Overview of French climate actions for agriculture, agrifood, forestry and the bioeconomy

Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

MINISTÈRE
DE L'AGRICULTURE
ET DE
L'ALIMENTATION

The most recent special report from the Intergovernmental Panel on Climate Change (IPCC) is unequivocal about the magnitude of the threat posed by climate change and the urgent need for action to achieve greenhouse gas emissions pathways to limit global warming to 1.5°C.

With this in mind, and following the Paris agreement, France has drawn up a climate plan that sets the objective to be carbon neutral by 2050.

The agricultural, forestry and bioeconomy sectors are strongly committed to fighting climate change. This brochure offers an overview of the current actions in place under the Ministry of Agriculture and Food.

Six insights into agricultural and forestry levers to adress climate change issues

In France, greenhouse gas (GHG) emissions totalled 422 MteqCO2 in 2016 according to the country's latest assessment. The agricultural sector1 ranked second in terms of GHG emissions, with 21% of the national total. Meanwhile, soil and perennial vegetation absorbed the equivalent of 11% of national emissions (through terrestrial sinks especially forests and grasslands minus the average emissions of cropland).

However, the agricultural and forestry sectors will be among the first to face unavoidable changes. Crop yields will feel the effects while livestock will be impacted by heat waves and droughts that will lower production and cause disease and even death. Extreme weather events will be more frequent, with decreased surface water and rain in summer and higher winter precipitation levels.

Fighting climate change will require **mitigating** emissions, i.e., lowering actual emissions and increasing carbon sinks. Efforts will also have to be made to **adapt** to climate change effects. The six following approaches can be used as levers by the Ministry of Agriculture and Food's sectors to fight climate change. Together, they can help cut agricultural emissions in half between 1990 and 2050.

Nitrogen management

In 2016, nitrous oxide (N2O) accounted for 40% of agricultural emissions coming through nitrogen fertilizer spreading and livestock manure. Improvement can be achieved by:

- Optimizing inputs to plant needs ;
- Planting more leguminous crops that fix atmospheric nitrogen ;
- Making use of livestock manure and organic fertilizers ;
- Adjusting the quantity of protein in animal feed ;
- Improving the quality of soil (physical and chemical properties, microbiology) and seeds.

(1) - The "agriculture" sector referred to in this brochure includes direct emissions related to farming activities as defined in the national assessment as well as emissions related to energy consumption on farms.

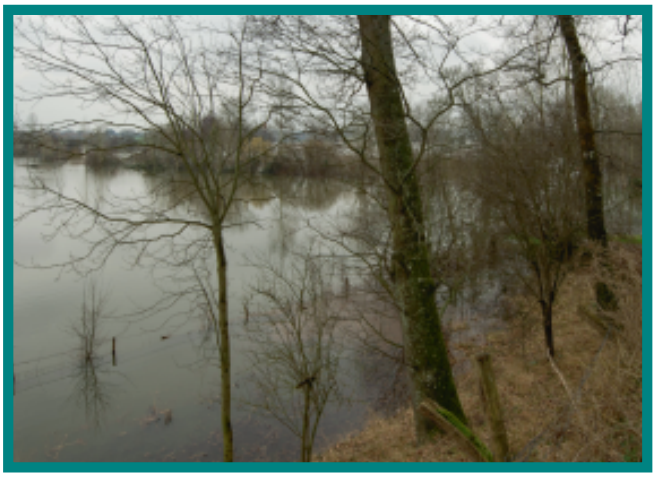
Livestock

Livestock is related to nearly 70% of agricultural emissions due to the enteric fermentation of ruminants (methane emissions – CH4), waste management (methane and nitrous oxide emissions), energy consumption (CO2 emissions) and feed production (N2O and CO2 emissions). Grasslands, however, absorb the equivalent of 13% of agricultural emissions every year. Drivers for action are:

- Methanization, reduced manure storage time, manure coverage with flare installation, changes in feed ;
- Energy efficiency and the use of renewables ;
- Reducing “unproductive” animals: sanitary measures, herd management, feed, breeding ;
- Optimized pasture management: nitrogen, methane, carbon storage ;
- Breeding, herd management, warning systems.

Soil and water

The soil produces biomass, is involved in the water and nutrient cycle and sequesters large quantities of carbon.



Various practices can support carbon sequestration: agroforestry, intermediate crops, simplified tilling techniques and the creation of grasslands. Other practices help preserve carbon stocks, such as maintaining grasslands or fighting soil artificialization.

Protecting the soil helps keep it fertile. When water conditions are challenging, soil structure can be improved (e.g., agroforestry), crop choices and growing seasons can be adapted, and wetland areas can be maintained. Irrigation can also be used in line with environmental protection measures, restrained use and equitable sharing practices.

Forestry and bioeconomy

Forests and harvested wood products absorb 13% of national emissions and play a key role in mitigating climate change. As with the bioeconomy, they provide materials and energy that can be used in place of those that emit large amounts of greenhouse gases.

With regard to adaptation, the challenge is twofold: forests are exposed to the impacts of climate change, but they also provide services for production, flow regulation and protection that are essential to support the adaptation of other sectors to climate change.

Given current climate issues, sustainable forest management must conciliate adaptation and mitigation by optimizing carbon flows over the long term through a more robust forest biodiversity.

In agriculture and forestry, the bioeconomy will be deployed by articulating the various uses for biomass and cascading use of products in accordance with the circular economy.

Energy

The agricultural and forestry sectors consume major amounts of energy – and therefore emit large amounts of CO2 (10% of GHG emissions in France come from agriculture). They also produce decarbonized energy such as methane, wood energy, intermediate crops used for energy, solar power on buildings and liquid biofuels

Food supply

Food supply is the main purpose of agriculture. The Paris agreement recognizes food security as a global priority. Reducing food waste is crucial to limiting emissions, energy consumption and water use. Information and awareness campaigns can be developed (especially on nutritional recommendations) to guide consumer behaviour and therefore food production towards systems that emit fewer emissions and towards local, seasonal and less processed products.

For these changes to take root, agricultural revenue must be supported through the relocation and range escalation of production (especially livestock), promoting virtuous systems and diversifying market opportunities through the bioeconomy.

An ambition reflected in our public policies

The international context

With the **Paris agreement** (2015), the international community bolstered its commitment to fighting global warming by setting the goal of limiting global warming to 2°C, and ideally 1.5°C, compared to pre-industrial levels. The agreement is based on nationally determined contributions through which most States committed to reducing their emissions, including from the agricultural and forestry sectors. States also agreed to conserve and reinforce their carbon sinks, especially forests, and to pursue efforts to reduce emissions from deforestation and forest degradation. Furthermore, States have been focusing attention specifically on agricultural projects since 2012 and on a new joint work programme called "Koronivia" since late 2017. Non-State actors have also expanded their commitments, namely through the **Global Climate Action Agenda** and its numerous agricultural and forestry initiatives, such as the **"4 pour mille" initiative, soils for food security and climate**, launched by France. The research community is also very active in agriculture and forestry climate issues within the **Intergovernmental Panel on Climate Change** (IPCC) and other initiatives such as the **Global Research Alliance** (GRA).

The European context

1. Climate policies

The **2030 climate and energy framework** is the main European climate policy. It sets a target of cutting GHG emissions by 40% by 2030 from 1990 levels, all sectors combined. The **EU strategy on adaptation** was published in 2013. The **Horizon 2020 programme** steers funding towards climate research and innovation.

2. The common agricultural policy (CAP)

This policy includes a range of climate-related provisions.

"Cross-compliance" is a mechanism that links direct payments to compliance by farmers with basic standards concerning, among others, the environment. **"Greening"** measures set out environmental criteria for additional aid payments. Several of these criteria support climate action. **"Coupled support"** specifically aims to incentivize certain virtuous productions (legumes, grass-fed livestock, etc.).

The "Rural Development Programmes" provide assistance for virtuous practices or changes in practices (**agro-environmental and climate measures, organic farming, ...**) and fund areas facing natural constraints (**compensatory allowance for permanent natural handicaps**) to protect grasslands, landscapes rich in biodiversity and resilient. These programmes also support **agroforestry** and **adaptation measures** and **risk management practices.**

The next CAP, which will be reformed in 2020, plans to pursue efforts through its new "environmental architecture".

National policies

1. Climate policies

In 2015, France drew up a planning act to set out its energy and climate positions. It introduced a **National Low-Carbon Strategy,** which outlines how it plans to reach its goals as well as a **Multi-Year Energy Programme**, which establishes the country's energy targets. The 2017 **Climate Plan** strengthens the country's ambition and aims to make France carbon neutral by 2050. The adaptation targets are set out in the **National Plan for Adaptation to Climate Change**. Finally, **regional planning tools** also take into account climate challenges.

2. Policies related to agriculture and forestry

Tackling climate change is one of the priorities in the **French Act on the Future of Agriculture, Food and Forestry** (2014). The 2017 **French National Food Conference** and the resulting act of 2018 also strongly focused on this issue. For example, they targeted the development of organic farming, official quality logos, environmental certification and protein autonomy.

The **Agroecology Project** aims to support a transition to multiperformance agriculture (economic, environmental, health, social). Several related plans have a direct or indirect impact on agricultural emissions and adaptation, including:

- **The Agroforestry Development Plan** promotes agroforestry environments that enable greater carbon sequestration in soil and biomass, the use of wood products in place of those that generate more emissions, and enhanced adaptation to climate change.

- **Methane Energy and Nitrogen Autonomy Plan** takes an agricultural approach based on ensuring balanced fertilization and reducing the overall use of inputs as well as improved used of organic fertilizers, which put organic matter back into the soil. It also has a strong focus on processing livestock manure through methanization: the aim is to have 1,000 on-farm biogas plants in France by 2020, up from just 90 in 2012 and 400 in late 2017.

- **The Ambition Bio 2022 programme** seeks to grow organic farming to 15% of utilized agricultural land by 2022 to limit N2O emissions, promote less emissions-generating livestock, maintain or increase soil carbon sequestration, and encourage farming systems that are better adapted to climate change.

- **The Plant Protein Plan** aims to lower France's protein dependency and improve its feed autonomy. The goal is to further develop the production of pulses and fodder that are beneficial in crop rotations. The plan is currently being evaluated and revised to better take into account the ambitions put forward during workshops at the French National Food Conference and on protein autonomy.

The National Forest and Wood Programme sets out the main policy guidelines for public and private forests and includes recommendations for both upstream and downstream measures. Climate change is a major focus, especially with regard to:

- Protecting and increasing carbon sinks and storages in forests through active and sustainable forest management and climate change adaptation.

- alternatives substitution exploitation use of products at the end of their life cycles.

The National Programme for Food works to fight food waste and promote local sourcing through **regional food projects** and mass catering initiatives.

Additionally, the Ministry supports investments to improve the **environmental performance of the agrifood industries** and encourage **energy efficiency** through energy efficiency certificates, the "heat fund", loans and calls for projects.

Market tools are mobilized through the **EU Emissions Trading System**, which sets an emissions cap for energy-intensive industries (including several agrifood sectors) with allowances that can then be traded between companies. A national certified low-carbon standard will also be implemented to facilitate the development of **voluntary projects** to reduce agricultural and forestry emissions.

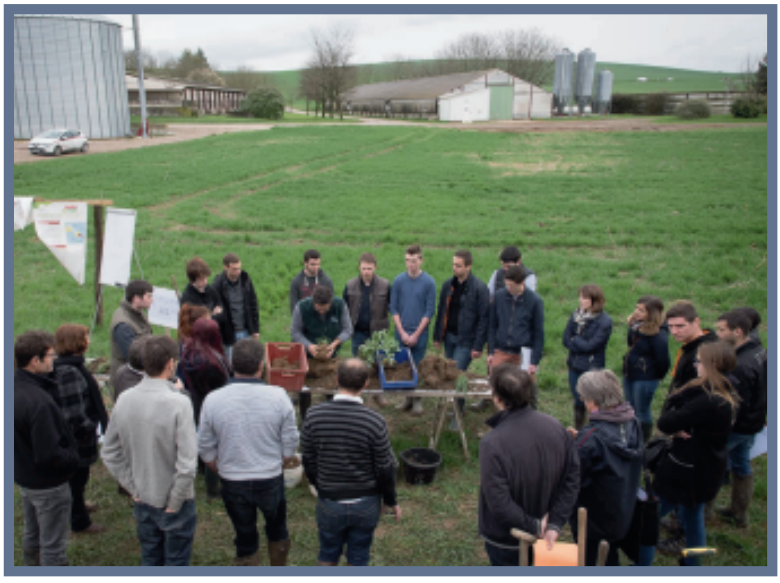
Environmental taxation has been created. It includes tax measures against products or services that damage the environment and measures that support alternatives. It is especially focused on energy, the carbon content of products and conserving agricultural or forest land.

Finally, climate has its place in the various strategies put forward by the Ministry of Agriculture and Food, both on the bio-economy, biomass mobilization, circular economy, biodiversity or the fight against imported deforestation, or the preservation of agricultural soils.

3. Education, research and dissemination

Another of the Ministry's priorities is to improve the continuum between research, innovation, technology transfer and the dissemination of new solutions to users and regions.

This is especially true for climate challenges, which are cross-cutting issues by nature.To achieve this goal, the Ministry relies on the **National Research Strategy** and the **agricultural section of the Big Investment Plan**, which funds projects to develop new technologies. The Agroecology Project has led to changes in **agricultural and forestry education materials** and the implementation of the **Economic and Environmental Interest Group**s (GIEEs) that support projects by volunteer farming collectives to improve industry practices while ensuring they remain economically viable. In early 2018, more than 900 farmers were involved in the GIEEs, 90% of which dealt with issues linked to climate change. These farmers receive assistance through the **National Agriculture and Rural Development Programme.**



December 2018