Pushing forward carbon farming in Europe: a quest for a system approach and credible methodologies

Voices from the First European Carbon Farming Summit

EUROPEAN CARBON FARMING SUMMIT

CREDIBLE
EU carbon farming

Summit Overview

Carbon Farming, a whole farm business model to optimise carbon capture and storage, as well as emission reduction in agriculture, is gaining traction globally. In this context, the Mission Soil project Credible aims to build momentum and trust for the implementation of carbon farming methods (practices, monitoring, certification approaches) in the European Union, by setting up and moderating a network of initiatives and stakeholders for promoting transparency, environmental integrity, and methodology standardisation in soil carbon accounting.

Emerging from the Credible network, the European Carbon Farming Summits aim to become a platform for stakeholders to gather and discuss challenges and opportunities, build consensus and progressively create a Europe-wide community of practice on carbon farming. The first European Carbon Farming Summit, that took place in Valencia, Spain, on 5-7 March 2024, was a resounding success, gathering more than 600 scientists, researchers, policy makers, land practitioners and enthusiasts dedicated to carbon farming. The event highlighted the European community's strong commitment to foster the potential of carbon farming to act as an important climate mitigation measure.

600+
In-person and online participants (265 in-person, 358 online)

98
Submitted contributions from external experts from more than 23 countries

11
Breakout sessions

90+
Pitches and posters presentations from Summit participants

6
Keynote speakers

Christian Holzleitner
Head of Unit for Land Economy and Carbon Removals at DG Clima, European Commission

Panos Panagos
Senior scientist at the Joint Research Centre

Valeria Forlin
Policy Officer at the European Commission

Willem Ferwerda
Founder of Commonland

Edouard Lanckriet
Head of Low Carbon Agriculture Division at Agrosolutions

Giulia Stellari
Director at Fall Line Capital

A mandate to achieve climate neutrality

The relevance of carbon management and removals is growing as a component of Europe's strategy to achieve net-zero emissions by 2050, alongside bioeconomy and clean energy. While a coherent climate policy must primarily focus on reducing emissions, identifying mechanisms for building up carbon in soils and forests might significantly contribute to removing greenhouse gases that are currently polluting the Earth's atmosphere. Furthermore, carbon farming is strategically positioned at the intersection of climate and agricultural policies, making it stand out as a model for promoting sustainable agricultural systems that foster healthy soils and healthy food. for the adaptation of agriculture to climate change – the best way to arm our soils against extreme climatic hazards is to incorporate organic carbon. We need to create trust in the market that buys the credits, but also in the farmers and the agricultural world that is responsible for implementing the practices. Lanckriet also emphasised that carbon farming should focus on creating confidence among agri-food stakeholders, including land managers and practitioners, and responding to the reality on the ground. He described the importance of a framework for the agricultural system which considers non-permanent biogenically stored carbon in agriculture, arguing

"Carbon farming is decisive not only in the fight against climate change, but also for the adaptation to climate change – incorporating carbon is the best way to arm our soils against extreme climatic hazards"
Edouard Lanckriet

The successful implementation of carbon farming and its scaling up across Europe require support to farmers, land managers and practitioners. However, the diversity and complexity of the methodological bases behind each public or private certification scheme, along with costly and complex Monitoring, Reporting, and Verification (MRV) frameworks and limited farmer advisory services, among other factors, have created barriers for them to leverage sufficient know-how and capital to transition to carbon farming.

As it was pointed out by Edouard Lanckriet during the Summit, one of the political objectives of carbon farming is to channel voluntary carbon markets to finance the low-carbon transition of agriculture. This is decisive in the fight against climate change, but also that there is a need to develop appropriate approaches to measure carbon within the agricultural system, going beyond permanent carbon stocks as the sole unit of measurement.

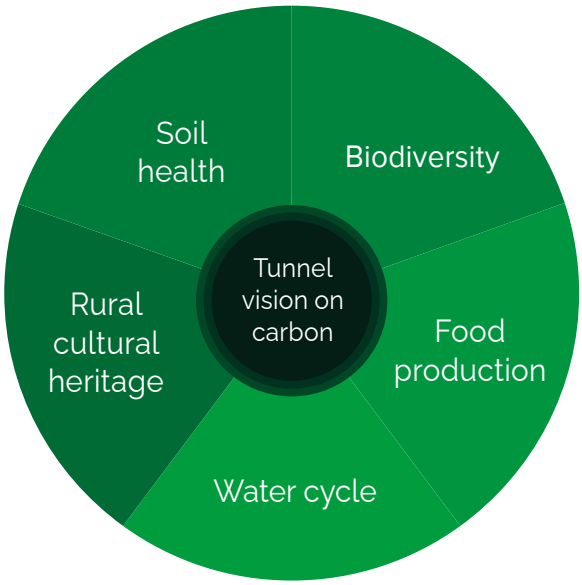
It's not only about carbon: the importance of a holistic approach and co-benefits

As many of the keynote speakers highlighted in Valencia, carbon farming is not only about carbon; rather, carbon farming should be seen as a mechanism to provide incentives for land managers to kick start in Europe a transition towards farming systems that better support a variety of ecosystem services. ties, and ecology are prioritised. According to Ferwerda, regenerative carbon farming must act as a tool to reverse landscape degradation through a long-term holistic restoration approach that addresses landscapes' social, ecological, and economic aspects and ensures their sustainability and resilience for the future.

Carbon farming should emerge as a tool to catalyse the transformation of land management systems towards integrated production models that deliver climate, environmental and social benefits.

In this sense, Giulia Stellari maintained that it is important to identify and scale the practices which provide multiple benefits. Similarly, Christian Holzleitner observed that it is crucial to avoid a tunnel vision on carbon, and instead privilege land management approaches that are win-win solutions for climate, biodiversity and farmers, fostering mitigation and adaptation to climate change. In this context, carbon farming must be evaluated within the framework of environmental services, including soil health, biodiversity, the rural cultural heritage, the water cycle and food production. Building-up soil organic carbon can reduce losses due to droughts as well as unhealthy soil microbiomes, thus reducing yield fluctuation over time and reinforcing economic resilience and global farm profitability.

Moving beyond carbon



In turn, Willem Ferwerda argued that carbon farming is not a panacea for achieving climate neutrality; it is a core component of the wider regeneration of landscapes and the transformation of land management, but this can only happen if the benefits for farmers, communi-

One of the key challenges in the promotion of soil carbon removals is that different land uses, soil properties and climatic conditions make it difficult to identify practices that work well in all contexts. Instead, focusing on farming system change, rather than individual

practices, might simplify this challenge and generate higher carbon sequestration rates. To achieve this goal, the messages presented to farmers need to be clear to avoid confusion, while encompassing a comprehensive approach. As summarised by Stellari in her presentation, the ultimate benefit of increasing carbon in the soil should be to foster soil fertility and farming system resilience.

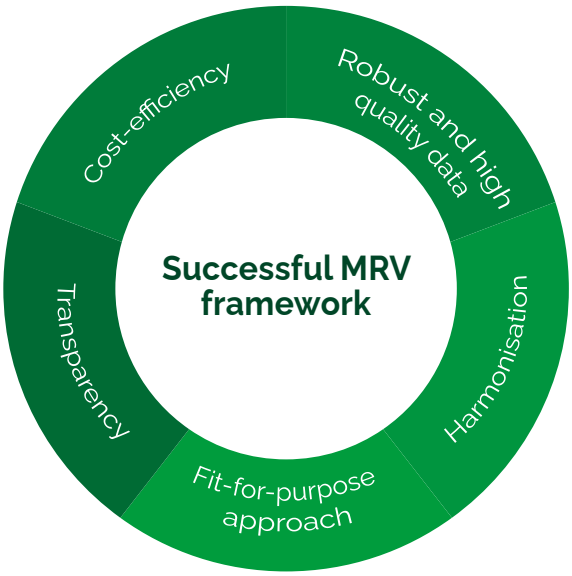
According to Valeria Forlin, one of the reasons why farmers show resistance in taking up carbon farming is that they lack advisory services, underscoring the need for affordable and qualified support. Robust methodologies are needed, yet allowing the flexibility required to adapt the driving principles to the specific local conditions – practices should be tailored at the local scale and responding to specific needs, building up the future with farmers and not for them.

As captured by Stellari in her concluding speech, from a farm perspective, a significant driver for carbon farming is assessing the return on investment of the co-benefits, particularly in relation to the productivity of the farm. Consequently, there is a need to understand the trade-offs between the biological utility of soil organic matter to the farmer and the long-term need of storage in the soil. Specific indicators are needed, and they must have a demonstrable scientific basis and be defined in a measurable and quantifiable way.

Ferwerda also highlighted the challenges of uniting people towards a holistic landscape restoration approach and in building trust among stakeholders and local communities. From his perspective, the focus should not be only on returns on investment, but on restoring ecological functionality. Carbon finance, such as carbon credits, should therefore be seen as complementary financing within the broader goal of accelerating Europe's landscape restoration and ecological functionality, and should be harnessed to that effect. Overall, ambitious aspirations are needed for funnelling climate finance toward projects that restore rural hope and foster thriving communities capable of stewardshipping flourishing ecosystems.

Providing technical support to scale up carbon farming

Carbon farming at EU-level requires the development of Monitoring, Reporting, and Verification (MRV) frameworks which are robust and accurate as well as effective at the right scale, i.e., fit for purpose. In this context, transparent, harmonised and high-quality interoperable data is needed, involving a comprehensive top-down approach to foster data collection and sharing, which ranges from the development of analytcal standards and protocols to EU subsidies. In his presentation, Panos Panagos highlighted



key results from the Joint Research Center's studies in estimating carbon trends and developing new methods for MRV using geospatial data across multiple observation points in Europe combined with data collected at the parcel level. He highlighted that there are still uncertainties due to biophysical variations, the type of carbon farming practices and the changing fluxes within agricultural carbon stocks. He stressed the importance of collaboration with the soil research community to improve scientific knowledge and data-driven approaches to carbon farming which account for local contexts and conditions.

During the different Breakout Sessions, technical aspects of an adequate MRV framework were discussed. For instance, proximal sensing and digitalisation were pointed out as key tools to promote credible MRV systems, but it was observed that there are still technical issues, as well as limited know-how, that need to be addressed to achieve rapid, accurate, cost-effective and non-destructive measurements. In this sense, a roadmap must be developed considering regionality, transparency, accuracy, comparability, and cost-effectiveness of solutions, as well as the readiness of operators to implement them.

In terms of remote sensing, satellite-based Earth Observation is an essential technology to enable robust and affordable mapping and evaluation of carbon farming and for the enhancement of transparency and credibility of carbon removal schemes. Nevertheless, many challenges still remain from technical and governance points of view, and Earth Observation calculations, validation and data accessibility need to be improved, promoting its adoption in the standard methodologies by certifiers.

Certification, markets and implementation

Although globally the voluntary carbon market (VCM) size was around 2-billion-dollars in 2021, with increasing financial flows and demand, several recent studies and media reports on the low quality of carbon credits and their exaggerated additionality claims have left the VCM open to criticism. This has resulted in a fall in trust among the general public and key stakeholders in carbon markets as part of the solution to tackling the climate crisis. In this sense, the Summit highlighted the necessity of a harmonised and credible approach to carbon credit certification across Europe. As Holzleitner stated, the success depends on building trust while finding methodologies that are at the same time mature and simple to implement.

Bas-Carbone initiative, –sales volumes are not taking off fast enough for removal projects, and carbon credit prices are considered very high by the market but not sufficient by the farmers to incentivize the transition. As a consequence, farmers are losing interest in carbon farming projects, because they consider them not remunerative enough and too constraining.

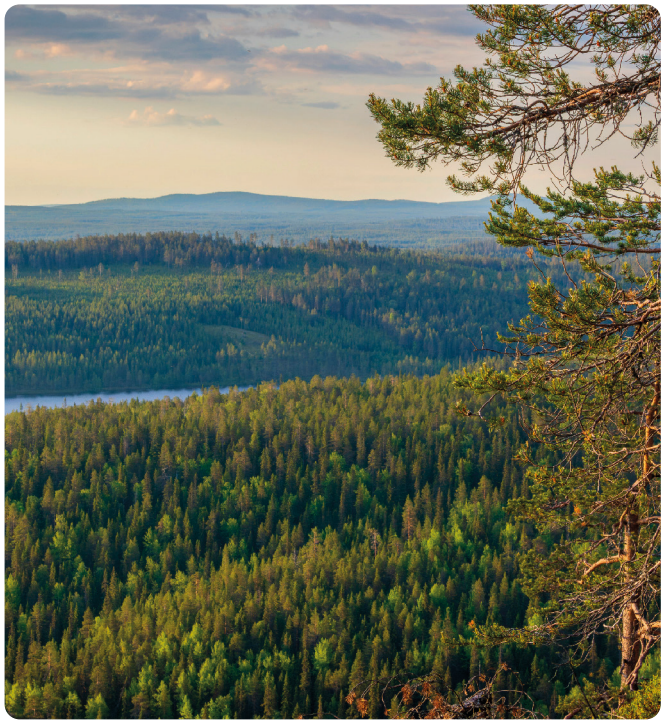
The other issue is the need to adequate the certification criteria to the realities of agriculture, in particular regarding double counts and permanence. Lanckriet underscored that we should create a finance system adapted to the biochemical realities of agricultural carbon cycles, such as the non-permanence of biogenic carbon. Additionally, an adequate measure-

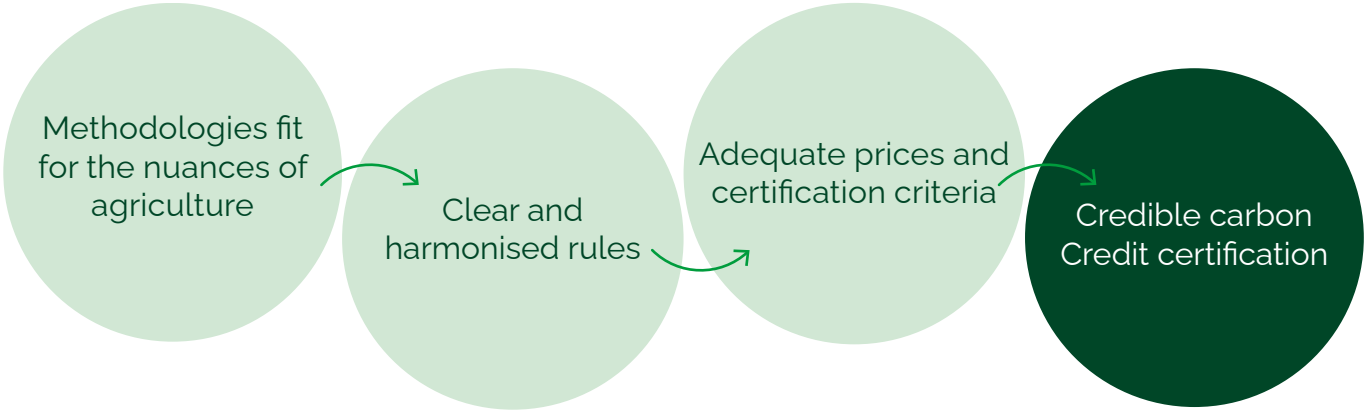
"The success of carbon farming depends on building trust while finding methodologies that are at the same time mature and simple to implement"

Christian Holzleitner

Edouard Lanckriet pointed out that several financing mechanisms already exist in the agri-food sector, such as public subsidies, carbon credits, and premiums paid by companies committed to their Science-Based Targets (SBTs). However, to scale carbon farming in agriculture, clear and harmonised rules are needed, so that agricultural business models can work with multiple and complementary financial flows, to reduce the financial burden and business operating risks generally placed on farmers in transitioning to carbon farming.

According to Lanckriet, two main aspects that need to be addressed are the price of carbon credits and the adequate criteria for their certification. In France, after 6 years of the Label





ment of carbon within the agricultural system is needed to reduce the risk of double-counting of climate claims from agro-industry and enhance the provision of carbon finance for farmers. Not doing so will generate the risk of getting trapped in a system that is not made for agriculture, and which at the slightest scientific controversy can tip over and put in question an essential transition for agriculture and the climate.

During the Breakout Sessions it was also pointed out that the tension between seeking environmental and climate benefits and attracting private investment that guarantees its long-term implementation must be resolved to foster successful carbon farming initiatives. A policy mix that includes both result and activity-based strategies might be the best way forward by capitalising on the strengths and avoiding the problems of both approaches, at least in the initial phase until MRV technology can fully support result-based schemes.

Additionally, soil carbon removal schemes need to adequately complement a strong central public sector role, both at national and EU-level, with the local and regional dimensions. Even though a European carbon certification framework is required and expected to enhance trust in investments in carbon farming projects, a high degree of centralisation could neglect regional specificities and necessities. A good balance between the two extremes must be found, enabling harmonisation of practices and requirements, while allowing for local needs to be addressed.

In this sense, Christian Holzleitner and Valeria Forlin presented the vision of the Commission on how the European Union's adopted Carbon Removal Certification Framework (CRCF) is designed for providing measures to overcome the challenges facing Europe's VCM. By improving quality, cost-efficiency and harmonisation at the EU-level, the goal is to provide more robust guidelines for certification and to develop an MRV framework which would drive down costs and improve the quality of carbon credits.

In particular, the recently approved CRCF Regulation keeps the main aspects of the initial proposal of late 2022 of net benefits, standardised baseline and additionality, temporary nature of carbon farming sequestration, "do no significant harm" to environmental objectives principle, and rules for the certification process. Nevertheless, it also includes a more explicit architecture with four types of certified units: permanent carbon removals, temporary carbon storage in products, temporary carbon farming sequestration and permanent emission reduction. Additionally, temporary certified units are only generated during the activity period, which is the period over which soil carbon is monitored and has a minimum of five years.

The CRCF Regulation also mandates the creation of a unique marketplace in Europe for carbon farming credits, which aims to increase trust in the system by enabling a transparent follow-up of what is happening in the farms. Altogether, the goal is to support an increased uptake and roll-out of carbon farming in the EU.

Concluding remarks

Carbon farming needs to emerge as a tool to drive the transformation of agriculture towards a whole system approach that respects agroecological principles.

In summary, the first European Carbon Farming Summit was a success: participation was higher than initially expected, motivation of the participants was high, and contribution and insights provided were of remarkable quality. During the event, the keynote speakers presented an overview of the current context and challenges as well as the opportunities to align carbon farming with other measures to improve Europe's land-based ecosystems. As Tristano Bacchetti De Gregoris, Project Credible coordinator, highlighted at the fourth Expert Group Meeting on Carbon Removals, farmers value the sense of belonging to a regenerative community, seeing carbon claims as a by-product. In this sense, focusing on carbon could even be a barrier to attaining a strong climate impact and a distraction from an urgently needed holistic transformation of the land sector. Overall, the Summit emphasised the importance of considering the unique conditions, ecosystems, and socio-economic factors of different regions across Europe while harnessing the strengths of collaboration and innovation, with the goal of triggering the implementation of credible carbon farming in Europe. Carbon farming is more than an approach to store carbon in agricultural soils, it is -and needs to be- a tool to help the transformation of agriculture towards a more agroecological paradigm.

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Funded by:

Funded by the European Union

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