



# Carbon Farming: the landowners' perspective

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# 1 Background

The main physical pools of terrestrial ecosystems to store carbon are above and below ground biomass. Forests and agricultural lands currently cover more than three-quarters of the EU's territory and naturally hold large stocks of carbon, preventing its escape into the atmosphere. While the draining of peat land, felling of forest or ploughing up grassland generates emissions, actions such as afforestation, regenerative practices to improve soil health of arable land or conversion of arable land into grassland can protect carbon stocks or result in carbon sequestration.

It is clear that agriculture and land management in general need to address emissions from production and the current trend of loss of agricultural land and other carbon stocks on agricultural land. The production of biomass (e.g. harvested wood products) to replace carbon intensive materials is also key.

Carbon farming refers to the management of carbon pools, flows and GHG fluxes at farm level, with the purpose of mitigating climate change. This involves the management of both land and livestock, all pools of carbon in soils, materials and vegetation, plus fluxes of carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>), as well as nitrous oxide (N<sub>2</sub>O) (which is included among relevant fluxes of GHGs in the agricultural sector by the Intergovernmental Panel on Climate Change (IPCC) and therefore is considered part of carbon farming)<sup>1</sup>. Carbon farming should therefore be seen as an integral part of overall farm management and integrated into a wider climate and agricultural policy (including National Energy and Climate Plans and Strategic Plans under the Common Agricultural Policy).

*In 2017, methane and nitrous oxide emissions from the agricultural sectors in the EU were around 439 million tonnes of CO<sub>2</sub> equivalent, while annual losses of soil carbon and other carbon stocks in agriculture added another 75 million tonnes of CO<sub>2</sub> equivalent to the sector's total greenhouse gas emissions. Agriculture therefore accounted for about 13% of total EU greenhouse gas emissions (including Land use, land use change and forestry (LULUCF))<sup>2</sup>.*

EU farmers have long been offered incentives to improve their farming practices and safeguard the environment, for example through agri-environment-climate payments and environmental investment support co-financed by Pillar 2 of the CAP. These incentives are commonly action-based payments for compliance with very specific farming practices or technologies which have been selected by the managing authority for the assumed environmental benefits. Few schemes or projects have offered result-based payments<sup>3</sup>, where the incentive payment is linked to measured outcomes on the farm, irrespective of the precise farming practices that are applied.

Result-based Carbon Schemes establish a direct and explicit link between delivered results (e.g. avoided GHG emissions or CO<sub>2</sub> sequestration) and payments to the farmer and land manager. These schemes provide opportunities to encourage farmers and land managers to take climate-friendly actions. Adopting a result-oriented approach requires establishing a detailed and environment specific objective (result) and measuring its achievement in a consistent way either directly or through a

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<sup>1</sup> As defined in the study **Technical Guidance Handbook – Setting up and implementing result-based carbon farming mechanisms in the EU**, 27 April 2021, commissioned by the European Commission, more specifically DG Energy, Climate change & Environment, to COWI, Ecologic and Institute for European Environment Policy ([https://ec.europa.eu/clima/content/carbon-farming\\_en](https://ec.europa.eu/clima/content/carbon-farming_en)).

<sup>2</sup> Official EU UNFCCC GHG inventory submission 2019.

<sup>3</sup> Payments based on 'results' could lead to the public sector 'counting/accounting for credit' itself - and once that happens, everyone else trying to generate private compensation credits is locked out - while payments based on 'action' create room for the public and private sectors to play together.

reliable and tested result indicator. It is essential that results are within the control of agriculture and agriculture managers and are measurable (both in space and time). They should not be influenced by events/interventions on other land.

In this context, carbon schemes can encourage farmers and managers to meet their climate mitigation ambitions and also contribute to a more results-oriented implementation of climate policy. Carbon schemes should ensure that farmers and managers have the necessary knowledge, understanding and evidence to make the right management decisions.

In the EU, the European Green Deal<sup>4</sup>, the Farm to Fork Strategy<sup>5</sup>, the Circular Economy Package<sup>6</sup>, the new EU Strategy on Adaptation to Climate change<sup>7</sup> and the forthcoming Fit for 55% Communication<sup>8</sup> make clear that the land-based sector needs more and better incentives for managing carbon, in order to drive the necessary transformational change towards 2050.

The European Commission will develop a regulatory framework to monitor and verify the authenticity of carbon removals in agriculture (and forestry)<sup>9</sup>, for publication by the end of 2022. An European Carbon Farming Initiative, to be launched in 2021, will play a key role in catalysing the development of new business models in this.

## 2 The Fit for 55% Communication

July 14, 2021, the European Commission adopted the communication on “Fit for 55 Package”<sup>10</sup> overhauling the relevant climate and energy legislation to align with the newly proposed target to reduce emissions by at least 55% by 2030, as compared to 1990 levels. The “Fit for 55 Package” covers everything from renewables to energy efficiency, first buildings, as well as **agriculture, forestry, land use and land use change**, energy taxation, effort sharing and emissions trading and a wide range of other pieces of legislation. Climate and energy diplomacy will remain a priority with EU’s external partners.

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<sup>4</sup> {COM(2019) 640} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **The European Green Deal** ([https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en)).

<sup>5</sup> {COM(2020) 381} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **A Farm to Fork Strategy, for a fair, healthy and environmentally-friendly food system** ([https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/farm-fork\\_en](https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu/farm-fork_en)).

<sup>6</sup> {COM(2020) 98} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **A new Circular Economy Action Plan (CEAP) For a cleaner and more competitive Europe** ([https://ec.europa.eu/environment/strategy/circular-economy-action-plan\\_en](https://ec.europa.eu/environment/strategy/circular-economy-action-plan_en))

<sup>7</sup> {COM(2021) 82} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **Forging a climate-resilient Europe: a new EU Strategy on Adaptation to Climate Change** ([https://ec.europa.eu/clima/policies/adaptation/what\\_en](https://ec.europa.eu/clima/policies/adaptation/what_en))

<sup>8</sup> {COM(2020) 690} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - **Commission Work Programme 2021 – A Union of vitality in a world of fragility** ([https://ec.europa.eu/commission/presscorner/detail/en/ip\\_20\\_1940](https://ec.europa.eu/commission/presscorner/detail/en/ip_20_1940))

<sup>9</sup> As announced in the Circular Economy Action Plan (CEAP), p16, regulatory framework for certification of carbon removals based on robust and transparent carbon accounting to monitor and verify the authenticity of carbon removals

<sup>10</sup> {COM(2021) 550} – ‘Chapeau’ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **'Fit for 55': delivering the EU's 2030 Climate Target on the way to climate neutrality** (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0550&from=EN>)



Agriculture, Forestry, Land Use and Land Use Change (AFOLU) can contribute to achieve the 55% Emissions Cuts by 2030 through an integrated approach to reduce emissions from agriculture, provide bio-based materials for our economy, protect and enhance the natural carbon sink and improve the resilience of the EU's forests and agriculture to climate change.

## 2.1 Stepping up Europe's 2030 climate ambition

The Commission's 2030 Climate Target Plan<sup>11</sup> proposes radical changes in the rules governing agricultural and land GHG emissions.

The current 2030 Climate Framework regulates greenhouse gas emissions on the basis of three separate regimes with only limited interaction between them: the (Emission Trading Scheme) ETS Regulation, which establishes a cap-and-trade system for the energy sector, heavy industry and aviation; the (Effort Sharing Regulation) ESR Regulation, which regulates emissions from transport, buildings, agriculture, waste and small industrial sectors through individual national emission ceilings and reduction pathways; and the (Land Use Land Use Change and Forestry) LULUCF Regulation, which establishes a no-debit target (carbon storage should  $\geq$  carbon emissions) for the agriculture and forestry sectors. Today there are no specific emission targets (yet) for the agriculture and forestry sector.

The proposed 2030 Climate Target Plan not only increases the ambitions for reducing GHG emissions by 2030 (55%), but also adapts the policy architecture, including

- 1) the integration of transport and buildings into the ETS,
- 2) the change in the way LULUCF emissions/ removals are integrated into the 2030 targets and
- 3) the creation of an AFOLU (Agricultural Forestry and Land Use) sector with its own specific policy framework that will cover all emissions and removals.

The first proposal will drastically increase the share of agriculture and forestry in the ESR, which will undoubtedly lead to higher climate ambitions for agriculture and therefore a reduction in agricultural activity.

At present LULUCF sectors generate plusses and minuses compared to a baseline in a context of *ceteris paribus*, where the plusses should be greater than the minuses. EU COM stresses that the current trend of declining carbon sinks needs to be stopped and reversed, and that the sector will need to do more over time. Therefore, in addition to the changes, the full extent of the carbon sink will be monitored to determine whether the EU is on track or not to achieve net greenhouse gas emissions by 2050. This will require the remaining greenhouse gas emissions to be fully absorbed by a corresponding carbon sink, which will result in an increase of the existing LULUCF sink. Again, this will lead to a reduction in agricultural activity.

A policy architecture combining both sectors more explicitly in a single legal instrument could facilitate the design of efficient and effective policies in these sectors and better align them with EU agricultural policy instruments. In this way, the agriculture and forestry sectors would become the first net greenhouse gas-free sector. It would then generate carbon credits to balance remaining emissions in

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<sup>11</sup> {COM(2020) 562} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **Stepping up Europe's 2030 climate ambition. Investing in a climate-neutral future for the benefit of our people** ([https://ec.europa.eu/clima/policies/eu-climate-action/2030\\_ctp\\_en](https://ec.europa.eu/clima/policies/eu-climate-action/2030_ctp_en))

other sectors on the basis of a robust system/ regulatory framework for verifying and certifying carbon removals and emission reductions.

From a landowners' perspective, the 3<sup>th</sup> option should be the way forward chosen by the Commission (despite the efforts needed to recalculate to the accounting for LULUCF sectors' contribution to emissions and removals).

## 2.2 The new EU Strategy on Adaptation to Climate Change

Adapting to climate change means taking action to prepare for and adjust to both the current effects of climate change the predicted impacts in the future.

The EU has already taken action to boost its resilience over the past years under the 2013 Adaptation Strategy. All Member States now have a national adaptation strategy or plan; adaptation has been mainstreamed into the EU's policies and long-term budget; and the Climate-ADAPT platform<sup>12</sup> has become a key reference for knowledge on adaptation. The new strategy on Adaptation to Climate Change<sup>13</sup> builds on this experience, increases ambition, and expands to cover new areas and priorities. The strategy aims to realise the 2050 vision of a climate-resilient Union by making adaptation (1) smarter, (2) **more systemic**, (3) swifter, and (4) by stepping up international action.

Climate change is having such a pervasive impact that our response to it must be **systemic**. In this systemic approach, there are three cross cutting priorities: integrating adaptation into macro-fiscal policy, **nature-based solutions for adaptation**, and local adaptation action.

Implementing nature-based solutions on a larger scale would increase climate resilience and contribute to multiple Green Deal objectives. For example, protecting and restoring wetlands, peatlands, coastal and marine ecosystems; promoting and sustainably managing forests and farmland will help adapt to climate change in a cost-effective way. It is vital to better quantify their benefits, and to better communicate them to decision-makers and practitioners at all levels to improve take-up. In addition, the Commission will develop a regulatory framework for verifying and certifying carbon removals, which will enable robust monitoring and quantification of the climate benefits of many nature-based solutions.

Nature-based solutions are essential for sustaining healthy water, oceans and soils. They must play a bigger role in land-use management and infrastructure planning. Using nature-based solutions inland, including the restoration of the sponge-like function of soils, will boost the supply of clean, fresh water and reduce risk of flooding. Simultaneously, they will provide benefits such as carbon sequestration, tourism opportunities, and biodiversity conservation and restoration.

Europe needs to leverage more investments in nature-based solutions which must be viable over the long-term, because climate change is amplifying stresses on ecosystems. This can be done through new and innovative financing approaches and products under InvestEU, targeted support under Cohesion Policy programmes, and support for investments, eco-schemes and advisory services in the Common Agricultural Policy. Through carbon farming, the Commission will promote a new business model for land-based carbon removals, including financial incentives to rollout nature-based solutions.

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<sup>12</sup> For more information see <https://climate-adapt.eea.europa.eu/>

<sup>13</sup> {COM(2020) 82} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – **Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change** ([https://ec.europa.eu/clima/policies/adaptation/what\\_en](https://ec.europa.eu/clima/policies/adaptation/what_en))

The Commission will:

- propose nature-based solutions for carbon removals, including accounting and certification in upcoming carbon farming initiatives;
- develop the financial aspects of nature-based solutions and foster the development of financial approaches and products that also cover nature-based adaptation;
- continue to incentivise and assist Member States to rollout nature-based solutions through assessments, guidance, capacity building, and EU funding.

From a landowners' perspective, the case has been made for years for freeing up the necessary resources for nature-based solutions (we refer to the concepts of multifunctional agriculture, ecosystem services, and so on). The proposed fundamental change in the EU Commission's focus creates an opening for funding for the first time in years.

### 2.3 The revision of the LULUCF regulation

The “Fit for 55 Package” combines application of emissions trading to new sectors and a tightening of the existing EU Emissions Trading System; increased use of renewable energy; greater energy efficiency; a faster roll-out of low emission transport modes and the infrastructure and fuels to support them; an alignment of taxation policies with the European Green Deal objectives; measures to prevent carbon leakage; and tools to preserve **and grow our natural carbon sinks**.

The latter will be achieved by revision<sup>14</sup> of the Regulation (2018) 814 on the inclusion of GHG emissions and removals from LULUCF in the 2030 climate and energy framework aiming at climate neutrality for 2035 in the land sector (which combines the LULUCF sector and the non-CO<sub>2</sub> agricultural sector). The Commission is thus following up on its most ambitious ambition as set out in its communication "Stepping up Europe's 2030 climate ambition".

More in particular, the Communication proposes to move towards a more stringent contribution from the LULUCF sector (2021-30), and, as a further step (2031-50), to combine the agriculture non-CO<sub>2</sub> greenhouse gas emissions with the land use, land use change and forestry sector, thereby creating a newly regulated land sector (covering emissions and removals from agriculture, forestry and other land use (AFOLU)). This will promote synergies between land-based mitigation actions and enable more integrated policymaking and policy implementation at the national and EU level.

The LULUCF sector is connected to all ecosystems and economic activities that rely on the land and the services it provides.

Plants take up carbon dioxide (CO<sub>2</sub>) from the atmosphere and nitrogen (N) from the soil when they grow, re-distributing it among different pools, including above and below-ground living biomass, dead residues, and soil organic matter. The CO<sub>2</sub> and other non-CO<sub>2</sub> greenhouse gases (GHG), largely methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), are in turn released to the atmosphere by plant respiration, by decomposition of dead plant biomass and soil organic matter, and by combustion.

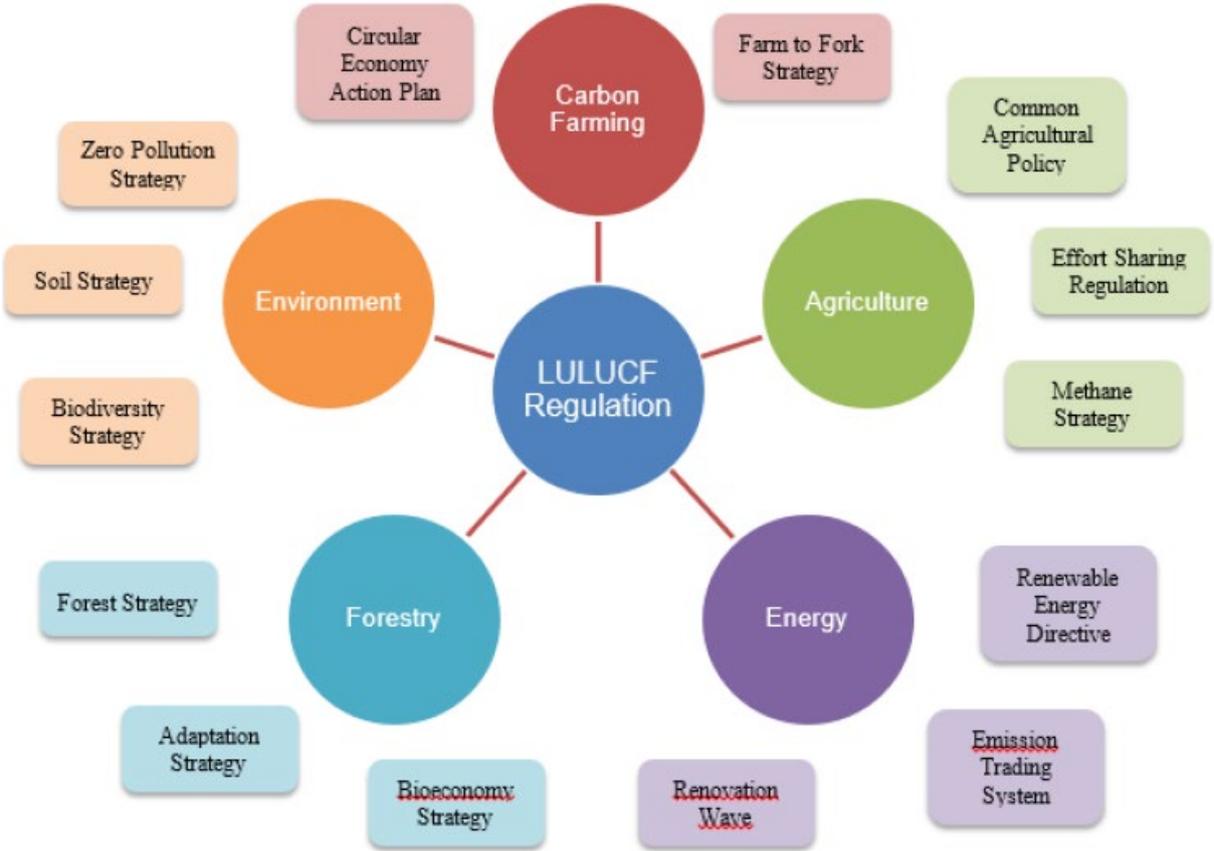
Land-use activities (e. g., management of croplands, forests, grasslands, wetlands), and changes in land use / cover (e. g., conversion of forest lands and grasslands to cropland and pasture, afforestation) cause changes superimposed on these natural fluxes. AFOLU activities lead to both

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<sup>14</sup> {COM(2021) 554} - Proposal for a Regulation of the European Parliament and the Council **amending Regulations (EU) 2018/841** ([https://eur-lex.europa.eu/resource.html?uri=cellar:ea67fbc9-e4ec-11eb-a1a5-01aa75ed71a1.0001.02/DOC\\_1&format=PDF](https://eur-lex.europa.eu/resource.html?uri=cellar:ea67fbc9-e4ec-11eb-a1a5-01aa75ed71a1.0001.02/DOC_1&format=PDF))

sources of CO<sub>2</sub> (e. g., deforestation, peatland drainage) and sinks of CO<sub>2</sub> (e. g., afforestation, management for soil carbon sequestration), and of non-CO<sub>2</sub> emissions primarily from agriculture (e. g., CH<sub>4</sub> from livestock and rice cultivation, N<sub>2</sub>O from manure).

Therefore, the LULUCF Regulation presents synergies with many other EU policy initiatives that cover land-related activities.



Under the current “no debit rule” MS are committed to ensure that the greenhouse gas emissions do not exceed removals.

However, the insufficient integration of the land sector into climate policies is a problem, because the Agriculture and LULUCF sectors have no integrated target, are covered by two different pieces of legislation, and are linked by flexibility rules which presented some limitations.

Therefore, by 2030 both LULUCF and non-CO<sub>2</sub> agricultural sectors will be integrated into one AFOLU sector. The analysis underpinning the Communication shows that the land sector would have the potential to become climate-neutral by around 2035 in a cost-effective manner, and subsequently generate more CO<sub>2</sub> removals than greenhouse gas emissions.

In the LULUCF sector the Union targets 310 MtCO<sub>2</sub>eq of net removals by 2030 (compared to the previous 225 MtCO<sub>2</sub>eq). The 2030 target will be the starting point of the land sector pathway between 2030 and 2050 for achieving economy-wide climate neutrality.

In the combined LULUCF and non-CO<sub>2</sub> agricultural sectors climate neutrality in the Union-wide greenhouse gas emissions and removals must be achieved at the latest by 2035.

From 2036 onwards, the combined sector will need to generate further carbon removals to balance remaining emissions in other sectors, based on a robust carbon removal certification system.

As said already before, landowners favour the combination of LULUCF and non-CO<sub>2</sub> agricultural sectors because as foresters were not taken for their full value in LULUCF, landowners believe that by getting access to carbon credits also forester will finally be rewarded for their contribution to mitigate and adapt to climate change by actively managing their forests.

### 3 The Green Deal and its F2F and Biodiversity Strategies

On 11 December 2019 the European Commission published its Communication on the **European Green Deal** which is defined as “a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use”.

The Green Deal is an integral part of the Commission’s strategy to implement the United Nations Agenda and Sustainable Development Goals. The Communication presents an initial roadmap of key policies and measures needed to achieve the above objectives.

It is stated that to deliver on these objectives “all EU actions and policies will have to contribute” and therefore there is a need to rethink policies in a wide spectrum of sectors including “food and agriculture” (cf. the CAP legislative proposals of June 2018).

It is also indicated that apart from new initiatives, the Commission will work with MS “to ensure that current legislation and policies relevant to the Green Deal are enforced and effectively implemented”.

More specifically, section 2.1.6. ‘From Farm to Fork’ (F2F) describes the design of a fair, healthy, and environmentally friendly food system and section 2.1.7. describes how the EU intends to preserve and restore ecosystems and biodiversity.

#### 3.1 The F2F Strategy

On 20 May 2020, the **Farm to Fork Strategy** was published. The Farm to Fork Strategy is at the heart of the Green Deal. It addresses comprehensively the challenges of sustainable food systems and recognises the inextricable links between healthy people, healthy societies, and a healthy planet. The COVID-19 pandemic has underlined the importance of a robust and resilient food system that functions in all circumstances and can ensure access to sufficient supply of affordable food for citizens.

The change in language is remarkable - “food”, “food systems”, “sustainable food systems” - and illustrates the fundamental shift in the policy approach from agricultural policy towards food policy, from a farmer focused policy towards a food supply chain focused policy.

All actors of the food supply chain have their responsibility in delivering a sustainable food system, including the consumer through an appropriate diet.

Overall, the Commissions’ F2F strategy fits into a larger shift in EU consumer and citizen concerns, where food safety and security are expected as given, whereas action on sustainability and climate change is in high demand. The F2F, together with its sister policies, is meant to be the response by Europe to this increasing pressure.

However, F2F goes far beyond the boundaries of merely dealing with emissions from the agricultural sector. In the EU Communication, it specifically notes that it is also meant to combat biodiversity decline, reducing pest and diseases pressure, combat soil degradation, and take action not just on the farm side, but also tackle suppliers of farm inputs, food processors, transport, retailers and reduce (food) waste in the chain. So, there is an explicit link to the Biodiversity Strategy.

European food should now also become the global standard for sustainability. This means they need to deliver food security and nutrition for all in such a way that the economic, social and environmental bases to generate food security and nutrition for future generations are not compromised.

To achieve sustainable food production, the Commission relies on **product** (new varieties of seed, new breeding techniques, new balance between animal and vegetable proteins, ...), **process** (nature-based technological and digital solutions, reduced input use, carbon sequestration by farmers and foresters, production of renewable energy, anaerobic digesters for biogas production from agriculture waste and residues, ...) and **system innovation** (circular bio-based economy, creative reuse of waste, ...).

An example of a new green business model is carbon sequestration by farmers and foresters. Farming practices that remove CO<sub>2</sub> from the atmosphere contribute to the climate neutrality objective and should be rewarded, either via the common agricultural policy (CAP) or other public or private initiatives (carbon market<sup>15</sup>). As said before, a new EU carbon farming initiative under the Climate Pact will promote this new business model, which provides farmers with a new source of income and helps other sectors to decarbonise the food chain.

What is severely lacking is EU-delivered financial support<sup>16</sup>. From the current communication it is hard to see that, apart from the CAP and CFP envelope, additional resources will be made available to support the ten targets. Whether or not carbon offsetting, greater cooperative/union power, and additional labelling can make up for a) the increased expectations and demands and b) any fall in production through applied measures or conversion to organic farming or c) additional costs for environmental stewardship remains unclear.

### 3.2 The Biodiversity Strategy

On 20 May 2020, the EU **Biodiversity Strategy** was published.

Biodiversity and ecosystems provide us with food, health and medicines, materials, recreation, and wellbeing. They filter our air and water, help keep the climate in balance, convert waste back into resources, pollinate and fertilise crops and much more. We are losing nature like never before, because of unsustainable human activities. Biodiversity loss and the climate crisis are interdependent, and they exacerbate each other. Restoring forests, soils and wetlands and creating green spaces in cities is essential to achieve the climate change mitigation needed by 2030.

The last years, action on the protection and restoration of nature and biodiversity has been significant. However, it will not halt biodiversity loss. Land use change, increasing exploitation of natural

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<sup>15</sup> Robust certification rules for carbon removals in agriculture and forestry are the first step to enable payments to farmers and foresters for the carbon sequestration they provide. Member States could use these rules to design CAP payments based on the carbon sequestered; moreover, private companies could also be interested in purchasing such certificates to support climate action, thus providing an additional incentive (on top of CAP payments) to farmers and foresters for carbon sequestration.

<sup>16</sup> The financial support for farmers will decline due to a decrease of the global budget combined with redistributive mechanisms (from the West to the East, from pillar 1 to pillar 2, from big farms (capping) to small & medium sized farmers, from individual farmers to organised farmers, etc...

resources, climate change, pollution and the spread of invasive alien species are increasing pressures on natural habitats and biodiversity at a faster rate than actions for protection and restoration. Restoration initiatives have been too small-scale, implementation and enforcement of legislation have been inadequate, integration of biodiversity objectives into other policies has not had the political priority it needed, and funding has not been enough.

As the Commission lacks sufficient public funding, it is looking for private funds. Therefore, the Commission develops **a business case for biodiversity and by extension nature**. And it is compelling.

## 4 The Common Agricultural Policy

### 4.1 The CAP Reform proposal

The Commission presented its proposals for the CAP reform in 2018, introducing a more flexible, performance and results-based approach that takes into account local conditions and needs, while increasing EU level ambitions in terms of sustainability. The new CAP is built around nine objectives, which is also the basis upon which EU countries design their CAP strategic plans<sup>17</sup>.

Following the publication of the Farm to Fork and Biodiversity strategies in May 2020 a structured dialogue between the Commission and Member States was put in place. These two strategies will enable the transition towards the increased sustainability of our food systems and to tackle the key drivers of biodiversity loss.

This transition will be supported by a CAP<sup>18</sup> that focuses on the Green Deal. The requirement to **improve the efficiency and effectiveness of direct payments** by capping and better targeting income support to farmers who need it and who deliver on the green ambition, rather than to entities and companies who merely own farm land, remains an essential element of the future CAP. **Enhanced conditionality** links EU-funded income support to environment- and climate friendly farming practices and standards. The new **eco-schemes** will offer a major stream of funding to boost sustainable practices, such as precision agriculture, agroecology (including organic farming), carbon farming and agroforestry. **Agri-environment-climate measures and investments** financed through pillar II rural development support will enhance ecosystems, promote resource efficiency, help to move towards a low-carbon, climate resilient economy. The Commission made **recommendations** to each Member State **on the nine specific objectives of the CAP**, before they formally submit the draft National Strategic Plans. Supporting viable farm income and improving farmers' position in the value chain, are also objectives foreseen for the CAP Strategic Plan Regulation<sup>19</sup>. It includes **a large variety of types of interventions** (in both pillars of the CAP) to facilitate the achievement of this objective. Next to income support, it foresees, for example, **supporting cooperation among farmers and collective approaches within producer organisations and associations of producer organisations**<sup>20</sup> as key tools to cope with

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<sup>17</sup> {COM (2018) 392} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – draft Regulation establishing rules for CAP Strategic Plans (<https://ec.europa.eu/info/publications/natural-resources-and-environment>)

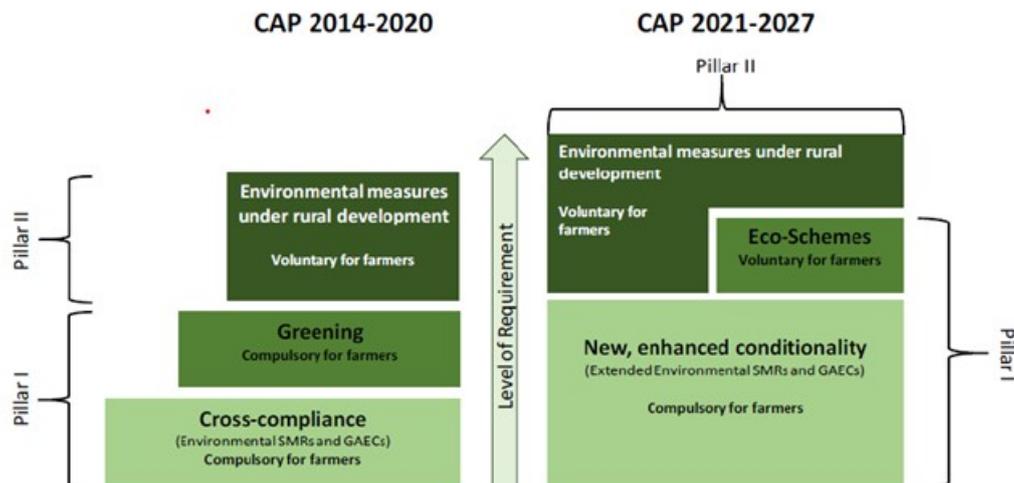
<sup>18</sup> Factsheet “How the future CAP will contribute to the EU Green Deal”, Factsheet “EU Green Deal’s benefits for farmers” and {SWD (2020) 93} Analysis of links between CAP Reform and Green Deal, all three published on 20.05.20.

<sup>19</sup> Article 6.1. i) of the draft Regulation establishing rules for CAP Strategic Plans {COM (2018) 392}

<sup>20</sup> A wide range of possible tools can be used by these organisations. Member States may decide in their CAP Strategic Plans to use up to 3% of their allocation for direct payments for these interventions in sectors other than those for which specific schemes already exist Article 60 of the draft Regulation establishing rules for CAP Strategic Plans {COM (2018) 392} lists the full range of types of intervention that can be selected, including soil conservation, organic farming, energy saving, waste reduction or ecological packaging).

the new economic and environmental challenges. systems. Indeed, the Member States can design **sectoral interventions**<sup>21</sup> in addition to those sectors for which it is currently already possible (i.e. fruit and vegetables, olive oil and table olives, wine, apiculture, and hops).

In its proposals, the Commission sets out a **new green architecture** for the CAP, featuring strengthened mandatory requirements and increased funding opportunities for **green farming**.



Amongst the measures foreseen in the proposals are:

- the preservation of soils through requirements to protect carbon-rich wetlands and practice crop rotation;
- an obligatory nutrient management tool, designed to help farmers improve water quality and reduce ammonia and nitrous oxide levels on their farms;
- a new stream of funding from the CAP's direct payments budget for eco-schemes, which will support and incentivise farmers to undertake agricultural practices beneficial for the climate, biodiversity, and the environment.

The European Parliament and Council agreed on their negotiating positions on the reform of the CAP respectively on 23 and 21 October 2020, enabling the start of the trilogues on 10 November 2020. The Commission is determined to play its full role in the CAP trilogue negotiations, as an honest broker between the co-legislators and as a driving force for greater sustainability to deliver on the European Green Deal objectives.

The Commission is tasked to approve the CAP strategic plans, once officially submitted by the Member States. During the approval process, which will be based on the criteria laid down in the future CAP strategic plan regulation, the Commission will use the recommendations as an important reference document to assess the plans.

<sup>21</sup> In addition to the sectoral programmes, under the proposed CAP strategic plan regulation Member States retain the possibility to spend a limited share of their direct payments (up to 10%, with a possible additional 2% for protein crops) in the form of coupled income support for certain sectors. These interventions aim to address specific difficulties by improving the competitiveness, sustainability or quality of the sectors concerned (Article 29 – 33 of the draft Regulation establishing rules for CAP Strategic Plans (COM (2018) 392)).

On 18 December 2020 the European Commission published its Communication on **the recommendations for the CAP national strategic plans**<sup>22</sup>.

Member States have until 1 January 2022 to submit their plans. The Commission will work to scrutinise and approve the plans, in time for their application as of 1 January 2023.

## 4.2 The eco-schemes

On 14 January 2021, the Commission published a **list of potential agricultural practices**<sup>23</sup> that the eco-schemes could support in the future common agricultural policy (CAP). This list aims to contribute to the debate around the CAP reform and its role in reaching the Green Deal targets.

**Eco-schemes** are a new instrument designed to reward farmers that choose to go one step further in terms of environmental care and climate action.

To be supported by eco-schemes, agricultural practices should:

- cover activities related to climate, environment, animal welfare and antimicrobial resistance
- be defined on the basis of the needs and priorities identified at national/regional levels in their CAP strategic plans
- their level of ambition has to go beyond the requirements and obligations set by conditionality
- contribute to reaching the EU Green Deal targets

As a reminder, the EU Green Deal Targets are:

- Reduce by 50% the overall use and risk of chemical pesticides and reduce use by 50% of more hazardous pesticides by 2030
- Achieve at least 25% of the EU's agricultural land under organic farming and a significant increase in organic aquaculture by 2030
- Reduce nutrient losses by at least 50% while ensuring no deterioration in soil fertility; this will reduce use of fertilisers by at least 20 % by 2030
- Bring back at least 10% of agricultural area under high diversity landscape features by 2030
- Reduce sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030

The comprehensive list includes organic farming practices, **agroecology** practices such as crop rotation with leguminous crops or low intensity grass-based livestock systems, **carbon farming** practices such as conservation agriculture or the extensive use of permanent grassland, **precision farming** with for instance precision crop farming to reduce inputs or the use of feed additives to decrease emissions from enteric fermentation, and husbandry practices in favour of animal welfare and/or reducing the needs for antimicrobial substances.

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<sup>22</sup> {COM(2020) 846} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Recommendations to the Member States as regards their strategic plan for the Common Agricultural Policy ([https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-strategic-plans\\_en](https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/cap-strategic-plans_en))

<sup>23</sup> With the publication of the “List of potential agricultural practices that eco-schemes could support”, the Commission contributes to the debate, enhances transparency of the process and gives farmers, administrations, scientists, stakeholders and the public the opportunity to discuss eco-schemes. ([https://ec.europa.eu/info/news/commission-publishes-list-potential-eco-schemes-2021-jan-14\\_en](https://ec.europa.eu/info/news/commission-publishes-list-potential-eco-schemes-2021-jan-14_en))

CAP Strategic Plans will put into practice enhanced conditionality, eco-schemes, farm advisory services as well as agri-environmental and climate measures and investments to address the Green Deal targets through the following actions:

- a. Climate change mitigation, including reduction of GHG emissions from agricultural practices, as well as maintenance of existing carbon stores and enhancement of carbon sequestration
- b. Climate change adaptation, including actions to improve resilience of food production systems, and animal and plant diversity for stronger resistance to diseases and climate change
- c. Protection or improvement of water quality and reduction of pressure on water resources
- d. Prevention of soil degradation, soil restoration, improvement of soil fertility and of nutrient management
- e. Protection of biodiversity, conservation or restoration of habitats or species, including maintenance and creation of landscape features or non-productive areas
- f. Actions for a sustainable and reduced use of pesticides, particularly pesticides that present a risk for human health or environment
- g. Actions to enhance animal welfare or address antimicrobial resistance

In the Technical Guidance Handbook – setting up and implementing result-based carbon farming mechanisms in the EU<sup>24</sup> one can find an analysis of the strengths and weaknesses of eco-schemes.

- Strengths
  - o Eco-schemes allow for using the Pillar 1 direct payment budget for achieving environmental and climate objectives in a more targeted way.
  - o Regional programming of Eco-schemes is possible, even if part of national CAP strategic plans.
  - o MS have more flexibility in the amount they pay to farmers than with AECM as the payment level may be calculated as a top-up to the income support for sustainability. Payment calculations are not limited to the requirement only to pay incurred costs or income forgone.
  - o There is a legal right to receive the payment, which means that farmers who want to and are eligible cannot be excluded for budgetary or other reasons.
  - o Programming on MS not regional level: opportunity to design measures in a more coherent way (e.g. national support for organic farming, pasture-based ruminant systems, HNV farming etc.)
  - o The commitment is normally for one year, which means adoption barriers to farmers may be lower as they can try out Eco-schemes without committing to a multi-annual contract.
  - o Higher acceptance in agricultural sector as only genuine farmers are eligible as beneficiaries.
- Weaknesses
  - o Budgetary rules do not allow unspent funds under the European Agricultural Guarantee Fund (EAGF) to be rolled over to the subsequent year if the target uptake value has not been reached, unlike the EAFRD. Legal clarification is needed in order to understand if some flexibility can be applied to the budgetary rules once the unspent funds are used to fund the specific environmental and climate objectives.

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<sup>24</sup> See footnote 1, the Technical Guidance Handbook – setting up and implementing result-based carbon farming mechanisms in the EU ([https://ec.europa.eu/clima/content/carbon-farming\\_en](https://ec.europa.eu/clima/content/carbon-farming_en))

- If too many participants, either Basic or Eco-scheme payments may have to be reduced to respect budgets.
- Risk of double funding: AECMs can be supported as Pillar 1 Eco-schemes and as AECMs in Pillar 2. Pillar 1 Eco-Schemes should not overlap with Pillar 2 AECMs to avoid double funding, but there is a danger that efforts to mitigate the risk of double funding could negatively impact on complementarity between schemes.
- Environment and climate measures need a long-term perspective to achieve impacts. Annual commitments linked to annual budgets may be ineffective, e.g. for increasing biodiversity, as farmers can drop the measure after one year, but longer-term commitments can be programmed despite budget constraints.
- Eco-schemes and payment rates could change annually. Thus, compared to multiannual commitments, farmers' planning security decreases.
- Member States' flexibility in scope of design of Eco-schemes could lead to ineffective agri-environment and climate measures (race to the bottom).

In the Q&A regarding eco-schemes presented by the Commission at the Management Committee on Direct Payments of 11 November 2020, the following elements are worth noting:

- Eco-scheme payments will be made under the Pillar I budget. This means that they must be spent in the designated year, while pillar II unused funds can be carried forward from one year to the next. However, the MS have the possibility to design multi-annual schemes. (So, it is important that MS provide for this).
- In contrast to pillar II AECM (Agriculture, Environmental, Climate Measures),
  - the eco-scheme payment will be restricted to 'genuine farmers' for 'eligible' areas (What's a good point as long as you are a 'genuine farmer').
  - Eco-schemes will probably not be 'open-ended' as this would lead to a reduction of the basic payments if the interest were too high. (So not all farmers who might wish to participate will be guaranteed enrolment).
  - The payment will be related to compensating for costs incurred or income foregone (no extra income) because of WTO compliance (green box).
- Another element is the way farmers will be encouraged to adapt their behaviour:
  - By modifying their operation to become more environmentally friendly
  - By maintaining an environmentally friendly operation (the early movers)
- Looking at the proposed list of practices that could be eligible for eco-schemes, at first sight it seems more attractive to reach the envisaged targets by AECM Pillar II payments because,
  - The impact of the applied measures is only visible after several years.
  - It avoids over subsidization because of the per ha payments in pillar I, by using another unit base (i.e. per animal, per action, ...)
- The question remains which measures make sense from an administrative (payable within the year), environmental and farmers' point of view. Ideally, a good eco-scheme practice should have an environmental effect starting from day 1, e.g.
  - Crop diversification
  - Landscape fragmentation (hedges, ...)

- Orphan crops (crops only produced locally and not traded internationally), unmanaged grass strips
- Stubble fields
- Ban on pesticides on arable land

This could imply that practices which only deliver results with a delay, are better off with support through pillar II.

### 4.3 The National Strategic Plans

The Commission already included carbon farming in its recommendations to the Member States' CAP Strategic Plans. To be able to benefit of carbon farming the following key choices should be taken up in the National Strategic plans<sup>25</sup>

- Article 96 and 97 (SWOT Assessment)
  - identify carbon farming needs and opportunities for different farming systems, soil types and land cover, including drained peatland and existing agroforestry systems
  - detail how these are to be addressed through the coherent choice of interventions across the whole CAP, as part of the green architecture
  - identify co-benefits of meeting carbon farming needs (e.g. for biodiversity, soil quality water quality, flood risk management, diversifying income)
- Article 4(b)iii (Definitions)
  - ensure that the definition of permanent grassland and permanent pasture includes permanent grassland habitats with shrubs and/or trees, including pastoral agroforestry systems
- Article 4(b)l (Definitions)
  - ensure that this definition of arable land includes arable agroforestry systems
- Article 11 (GAEC)
  - maintain permanent grassland ratio (GAEC 1)
  - protect wetland and peatland (GAEC 2)
  - tillage management, protection of soils in winter and crop rotation (GAEC 6, GAEC and GAEC 8)
  - protect all woody landscape features, wetlands and non-productive areas (GAEC 9)
  - protect all permanent grassland habitats in Natura 2000 sites (GAEC 10)
- Article 13 and 72 (Farm Advisory Services)
  - ensure that Farm Advisory Services and the wider AKIS system provide up-to-date technical advice on needs/benefits of carbon farming
  - provide technical training on carbon farming for advisory services (public and private)
- Article 28 (Eco-schemes)
  - top-up to basic income support, for agroforestry systems
  - top-up to basic income support, proportional to density of woody landscape features (going beyond requirements set out in GAEC 9)
  - top-up to basic income support, for rewetted peatland
- Article 65 (Environmental management commitments)
  - result-based pilot schemes for peatland restoration and rewetting

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<sup>25</sup> {COM (2018) 392} - Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – draft Regulation establishing rules for CAP Strategic Plans (<https://ec.europa.eu/info/publications/natural-resources-and-environment>)

- result-based pilot schemes for management of low-intensity traditional agroforestry systems under threat
- action-based schemes for SOC in mineral soils and grasslands
- Article 71 (Cooperation)
  - set up European Innovation Partnership Operational Groups and/or LEADER initiatives for result-based carbon farming

## 5 The carbon farming initiative

### 5.1 In general

On 27 April 2021 the Commission published the final report of a two-year study<sup>26</sup> on how to set up and implement carbon farming in the EU.

The study explored key issues, challenges, trade-offs and design options to develop carbon farming. It reviewed existing schemes that reward climate-related benefits in five promising areas: peatland restoration and rewetting; agroforestry; maintaining and enhancing soil organic carbon (SOC) on mineral soils; managing SOC on grasslands; and livestock farm carbon audit. It also explored how a widespread adoption of carbon farming can be triggered in the EU.

The study concludes that result-based carbon farming can contribute significantly in the EU's efforts to tackle climate change, bringing benefits in terms of carbon sequestration and storage and other co-benefits, such as increased bio-diversity and preservation of eco-systems.

Examples of effective carbon farming practices include:

- Enhancing soil organic carbon in depleted arable land, which also improves the productivity and resilience of farming activities;
- Planting new forests, restoring degraded forests, and improving the management of existing forests;
- Supplying biomass for the production of long-lasting bio-based products (e.g. harvested wood products);
- Protecting carbon-rich soils, such as grasslands and peatlands, thanks to appropriate management techniques.

As confirmed in the new Strategy on Adaptation to Climate Change nature-based solutions that remove carbon from the atmosphere can help the EU achieve climate neutrality and should therefore be rewarded. Therefore, as announced in the Farm to Fork Strategy, the Commission will promote carbon farming as a new green business model that creates a new source of income for actors in the bioeconomy, based on the climate benefits they provide. In addition, as announced in the Circular Economy Action Plan, the Commission will develop a regulatory framework for certifying carbon removals based on robust and transparent carbon accounting to monitor and verify the authenticity of carbon removals. Building on this study and on the input from several EU-funded projects and events, the Commission plans to launch the carbon farming initiative by the end of 2021.

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<sup>26</sup> See footnote 1, the Technical Guidance Handbook – setting up and implementing result-based carbon farming mechanisms in the EU ([https://ec.europa.eu/clima/content/carbon-farming\\_en](https://ec.europa.eu/clima/content/carbon-farming_en))

## 5.2 Funding

One factor that distinguishes carbon-based farming schemes from the more well-established result-based biodiversity schemes is the potential for the scheme to be funded by the carbon market. The majority of the non-EU schemes reviewed in the initial research for this study derive their funding from the ability to sell carbon credits on either the compliance or voluntary markets<sup>27</sup>. Credits are issued by a registry after the results are monitored and verified. The credits can be sold either as fungible emissions offset credits or (non-tradeable) emissions reduction certificates<sup>28</sup>.

Public funding is the other major source worth considering in an EU context. As said before, the CAP 2014-20 has funded a wide range of environmental land management schemes through Pillar 2 Rural Development Programmes, including some result-based payments for biodiversity, using the agri-environment-climate measure, or through EIP-Agri Operational Groups under the co-operation measures. These instruments are designed to create incentive-based voluntary schemes for farmers and/or other land managers. Additionally, the LEADER and community-led local development measures under Pillar 2 offer opportunities to develop bottom-up or area based carbon farming initiatives, including pilot schemes.

The other major source of EU funding is the LIFE programme, the EU's funding instrument for the environment and climate action. This provides smaller-scale funding than CAP, but it has a climate action sub-programme that provides grants for best practice, pilot and demonstration projects that contribute to the reduction of greenhouse gas emissions, the implementation and development of EU policy and law, best practices and solutions<sup>13</sup>.

Additional national and regional sources of public funding are also available in some Member States. One of the key factors likely to guide the choice of available funding sources is the stringency requirements that the source of funding places on the system of MRV.

## 5.3 Design elements of a result-based carbon farming scheme

### 5.3.1 Objective setting and eligibility

- Is the focus on emission reduction, carbon storage or a combination of both?
- What geography is covered?
- What farming systems are covered?
- Who can participate in the scheme?
- Is the whole farm concerned ?
- How is adverse selection and moral hazard avoided?

### 5.3.2 Baseline and additionality

- What is the baseline against which additionality is measured?
- The scheme has to ensure that results are produced that would not otherwise have happened.

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<sup>27</sup> There are two different types of carbon markets: emissions trading schemes where the right to emit is bought and sold and offsetting schemes, where emissions reductions are bought and sold. Both schemes trade the same unit: a tonne of carbon dioxide equivalent (CO<sub>2</sub>eq). While the first is always mandatory, the second can be mandatory (through a regulatory compliance scheme) or voluntary.

<sup>28</sup> Is Insetting the new Offsetting? Carbon insetting can be defined as a partnership / investment in an emission reducing activity within the sphere of influence or interest of a company (outside WBCSD Scopes 1 and 2), whereby the GHG reductions are acknowledged to be created through partnership and where mutual benefit is derived.

- Environmental additionality
  - Carbon leakage must be avoided, i.e. carbon removals in one area must not be shifted to another area
  - Can encompass the retention of carbon stocks that would otherwise have been released
- Financial additionality
  - Is this something that farmers would have done anyway, perhaps to achieve improved productivity?
  - Is it something farmers are being paid to do from another source and therefore a risk of double funding?
- Regulatory additionality
  - Do the measures go beyond those required under EU (GAEC Standards), national or local legislation?

### 5.3.3 Permanence

- A widely used standard is that any reductions in GHG emissions And removals of atmospheric carbon should last for at least 100 years .
- How is permanence ensured? What buffers, insurance, or other mechanisms are set up to address natural disturbances?

### 5.3.4 Result indicators

- Result-based carbon farming schemes need a measurement of climate benefit in terms of mtCO<sub>2</sub>eq of net reductions in carbon emissions or a net increase in stored carbon in soil and biomass.
- One can also choose between the measurement of absolute reductions in emissions, reductions in emission intensity, or a combination of both
- One can choose between direct and proxy measurements of emission reduction
- It is clear that there is a trade-off between certainty of the indicator measurement and the cost

### 5.3.5 Monitoring, Reporting and Verification (MRV)

- Monitoring, reporting, and verification (MRV) refers to how participants' climate actions and emissions are reliably measured, how they are required to report to authorities, and how authorities verify their accuracy. MRV is integral to result-based carbon farming schemes, as it is the step that quantifies the impact of the climate actions, i.e. the results.
- Monitoring refers to the quantification of GHG emissions or removals, and includes collection of data as well as calculation methods
- Reporting establishes how participants are required to record and communicate monitoring data to relevant authorities and/or government entities
- Verification refers to the process of establishing the truthfulness and accuracy of reporting

### 5.3.6 Reward mechanism

- Market based reward
- Non-market based reward
- Payments based on costs

- How is the reward calculated and related back to levels of achievement based on the reward indicator?
- Are co-benefits rewarded?
- Is the reward in the form of a monetary payment, or property title (i.e. carbon credit)?
- When is the payment awarded?

### 5.3.7 Governance & approaches to non-compliance and fraud

- What entity owns / operates the scheme?
- What are the operational structures and responsibilities?
- What type of independent supervision / audits are in place?
- Is the integrity of the MRV-system secured?
- Are procedures in place to avoid double counting, i.e. the accidental or deliberate multiple use of the same unit of emission reduction or carbon sequestered?
- What types of advisory services are provided to support farmers?

## 5.4 What needs to be done to facilitate the development and adoption of carbon farming schemes in the EU<sup>29</sup>

Several factors can facilitate the interest in carbon farming schemes, their development and piloting, and ultimately their uptake by the farming community.

### 5.4.1 Policy context

Demand for schemes and any offset credits they produce are driven by high-level policy decisions, particularly in regard to national, EU, and international climate ambition. For the development of offset credits, Member State and EU policy decisions regarding the eligibility of different offset credits to meet climate obligations in different sectors and across borders will be crucial.

The F2F Strategy proposes that farming practices which remove CO<sub>2</sub> from the atmosphere and contribute to the EU climate neutrality objective should be rewarded, via the CAP or through other public or private initiatives linked to the carbon market. Robust certification rules for carbon removals in agriculture are the first step to enable farmers to sell certificates to private companies. It is essential that the EU develops a regulatory framework to monitor and verify the authenticity of carbon removals in agriculture (and forestry), providing an additional incentive (on top of CAP payments) for carbon farming. The new EU Carbon Farming Initiative to be launched in 2021 has to promote this new business model.

### 5.4.2 Farming practices and systems with carbon farming potential

The carbon farming approaches reviewed all have significant potential to reduce net GHG emissions and/or increase carbon sinks, at different intensities and scales. The heterogeneity of soils, climatic conditions existing management practices and existing carbon stocks means that the extent to which the potential for climate mitigation is actually realised can vary significantly at farm and plot level. In

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<sup>29</sup> See footnote 1, the Technical Guidance Handbook – setting up and implementing result-based carbon farming mechanisms in the EU, Chapter 7 Facilitating the development and adoption of carbon farming schemes in the EU, p.121 ([https://ec.europa.eu/clima/content/carbon-farming\\_en](https://ec.europa.eu/clima/content/carbon-farming_en))

this context, improved assessments of mitigation and sequestration potentials at more granular level (in specific contexts) would facilitate the targeting of schemes and their likelihood of success.

#### 5.4.3 Significance of co-benefits

All of the case studies identified the additional co-benefits provided by the carbon farming schemes reviewed. Factoring these into the delivery of the scheme, and rewarding farmers for delivering specific co-benefits will be an important element of upscaling carbon farming, as this will increase incentives for farmer participation. This will also ensure that farmers implement climate actions that deliver climate impact without negatively affecting other societal priorities (e.g. water quality, biodiversity conservation, climate adaptation, etc.).

Co-benefits are also attractive to farmers. For example, the case studies found that some climate actions increase soil functionality, decrease costs, increase resilience to climate change, and diversify farmer income streams. These multiple benefits can be significant and convincing to farmers. From a farmer perspective, these co-benefits can be more important than the climate impact, and can support targeting farmers to increase uptake.

#### 5.4.4 Seizing opportunities and overcoming barriers

There are clearly opportunities to upscale the implementation of carbon farming schemes throughout the EU.

There are however significant barriers to be overcome in the short-term. These include costs and resource requirements of developing new result-based payments for carbon farming and ongoing MRV (although these costs are starting to come down... particularly through measure and model approaches); the timescale and institutional capacity required to do this at scale; the lack of robust verification standards for some options (notably SOC) and, most importantly, the need to overcome farmer resistance to adopting new and possibly unfamiliar practices which often require significant initial investment and have a much longer payback period than most agricultural enterprises.

Farmer and other stakeholder involvement supports the design of effective schemes, as well as supporting two-way knowledge sharing and outreach. Farmers and other stakeholders (such as farm consultants, banks and credit buyers) should be involved in the design and implementation of new schemes to encourage co-ownership and buy-in. Collaborative research projects and local pilots can prepare the ground for later upscaling, as well as serving as a testing ground to develop and improve new schemes with input from stakeholders.

#### 5.4.5 Result-based, action-based or hybrid schemes

There is clearly an inherent tension, at least in the short to medium term, between the need to upscale rapidly the widespread adoption of carbon farming across all farmland in the EU to meet climate targets, and the immaturity of result-based payment schemes for carbon farming and the carbon markets available to farmers. Clearly developing and piloting a range of locally or regionally tailored result-based pilot schemes for carbon farming is an urgent priority, which promoted not only by various private initiatives but also the Horizon programmes. Nevertheless, it will be necessary to focus also on more widespread adoption of well-designed, action-based or hybrid schemes, to make the initial step towards a real shift in the agriculture sector's contribution to EU climate targets. This will support later uptake by increasing awareness and knowledge of farmers, as well as that of farm advisers and other stakeholders.

#### 5.4.6 Case studies show the way

Overall, the case studies suggest that **peatland restoration and re-wetting** and **agroforestry** represent the two carbon farming approaches that are arguably the most mature and ready for developing and testing a large-scale result-based carbon farming mechanism in an EU context. The huge area of **grassland** in the EU, and the existence of many existing result-based grassland management mechanisms, mean that it is also worth exploring how a carbon farming element could be incorporated into these schemes to maintain and enhance SOC. The scale of **livestock farming** in the EU suggests that livestock farming carbon audits also have the potential for large-scale deployment, but such mechanisms will need to tolerate the moderate levels of uncertainty associated with current farm carbon audit tools. In addition, these mechanisms must avoid supporting and therefore locking in high emissions food production methods on land that could be more efficiently used. A similar picture can be drawn for mechanisms based on **soil carbon maintenance and sequestration in mineral soils**. There has been a surge of initiatives focused on SOC in recent years and methodologies to measure soil carbon retention and sequestration are being developed to increase certainty and decrease MRV costs.

## 6 Conclusions and policy recommendations

The "fit for 55%" package **will create an AFOLU sector** i.e. a policy architecture combining Agriculture, Forestry and Land Use in a single legal instrument that will facilitate the design of efficient and effective policies in these sectors and better align them with EU agricultural policy instruments. In this way, the agriculture and forestry sectors will become the first net greenhouse gas-free sector by 2035. It would then generate from 2036 onwards carbon credits to balance remaining emissions in other sectors on the basis of a robust carbon credit certification system.

We welcome this policy choice. However, as the proof of the pudding is in the eating, the establishment of new Forest Level References in combination with the action proposed in the new European Forest Strategy will drive our final judgement.

We welcome the systemic approach of **nature-based solutions for adaptation** in the new Strategy on Adaptation to Climate Change. Implementing nature-based solutions on a larger scale will increase climate resilience and contribute to multiple Green Deal objectives.

It is vital that the Commission develops a certification mechanism for carbon removals and its co-benefits as there are increase biodiversity, improved water management, reduced nutrient leakage, etc. which will enable robust monitoring and quantification of the climate benefits of many nature-based solutions.

To achieve sustainable food production, the Commissions' Farm To Fork Strategy relies on product (new varieties of seed, new breeding techniques, new balance between animal and vegetable proteins, ...), process (nature-based technological and digital solutions, reduced input use, carbon sequestration by farmers and foresters, production of renewable energy, anaerobic digesters for biogas production from agriculture waste and residues, ...) and system innovation (circular bio-based economy, creative reuse of waste, ...).

An example of a new green business model is **carbon sequestration by farmers and foresters**. Farming practices that remove CO<sub>2</sub> from the atmosphere contribute to the climate neutrality objective and should be rewarded, primarily through the creation of a well-functioning carbon market that recognises the effort from farmers and foresters. The Common Agricultural Policy (CAP) remains the main tool for such recognition when this carbon market is not yet in place and for practices that are not covered in carbon farming schemes.

In its Biodiversity Strategy, the Commission makes **a compelling business case for biodiversity and by extension nature**. However, as the Commission lacks sufficient public funding, it is looking for private funds.

The Commission presented its proposals for the CAP reform already in 2018, introducing a more flexible, performance and results-based approach that takes into account local conditions and needs, while increasing EU level ambitions in terms of sustainability. The new CAP is built around nine objectives, which is also the basis upon which EU countries design their CAP strategic plans.

In its proposals, the Commission sets out a **new green architecture** for the CAP, featuring strengthened mandatory requirements and increased funding opportunities for green farming. Enhanced conditionality links EU-funded income support to environment- and climate friendly farming practices and schemes. The new eco-schemes have the potential to boost funding for sustainable practices, such as precision agriculture, agroecology (including organic farming), carbon farming and

agroforestry. Agri-environment-climate measures and investments financed through pillar II rural development support will enhance ecosystems, promote resource efficiency, help to move towards a low-carbon, climate resilient economy.

**Eco-schemes** are a new instrument designed to reward farmers that choose to go one step further in terms of environmental care and climate action. The Commissions' list of potential agricultural practices includes organic farming practices, agroecology practices such as crop rotation with leguminous crops or low intensity grass-based livestock systems, carbon farming practices such as conservation agriculture or the extensive use of permanent grassland, precision farming with for instance precision crop farming to reduce inputs or the use of feed additives to decrease emissions from enteric fermentation, and husbandry practices in favour of animal welfare and/or reducing the needs for antimicrobial substances.

However regarding eco-schemes, some points need to be clarified, as there are,

- annual payments versus multiannual commitments,
- 'closed ended',
- budgetary rules do not allow unspent funds to be rolled over to subsequent year,
- additional income versus compensation for costs incurred or income forgone,
- additionality and/or permanence,
- risk of double funding, i.e. condition for or complementary to pillar II support.

To be able to benefit of carbon farming a number of key choices should be taken up in the **National Strategic plans**, as there are

- identify carbon farming needs and opportunities for different farming systems, soil types and land cover, how they should be addressed and identify the co-benefits,
- define properly permanent grassland and arable land,
- maintain GAEC,
- develop independent Farm Advisory Services,
- define eco-schemes and their support,
- define environmental management commitments,
- set-up cooperation initiatives.

The National Strategic Plans allow Member States to develop measures that are perfectly in tune with the needs of their regions/country. This also applies to carbon farming schemes. However, companies active in several member states are looking for one methodology, i.e. one European carbon farming scheme or at least for interchangeability between the different national schemes. We need clarification on this concern to overcome cold water fears.

On 27 April 2021 the Commission published the Technical Guidance Handbook – setting up and implementing result-based carbon farming mechanisms in the EU. Building on this study and on the input from several EU-funded projects and events, the Commission plans to launch **the carbon farming initiative** by the end of 2021.

As a lot of private schemes are emerging right now, it is of the utmost importance that the carbon farming initiative is launched without any delay.

One factor that distinguishes carbon-based farming schemes from the more well-established result-based biodiversity schemes is the potential for the scheme to be funded by the carbon market

(compliance as well as voluntary markets) besides public funding (CAP, LIFE programmes, national and regional public funding).

However a number of **barriers to the private funding** have to be overcome.

- The more robust certification rules including MRV for carbon removals in agriculture are the higher the interest of potential buyers of Verified Carbon Units. It is essential that the EU develops a regulatory framework to monitor and verify the authenticity of carbon removals in agriculture (and forestry), providing an additional incentive (on top of CAP payments) for carbon farming.
- We need improved assessments of mitigation and sequestration potentials at more granular level (in specific contexts) to facilitate the targeting of schemes and their likelihood of success. This will imply harmonisation & coordination of relevant databases & analyses.
- We need to factor co-benefits into the delivery of the scheme, and rewarding farmers for delivering specific co-benefits will be an important element of upscaling carbon farming, as this will increase incentives for farmer participation.
- We need to increase farmer and other stakeholder involvement to overcome farmer resistance to adopting new and possibly unfamiliar practices which often require significant initial investment and have a much longer payback period than most agricultural enterprises. Therefore, we need to know ex-ante the impact of each measure proposed on the economic, social and environmental viability of agriculture, forestry and nature management holdings, before engaging in result-based carbon farming schemes.
- As the foregoing is lacking, we must first focus on action based or hybrid schemes to pave the way for result-based carbon farming schemes.