

1. Climate Action in European Agriculture and Forestry Legal Frameworks: *Strategies, Policy Targets and Measures*

MACSUR Science-Policy Knowledge Forum

The policy brief provides an overview of the political and legal framework of agriculture and forestry for climate protection measures in the European Union (EU) until August 2022. Both sectors are considered together due to their interconnectedness in land use. This policy brief aims to advance the discussion on key policy issues for the MACSUR SciPol pilot project while supporting ongoing research projects with a similar focus.

Policy Measures and Initiatives at Global Level:

Three global agreements define the overarching direction of global climate policy:

- The **2030 Agenda with 17 Sustainable Development Goals**, including [goal 2](#) (end hunger, achieve food security and improved nutrition, and promote sustainable agriculture) with target 2.4, which makes the explicit link between agriculture and climate change as well as [goal 13](#) (take urgent action to combat climate change and its impacts).
- The **Paris Agreement**, as a legally binding outcome of the UN Climate Change Conference COP21 in Paris in 2015 to limit global warming to well below 2°C and preferably to 1.5°C compared to pre-industrial levels. 196 signatory countries commit themselves to Nationally Determined Contributions (NDCs) with country-specific targets for reducing greenhouse gas emissions. These are reviewed and updated every five years.
- The **Glasgow Climate Pact** is the final agreement of participating countries at the UN Climate Change Conference COP26 in Glasgow in 2021. The pact reaffirms the Paris Agreement and sets out accelerated efforts to "phase out unabated coal power and inefficient fossil fuel subsidies". In addition, over 100 countries have submitted the [Glasgow Leaders Declaration on Forests and Land Use](#). In it, the signatory countries commit to halting and reversing forest loss and land degradation by 2030 and to contributing to sustainable land use change.

Policy Measures and Initiatives at the European Union:

The European Union has set itself an ambitious climate change agenda, specifically with the [European Green Deal](#) (COM/2019/640) published in 2019. The Green Deal is an essential part of the implementation of the UN 2030 Agenda

for Sustainable Development and acts as a comprehensive roadmap outlining the EU's ambition to make its economy climate neutral by 2050. The framework set out by the Green Deal includes numerous policies, regulations and action plans with measures for transport, energy, agriculture, buildings and industry. The following list provides an overview:

- The **Climate Target Plan 2030** (COM/2020/562 final) is the EU's NDC under the Paris Agreement. It is complemented by the [long-term strategy 2050](#). The main targets for 2030 are 1) -55% greenhouse gas emissions compared to 1990, 2) at least 32% market share of renewable energy and 3) at least 32.5% for improvement in energy efficiency. Concerning agriculture, the strategy emphasises biomass energy production, precision farming techniques for optimised fertiliser management, anaerobic digestion of manure, promotion of agroforestry and restoration of wetlands and peatlands.
- The new **EU Strategy on Adaptation to Climate Change** (COM/2021/82) outlines the scope for EU action to adapt its economy and society to the inevitable impacts of climate change and to become climate resilient by 2050. Concerning agriculture, it mentions the promotion of sustainable (re)use of water, soil management and vegetation cover, drought-resistant crops, vertical farming, precision farming and restoration of degraded areas.
- The current EU budget was agreed upon by the European Council in the [Multiannual Financial Framework](#) (MFF) 2021-2027. It includes €2,017.8 billion, of which €419.9 billion is allocated to natural resources and the environment. In addition, the [Next Generation EU](#) (NGEU) plan was established for a limited period to accelerate economic recovery after the pandemic. It earmarks 30% of EU funds for climate change mitigation

- [Regulation](#) EU/2018/1999 provides the legal basis for reliable, inclusive, cost-effective, transparent and predictable **Governance of the Energy Union and Climate Action**. The governance mechanism is based on long-term strategies, integrated national energy and climate plans covering ten-year periods from 2021 to 2030, the corresponding integrated national energy and climate progress reports by the Member States and the integrated monitoring arrangements by the European Commission.
- With the **"Fit for 55" package**, the European Commission made 12 proposals in 2021 on how to achieve the [GHG reduction target of -55%](#) (COM/2021/550) by 2030 in different sectors. These include numerous strategy documents, the revision of current EU climate legislation and stricter sustainability criteria for the use and procurement of bioenergy.
- In July 2021, the first [European Climate Law](#) (EU/2021/1119) was formally adopted by the responsible parties, which legally enshrines the interim target of a 55% reduction in greenhouse gas emissions by 2030 compared to 1990 levels and the goal of climate neutrality by 2050. The law manifests the existing monitoring and reporting mechanisms such as the national strategy and climate plans.
- The [Land Use, Land Use Change and Forestry \(LULUCF\) Regulation](#) (EU/2018/841) entered into force in 2018 and is applied from the beginning of 2021, with the first compliance period being 2021-2025. Its amendment for the period 2026-2030 (COM/2021/554) provides for a net GHG avoidance target of 310 million tonnes of CO₂ equivalent by 2030, distributed to Member States as annual national targets from 2026. From 2031, it is envisaged to combine non-CO₂ GHG emissions from agriculture with the LULUCF sector, creating a newly regulated land sector. For this sector, the integrated goal of climate neutrality is to be achieved by 2035.
- The new target set in the Climate Action Plan to achieve a -40% reduction in greenhouse gas emissions compared to 2005, instead of the current -30%, also leads to a revision of the current [EU Effort Sharing Regulation](#) (COM/2021/555 final). This applies to all sectors, such as agriculture, that are neither covered by the LULUCF Regulation nor by the EU Emissions Trading Scheme (ETS). The proposed amendment raises the national targets for Member States' contributions between -10% and -50% below 2005 levels.
- The amendment to the [EU Renewable Energy Directive](#) (COM/2021/557) sets a target of 40% of energy supply from renewable sources by 2030. It contains sustainability criteria for bioenergy that prohibit the use of any biomass from primary or highly biodiverse forests, as well as the use of stumps and roots. Member State support schemes should follow the cascading principle (use of woody biomass according to its highest economic and environmental value).
- The **Farm to Fork (F2F) strategy** (COM/2020/381) aims at the sustainable transformation of (European) food systems and includes both regulatory and non-regulatory initiatives. The Common Agricultural and Fisheries Policies are seen as a central lever for implementation, complemented by the proposal for a legal framework for sustainable food systems for 2023. In total, the European Commission has proposed 27 measures with indicative timetables in its F2F Action Plan. Concerning climate measures in food production, the F2F strategy explicitly highlights the reduction of over-fertilisation, the increase of the share of organic fertiliser, as well as the expansion of organic farming (at least 25% of the agricultural land in the EU by 2030) as essential elements. The F2F strategy and its action plan also address a planned [EU carbon farming initiative](#) and targets alternative energy sources, nutrient losses and fertiliser management, pesticides, feed, seeds, agroecology and agroforestry.
- To achieve the goals of the Green Deal and the F2F strategy, the European Commission has presented an [Action Plan for Organic Production](#) (COM/2021/141 final/2). The planned areas of action include strengthening local and small-scale processing and promoting short trade routes, as well as reducing the climate and environmental footprint of organic production systems.
- The [Circular Economy Action Plan](#), initiated in 2015, addresses food packaging, its recycling and recovery and is part of comprehensive [EU actions against food waste](#). In 2023, the Commission will propose legally binding targets to reduce food waste across the EU, based on a food waste reference value. This will be determined after the first EU-wide monitoring of food waste levels.
- The [Biodiversity Strategy for 2030](#) (COM/2020/380) articulates the EU's contribution to protecting nature and reversing the degradation of global ecosystems. The strategy recognises the potential of nature-based solutions, such as the protection and restoration of wetlands and peatlands or the sustainable management of forests, grasslands and agricultural soils for emission reduction and climate adaptation.
- The [EU Forestry Strategy for 2030](#) (COM/2021/572 final) underlines the need to promote the forest-based bioeconomy (e.g. cascading principle, better reuse and recycling of wood products). By 2030, 3 billion additional trees should be planted, ecotourism strengthened, financial incentives created for forest owners and managers, and research and innovation in forest science improved.
- In October 2020, the [EU Methane Strategy](#) (COM/2020/663) was adopted. Measurements of methane emissions and their reporting are to be improved. The introduction of emission reduction technologies is to be supported by the CAP through initiatives for low-carbon agriculture, improved animal feed or investments in biogas plants. Targeted financial support for research focusing on dietary change, nature-based solutions and methane emission reduction factors will also be sought.

Table 1: Selection of EU policy documents with the strongest implications for agriculture and forestry.

EU Policy Document	Type of Document	Main Targets, Goals, Measures
2030 Climate Target Plan	not binding, sets general policy objectives	• -55% GHG emissions compared to 1990 • minimum 32% of renewable energy sources • minimum 32.5% improvement in energy efficiency
2050 Long-term Strategy	not binding, sets general policy objectives	• climate neutrality • fully circular economy
Strategy On Adaptation To Climate Change	not binding, sets general policy objectives	• fast, smart, systemic, international adaptation • climate resilience by 2050
Land Use, Land Use Change And Forestry Regulation	binding when adopted, legislative proposal	• net GHG removal target of 310 mio. t CO₂ • climate neutrality of land sector (LULUCF & agriculture) by 2035
Effort Sharing Regulation	binding when adopted, legislative proposal	• -40% GHG emission reduction target compared to 2005 • amendment of national reduction targets
Farm To Fork Strategy	binding when adopted, legislative proposal	• minimum 25% of EU agricultural land under organic farming by 2030 • reduce nutrient losses by minimum 50% by 2030 • reduce fertiliser use by minimum 20% by 2030 • reduce the use and risk of chemical pesticides by 50% by 2030 • reduce the use of more hazardous pesticides by 50% by 2030
Biodiversity Strategy 2030	not binding, sets general policy objectives	• protecting and restoring wetlands, peatlands and coastal ecosystems • sustainable management of marine areas, forests, grasslands and agricultural soils • protection of all remaining primary and old-growth forests • plant three billion new trees • minimum 10% of EU agricultural area to be under high diversity landscape features by 2030
Organic Action plan	not binding, legislative proposals	• stimulate demand and ensure consumer trust • stimulate conversion and reinforce the entire value chain • improve the contribution of organic farming to environmental sustainability
Methane Strategy	not binding, sets general policy objectives	• setting up common measurement, verification and reporting standards • establishment of an international methane emission observatory • expert group to analyse life-cycle methane emissions • inventory of best practices and available technologies • digital carbon navigator template and guidelines on farm-level carbon-balance calculations
Soil Strategy	not binding, sets general policy objectives	• elaboration of a soil health law • legally binding objectives to limit drainage of wetlands and organic soils, to restore managed and drained peatlands • legislative proposal on carbon removal certification • develop common set of sustainable soil management practices

The MACSUR SciPol knowledge forum is a pilot exercise initiated by the [Joint Programming Initiative for Agriculture, Food Security and Climate Change \(FACCE-JPI\)](#) to bring science and policy actors together for the strategic design of climate change adaptation and mitigation solutions in the agri-food sector in Europe. This policy brief contributes to this mission by providing evidence-based information to policy for achieving carbon neutrality by 2050, adapting to climate change and understanding synergies and trade-offs in achieving these targets.

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