***REPORT***

# Aligning EU climate and nutrition goals. Reducing agricultural emissions and supporting protein diversification

Following 17th meeting on 19 June 2025

## Summary and main outcome of the HLG meeting

The 17th meeting was preceded by a dinner attended by the Commissioner for Agriculture, Christophe Hansen, who engaged in a lively discussion with member present.

Chaired by Phil Hogan, the independent tripartite high level group on agri-food system innovation continued next day its role as a laboratory for EU policy innovation in this specific realm.

This role was given to these high level groups by the Competitiveness Council Presidency in 2011[1], aiming at inclusive policy innovation by thinking "outside the box". Members are a diverse group of experts from the public, private, and academic sector, brainstorming together according to the Socratic dialogue method, in order to reach operable ideas.[2]



*Key recommendations:*

- A dual innovation pathway that combines advanced technologies—such as digital tools and biotechnology—with systemic changes in farming practices to enhance carbon capture and resilience should be adopted in the future CAP. To support this, the architecture of carbon markets must be strengthened, while EU Emissions Trading System (ETS) should be expanded and include the agriculture sector. This could foster EU's role as a carbon credit market, stabilising demand, strengthen price signals and encourage investment in climate-smart agriculture.

[1] Council of the EU, 5-6 December 2011, Presidency Note.
[2] Members participate in their personal capacity. All recommendations for action and all ideas for further consideration have not always been agreed on by all members, but each advice is based on a very wide consensus. The final version is written under responsibility of the chairperson and the executive director. More information is available at: https://www.highlevelgroup.eu/

# Agri-food System Innovation

- Alignment between subsidies, investment strategies and reward mechanisms across the agri-food value chain should be pursued by the EU to support the uptake of climate and nature positive practices. Farmers need clear, tangible benefits from actions such as regenerative farming, methane reduction and nitrous oxide mitigation.

- Short-term and cost-effective measures that make sustainability actionable for farmers today should be explored by the EU. This includes shifting from traditional subsidies toward targeted investments in technologies (for example biogas), AI-enabled monitoring tools and carbon verification systems. Reforms to the CAP's two-pillar structure should also be considered to redirect funding toward eco-schemes, carbon farming and innovation.

- Demonstrator case studies could be used to showcase how sustainable practices can generate real economic value for farmers and local communities, encouraging their adoption. These initiatives should be more systematically supported and could be linked to advisory services to accelerate knowledge transfer and adoption at scale. Leveraging platforms like the European Board on Agriculture and Food (EBAF) and targeted eco-schemes can help bridge current gaps in guidance and promote practical innovation.

- Creating a level playing field and adopting a balanced approach for plant-based proteins will be essential to support wider protein sources. Moreover, evidence-based information on the environmental and nutritional performance of all protein sources should be made available to EU consumers.



- Future CAP reforms should prioritise diversification of protein sources, enable new entrants, and incentivise innovation based on biogenetic sciences. Redirecting payments toward climate and nature-smart, nutritionally beneficial, and resilient production systems will help modernise the sector and support a more balanced food policy. A more targeted CAP can reward sustainability and nutritional value while fostering the transition from traditional models to future-oriented farming systems.

- The EU should shift from a product-centred approach to a more systemic focus on food environments, integrating promotion policy, pricing, labelling and access to market, to make sustainable and nutritious diets more visible, affordable, convenient and appealing. Refining promotion policy to support health objectives can help bridge the gap between supply and demand, reinforcing the goals of the Farm to Fork Strategy.

- To overcome policy fragmentation, the EU should facilitate voluntary alignment across Member States, particularly in areas such as fiscal incentives, food labelling and public procurement, creating a more coherent internal market for balanced diets.

- Greater support for scaling up technologies like microbial fermentation, upcycling and protein recovery should be embedded into EU research and innovation programmes. In parallel, sustainable food solutions must be integrated into formal education, advisory services and vocational training to accelerate adoption across the agri-food sector as well as consumers.

## 1. EU Carbon markets and the need to reduce agriculture emissions

Reducing the environmental footprint of agriculture remains one of the most pressing challenges for the EU food system. Despite its essential role, the sector continues to contribute significantly to global greenhouse gas (GHG) emissions, estimated approximately in 16.5 $GtCO_2e$ in 2020, close to one-third of global emissions (estimated at 53.3 $GtCO_2e$ in 2024). These impacts are largely linked to rising food demand, land-use pressures and production models that remain heavily resource-intensive.

Against this background, regenerative agriculture continues to play a central role, not just as a set of practices, but as a broader approach to land management. It holds potential for improving soil health, restoring ecosystem functions and enhancing carbon capture, despite the lack of a clear and consistent definition at the EU level that could contribute to its broader uptake.



However, regenerative agriculture alone is not sufficient to achieve the scale of transformation needed. A dual innovation pathway that combines advanced technologies – including digital and biotech - with systemic shifts in farming practices, aimed at boosting carbon capture, must be adopted by the EU.

Furthermore, the existence of two distinct carbon markets - voluntary and compliance-based schemes - addressing agricultural emissions has only contributed modestly to carbon reductions, with their overall impact remaining limited[3]. Key barriers hampering their development include fragmented governance, low interoperability, and carbon credit prices. Addressing these challenges requires strengthening the overall architecture of carbon markets, particularly by advancing the EU Emissions Trading System (ETS) and exploring ways to more effectively integrate the agricultural sector.

[3] As of 2024, only 12.8 $GtCO_2e$—about 24% of global emissions—are covered by regulated carbon pricing. The voluntary market remains small, with only 110.8 $MtCO_2e$ traded in 2023, representing 0.2% of global emissions.

Other countries, such as Australia and New Zealand, are already piloting more integrated market frameworks that aim to bring agriculture more fully into national carbon pricing schemes, and Brazil intends to elevate the common carbon market to one of the COP-30 priorities. Adopting a similar, more coordinated and inclusive approach to carbon markets would help the EU align agricultural decarbonisation with its broader climate objectives, while also supporting a just transition for farmers.

In the longer term, the EU could also consider taking on a more active role in the carbon credit market, acting as a buyer or intermediary to stabilise demand, strengthen price signals, and de-risk investment in climate-smart agricultural practices.

### *1.1. Carbon prices*

The potential of carbon markets to drive meaningful change is also further hindered by challenging carbon pricing. Current price levels are often too low to provide sufficient incentives for emissions reduction, and in many cases are simply not viable, not for small and medium-sized farms and also not for areas with a high income/ha requirement due to elevated land values. As a result, participation in mitigation initiatives remains low, even where projects offer strong environmental potential.

Addressing carbon pricing must therefore become a core priority of EU policy. Developing a fair and functional pricing mechanism, one that reflects actual on-farm costs and potential returns, is essential. Without it, the transition to low-emission agriculture will remain constrained in both scope and impact. A widening of acceptable offsetting structures involving EU's agricultural sectors will help elevating carbon pricing and thereby boost emissions reduction as well as carbon sequestration strategies.



This will also require better alignment of subsidies, investment strategies and reward systems across the agri-food value chain. Farmers must be able to see clear, tangible benefits from adopting climate-positive practices, including regenerative approaches, methane reduction and nitrous oxide mitigation (through genetics-related practices). Moreover, strategic investment in land-use transformation, innovation and ecosystem services will only be effective if grounded in a credible and stable carbon pricing framework.

### *1.2 Reducing emissions by enhancing carbon sequestration practices*

Beyond carbon markets, a broader set of strategies must be explored to make agriculture truly sustainable. A combined *mitigation-sequestration* approach can deliver tangible environmental benefits, but implementation remains uneven due to economic and policy-related barriers.

*Emission reduction strategies* can include improved livestock and manure management, optimised farm operations and machinery use, as well as shifts toward more balanced diets and innovation in production systems. In parallel, *carbon sequestration opportunities* can be scaled through regenerative farming practices, wetland and peatland restoration, agroforestry, and the use of perennial crops. Together, these measures can significantly contribute to agricultural decarbonisation.

However, not all the solutions are universally applicable and many lack a compelling *risk-return-impact profile* for farmers. The economic incentives are often weak, especially for small and medium-sized farms, which face high upfront costs, limited ability to *recoup investments,* and financing constraints driven by cost-income imbalances.

Future EU agriculture policies should address these barriers, along with yield reductions and increased operating costs that often accompany early-stage transitions, as well as financial mechanisms frequently undervaluing resilience and environmental performance and largely uncompensated ecosystem services.

This latter dimension, along with a disconnect between the Common Agricultural Policy (CAP) funding distribution and long-term sustainability, exacerbates fragmentation, with smaller farmers in particular remain underserved, despite being critical to delivering landscape-scale transformation.

To unlock the full potential of the agri-food system, the EU must then strengthen its enabling environment through coherent, inclusive and locally adapted policy reform. This includes transitioning from exclusionary approaches to inclusive ones, establishing a general policy direction while allowing for regional adaptation; supporting qualitative sustainability practices with robust data and metrics; embedding the principles of true cost and true value in both production and consumption; and promoting fairer revenue and risk-sharing mechanisms across the agri-food value chain.



### *1.3 Support agriculture innovation in the short term.*

In addition to long-term climate goals, the EU must prioritise short-term, cost-effective actions that support farmers through the transition. Targeted investments, clear certification pathways and income-generating mechanisms are urgently needed to make sustainability actionable today, not in ten years from now.

There is significant untapped potential in leveraging *existing frameworks and near-term technologies*. For example, the replacement of fossil gas with biogas in countries like the Netherlands would represent a €2 billion opportunity annually. However, these gains depend not just on technology, but on how farmers manage and monetise sustainable practices. Real-time data tools, AI-powered

modelling and verification systems would now allow for such shifts, providing both climate and income benefits, but present policies hinder it.

To concretely unlock this opportunity, the EU should accelerate the shift from subsidies to investment, especially in technologies that support sustainability and productivity. Reforms to the CAP's two-pillar structure could open space for this transition, redirecting funds toward eco-schemes, carbon farming and technological innovation.

Such an approach would also align with calls from Member States like Denmark, which advocates for greater collaboration between the agricultural sector and the research community, supporting new agrifood startups and scaling innovation.

### *1.4 Promoting innovation opportunities in EU agriculture sectors*

While many farmers are risk-averse by necessity, seeing concrete examples where new practices generate new revenue streams can catalyse broader uptake. Demonstrator case studies represent a powerful but underused instrument to support EU agri-food transition.

Recent examples, such as those in eastern France, where local public authorities, cooperatives and technology firms have co-developed a demonstrator project on plant-based digesters and carbon farming exemplify such perspective. The initiative integrates energy production, fertiliser recovery and circular land use, showcasing how local stakeholders can add value at multiple points in the supply chain and create replicable models for other regions.



The EU could draw from this experiment and make a larger use of demonstrator cases, which could play a stronger role in promoting real-world demonstrations that highlight the positive income potential of sustainable practices for farmers. This would be an important instrument, particularly ahead of the next CAP reform cycle in 2028.

Along this line, EU advisory services offer a valuable, yet underutilised, opportunity to support farmers in adopting more sustainable practices and facilitating generational renewal. However, their current fragmentation and lack of integrated, forward-looking guidance limit their effectiveness.

A more coordinated effort, leveraging tools such as the European Board on Agriculture and Food and targeted eco-schemes, could help bridge this gap. By linking advisory services to real-world examples of economic and environmental gains, these instruments can demonstrate how sustainability translates into tangible value for farmers, rather than remaining a theoretical objective.

## 2. Balanced and sustainable diets

Balanced diets, with a significant proportion of plant-based food, offer an important but often overlooked opportunity to reduce agri-food emissions. Aligning consumption with nutritional needs can lower GHGs and reduce pressure on production systems, without prescribing a one-size-fits-all "healthy diet."

And when combined with innovation in livestock, soil and food technologies**,** the impact could be even greater. Yet, farmers often bear the costs of this innovation without seeing proportional returns, in particular when investing in high protein crops, highlighting the need to redirect part of these crop yields to human consumption and to rebalance EU investment and influence across the whole agri-food system.

In this context, it is essential for the EU to move from a narrow agricultural focus to a broader food systems approach**,** as supported by EBAF, fostering cooperation across the value chain and ensuring that innovation delivers on both the demand and supply side.

### *2.1 Supporting a level playing field for plant-based proteins*

Creating a level playing field for plant-based proteins requires a balanced and inclusive approach, one that avoids polarising plant- and animal-based options. Recent trends reflect this complexity: while interest in plant-based diets has grown, the post-COVID period has also seen a renewed rise in demand for animal-based products. This underscores the continued influence of cultural preferences, affordability and nutritional needs in shaping consumer behaviour.



Nonetheless, market barriers for plant-based protein products persist, limiting their ability to scale and compete effectively. To support a more balanced protein landscape, the EU should promote informed consumer choice by providing clearer, evidence-based data on the environmental and nutritional performance of all protein sources. This would enable consumers to make choices based on facts rather than assumptions, contributing to more sustainable and health-aligned food system outcomes.

### *2.2. Rebalancing CAP support for a more diverse protein landscape*

A key structural barrier to diversifying protein sources lies in the financial orientation of the Common Agricultural Policy. With a budget of €387 billion over the current Multiannual Financial Framework, nearly a quarter of total EU spending, the CAP holds significant potential to shape production systems, dietary patterns and environmental outcomes. Moreover, much of its current allocation continues to reinforce existing structures.

Recent research[4] estimates that around 82% of CAP support for food production benefits animal agriculture, either directly or through subsidies for feed crops. Even when framed as crop-based support, funding often contributes to livestock systems via feed production, limiting the space for alternative protein sources to compete.

Therefore, to achieve this latter goal, the current CAP should not focus on phasing out support for animal proteins, but rather on acknowledging the importance of aligning CAP spending with broader EU climate, nutrition and sustainability objectives. Without this alignment, efforts to diversify and modernise the agri-food system will remain constrained.

Moreover, future CAP reform should address these imbalances by supporting proteins diversification, enabling new entrants, and encouraging innovation, reflecting also a shift from supporting the "old" generation to the "future" one. Redirecting payments toward climate-smart, nutritionally beneficial, and resilient production systems would help create a more balanced food policy. A more targeted CAP could also reward nutritional value, support producers in transition and strengthen the link between balanced diets and environmental outcomes.

### *2.3. Promotion policy and demand side of food system*

At the same time, at the core of a more sustainable food system lies the concept of *food environment,* a crucial but often underestimated factor in shaping consumer behaviour and dietary outcomes. Defined by the availability, pricing, labelling and cultural context of food, the food environment plays a decisive role in determining whether sustainable and nutritious choices are accessible, affordable and appealing to citizens across the EU. This calls for a shift from the current EU product-centred approach to a more systemic one.



In this context, the EU's *promotion policy*, though modest in scale compared to the CAP, offers an untapped opportunity. With an estimated 12% of funding directed to food products, including those with protected designations, it can serve as a lever for dietary change and the One Health approach. Moreover, by refining its objectives and aligning campaigns with nutritional and climate goals, promotion policy can help bridge supply- and demand-side efforts.

On the demand side, behavioural change must be properly supported through transparent, harmonised nutrition labelling and more affordable access to healthier food options. Innovative plant-based proteins - such as those derived from chickpea, lentil and lupin - have already showed strong sustainability profiles but remain underdeveloped due to high costs and limited market incentives.

[4] https://www.nature.com/articles/s43016-024-00949-4

Better information and pricing mechanisms are needed to unlock their potential in the EU, reminding that shifting toward healthier diets could relieve long-term pressure on healthcare systems, especially as diet-related illnesses rise.

On the supply side, EU policy should promote proteins diversification through both new crops support and upcycling of agricultural side-streams, including potato starch or oilseed residues. Such measures could enhance soil health, food security and emissions reduction. Yet the persistence of market concentration, in some cases monopolies, and import dependency continues to limit domestic innovation and resilience.

Ultimately, current subsidy and investment structures reinforce established production models, with disproportionate support still flowing to livestock-linked systems. Without reform of both the CAP and promotion policy, these feedback loops will continue to slow progress toward a more balanced, resilient protein system.

### *2.4 The way forward*

Ensuring fairer conditions for the development of sustainable and health food options should be a priority of future EU policies.

A key limitation to this remains the absence of a shared EU framework to classify and evaluate what constitutes both sustainable and nutritious food. While interest in alternative food sources is growing, not all options are equally beneficial from a health or environmental standpoint. Establishing a clear EU benchmark and a common assessment methodology, starting with nutritional profiling based on the concept of nutrient density, would provide greater transparency and guide public and private sector action alike.



Regulatory uncertainty also impedes progress. The current regulatory approval process for novel food products remains lengthy and resource-intensive, discouraging investment and slowing market entry. Reducing administrative hurdles while maintaining high safety standards is essential to keep pace with technological advancements, international developments and support entrepreneurship in the food sector.

At the national level, divergent and fragmented policy approaches, ranging from fiscal tools to labelling rules, create additional complexity. In some cases, debates over newer food categories have highlighted tensions driven by established interests. Developing voluntary coordination mechanisms or shared guidelines across Member States could help reduce fragmentation and facilitate smoother access to markets.

# Agri-food System Innovation

Meanwhile, the broader innovation system lacks sufficient support structures. Emerging technologies such as microbial fermentation and protein recovery from side-streams hold promise, but face barriers in terms of scale-up capacity, funding, and technical expertise. Greater use of EU research and innovation programmes can help close these gaps and encourage applied solutions.

Knowledge dissemination is another area of concern. Despite growing innovation at the startup level, there is limited integration of sustainable food technologies into formal education, advisory services and professional farm training. Strengthening these knowledge pathways will be critical for mainstream adoption and long-term capacity building across the agri-food value chain.

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