposal,
- More than 527 GIEEs granted recognition since 2015 (more than 8000 farmers) and 30 % with a specific focus on soil preservation,
- Wide variety of types of production and partners (technical, research, etc...)

Farmers education and training

National plan **« better learning » -** « teaching to produce differently »

More than 700 agricultural schools

=> Reform of agricultural schools diplomas based on systemic and multidisciplinary approach

=> Develop school based demonstrations

=> Increase collaborations with local actors

⇒ Develop a network of school focal points

⇒ Initial and continuous training

New tools

- MOOC on agro-ecology
- Online tool box for farming school teachers on climate change (Educagri Editions)

Agroecology project: how the Common agriculture policy is mobilized?

Respond to the increasing social demand for agricultural policies that incentivize sustainable agricultural practices.

Mobilizing instruments of the current common agricultural policy (CAP) : greening payments, setting-up aid and investment grants for agroecological projects, agri-environmental measures :

- Agriculture-Environment-Climate Measures: for 2014-2020 program, budget doubled compared to 2007-2013
- Support for Organic program: Objective : 15% of the agricultural area of organic in 2022 (3,8% of agricultural area in 2013 and 6,5% in 2017)

CAP post-2020 : new “eco-scheme” that aims to further develop green payments => better integrate climate change and environment challenges.

Perspectives for 4p1000 in France

- Dificult to assess the impact of these policies on soil
- Encouraging **Research** (soil is one of the four priorities of the national “Agriculture and Innovation 2025” Plan) to better understand mechanisms and help design better policies
- Creation of a national network of experts on soils (RNEST) and conduct new campaign of measurements by the national soil quality measures network (RMQS) to have more accurate inventories
- On-going study on the evaluation of the soil carbon sequestration potential of practices in France (INRA-ADEME will be launched mid-june 2019)
- Develop research, science and tools (applications) to support farmers