Offsetting the Future: Discursive Power, Agribusiness Influence, and the Development of the EU's Carbon Removal Certification Framework

by:

ETHAN LANEY

in partial fulfillment of the requirements for the degree of
Master of Arts in Development Studies

Major: Agriculture, Food, and Environmental Studies (AFES)

Word count: ≈ 15,495

Supervisor: Dr. Oane Visser

Second Reader: Dr. Murat Arsel

The Hague, The Netherlands
November 2025

Table of Contents

List of Acronyms

AgETS - Agricultural Emissions Trading Scheme

AR6 – IPCC Sixth Assessment Report

BECCS – Bioenergy with Carbon Capture and Storage

CAP – Common Agricultural Policy

CDM – Clean Development Mechanism (Kyoto Protocol)

CCQI – Carbon Credit Quality Initiative

CREG – Carbon Removals Expert Group

CRCF – Carbon Removal Certification Framework

CSA – Climate-Smart Agriculture

DACCS – Direct Air Carbon Capture and Storage

DG CLIMA – Directorate-General for Climate Action (European Commission)

EEA – European Environment Agency

ENVI – European Parliament Committee on Environment, Public Health and Food Safety

EC – European Commission

ETS – Emissions Trading System

FEP – Farmer Environment Plan

GHG – Greenhouse Gas

ICVCM – Integrity Council for the Voluntary Carbon Market

IPCC – Intergovernmental Panel on Climate Change

LULUCF – Land Use, Land-Use Change and Forestry

MCS – Market Crediting System

MRV – Monitoring, Reporting and Verification

NBS – Nature-Based Solutions

SBTi – Science-Based Targets initiative

SCS – Soil Carbon Sequestration

SOC – Soil Organic Carbon

VCM – Voluntary Carbon Market

Abstract

The study investigates the emergence of offsetting-based climate governance in European agriculture through an analysis of the European Commission's Carbon Removal Certification Framework (CRCF). Despite its creation as tool for verifiable offsets, the CRCF functions as an venue for agribusinesses, corporate alliances, and technological intermediaries to advance market logics within EU climate policy. By analyzing policy documents, consultation records, stakeholder interviews, and critical scholarship, the study explores the rhetoric of technocratic authority, market environmentalism, and digital platformization embedded within the CRCF's architecture. In doing so, it reveals how corporate influence is consolidated while financial and administrative burdens are displaced onto farmers. Ultimately, the study demonstrates that the CRCF and market-based mechanisms are unlikely to deliver equitable and verifiable climate benefits and instead deepen existing agricultural inequalities, delay deep emission reductions, and embed market environmentalism in Europe's agricultural governance.

Relevance to development studies

Situated within agrarian political economy and political ecology, this study positions the CRCF within the broader history of Europe's agricultural governance, including CAP reform, agribusiness consolidations, and the rise of digital agriculture regimes. In tracing the formative stages of the CRCF and its discursive and institutional development, the analysis shows how power is exercised through standardization, technocratic expertise, and venues that determine whose practices and agendas shape climate policy. This contributes to broader conversations in development studies on sustainable transitions, the implications of market-based mechanisms in environmental policy, and the equity challenges of platform-driven farming.

Keywords

Carbon farming; CRCF; agribusiness consolidation; discursive power; voluntary carbon markets

Chapter 1. Introduction

1.1 Situating agriculture, carbon markets, and the CRCF in the EU's climate policy

Agriculture consumes some 70% of the global fresh water supply and uses 40% of global land area (Braimoh, 2013). Due to increasingly intensive production methods, it's now among the most significant contributors to climate change, accounting for 19-29% of total GHG emissions (Newell & Taylor, 2018). Historically, agricultural emissions have been neglected in climate policy outside of deforestation concerns (Scherger, 2025). The 2015 Paris Agreement almost entirely sidelined agriculture, with only brief references to food security and the role of land use (Newell et al., 2018). In recent years, however, the massive accumulation of agricultural greenhouse gas emissions has necessitated a new strategy for reducing sector-wide emissions. Globally, the top 5 meat and dairy companies have a combined emissions output greater than Shell's (Scherger, 2025).

Agribusinesses are under particular scrutiny to reduce their Scope 3 emissions, which include all indirect emissions across the value chain. For agribusinesses, this covers both upstream inputs and downstream product use–for instance, the emissions linked to fertilizer production for soy cultivation or the methane generated by dairy suppliers. Major food and beverage companies like PepsiCo and Nestlé report supply-chain emissions that average 23 times their operational emissions (Scherger, 2025).

1.1.1 Global initiatives, net-zero pledges, and CAP

The Emirates Declaration drafted at the 2023 COP28, was part of a global push to integrate agriculture into broader climate policy, with 160 countries pledging to integrate food system resilience and agricultural emissions into their national climate targets (European Parliament, 2024). Policy organizations framed the moment as a milestone for integrating food systems into climate action, yet civil society organizations criticized the lack of binding targets and the omission of meat dairy sector reforms (Carrington, 2024).

The European Union's agricultural sector emissions currently account for 11-13% of the EU's GHGs (EEA, 2025). While emissions steadily declined from 1990-2005, they have since stagnated, with current projections estimating a mere 1.5% reduction from 2020-2040 (EEA, 2025). As part of the European Green Deal, the EU adopted a binding target of 310 megatons of CO_2 removals by 2030 by expanding the use of land-based offsets, wetland restoration, agroforestry, and soil carbon sequestration (European Commission, 2018). Though LULUCF does not directly mandate agricultural practices, it categorizes carbon removals as integral part of Europe's net-zero trajectory.

The Common Agricultural Policy (CAP) remains the EU's most powerful lever for transforming agricultural activity, composing 31% of the Union's budget and directing €387 billion in payments to farmer subsidies and rural development programs (European Commission, 2021). The 2023-2027 CAP reform was branded as the "Greener CAP" for its requirement of member states to integrate

eco-schemes and conditionality standards into their plans. Yet weak oversight and the lack of binding criteria have contributed to the current emissions stagnation paradigm (EEA, 2025; Hernández, 2025a). The misalignment with the EU's binding climate targets reveals a governance gap: while CAP influences agricultural investment and land-use decisions, it does not directly regulate sector-wide agricultural emissions.

It is precisely within this gap that new instruments are emerging. To reconcile flatlining reductions with a lack of political will for mandatory climate standards, the European Commission has turned to voluntary market-based instruments as a viable middle ground. Most notably the EU's Emission Trading System (ETS) and the development of carbon offsetting markets.

1.1.2 ETS, offsetting markets, and the introduction of the CRCF

In 2005, the EU ETS was launched as the world's first and still largest carbon market operating on a "cap-and-trade" principle (European Commission 2023a). A cap refers to the maximum number of emissions a company or sector is permitted to release annually. Companies that emit less than their allocated limit—in which one allowance typically equals one ton of CO_2—can sell their surplus emission allowances (EUAs) to firms that exceed their cap, allowing firms to meet compliance obligations through the purchase of allowances. Currently, the ETS is in its fourth phase, operating in the power, industrial, aviation, and most recently maritime sectors (European Commission, 2024a). The European Parliament has gradually phased in new sectors to adapt to the monitoring, reporting, and verification (MRV) complexities of new domains. While the current ETS system covers 40% of total EU GHG emissions, most agriculture, land-use, and forestry emissions are not currently included (European Commission, 2025).

Beyond regulated markets like the ETS, voluntary carbon markets (VCMs), allow companies, individuals, or governments to buy carbon credits to offset their carbon footprint. Corporations aiming for net-zero or carbon-neutral status can buy credits from suppliers and projects that remove or offset emissions. Credits are certified through private certification bodies like Verra, Plan vivo, and Puro Earth (McDonald et al., 2021).

Approved by the European Parliament in 2024, the CRCF is the EU's flagship attempt to establish a certification system for carbon removals and land-based emission reductions. The legislative framework governs the creation of certified units that agricultural producers, land managers, and project developers can voluntarily use for funding schemes, insetting claims, or participation in voluntary carbon markets. The framework covers activities such as carbon farming, carbon storage, and technological removals to generate credits. Despite the EU Climate Law restricting the contribution of removals toward the Union's 55% reduction target for 2030, the CRCF is quickly emerging as a central pillar of the Commission's climate strategy (Scherger & Sharma, 2023).

The following chapters will detail the process of the CRCF's development with a focus on who is responsible for its methodologies, who it may benefit, and how it could reshape power relations in European agriculture. Beyond a technical assessment, this paper situates the CRCF within broader political contestations over agricultural governance in the Green Deal era. The framework is emerging

alongside debates about the future of carbon market mechanisms in agriculture, most critically the call for an Agricultural Emissions Trading System (AgETS), which the Commission is exploring as a long-term option for pricing farm-level emissions.

By tracing the influence of agribusinesses and allied political forces, the study investigates how market-based mechanisms are being framed as a core component of Europe's agricultural decarbonization, and the consequences this holds for farmers, land use, and the broader effectiveness of climate policy. This process maps a range of key stakeholder positions and critiques–from corporate actors advancing offsetting and insetting (i.e. offsets generated within a company's own supply chain) as win-win solutions to civil society warnings about greenwashing and the growing threat of regulatory capture.

While a growing body of policy literature assess the CRCF's methodological integrity, less examines how agribusinesses are shaping its discourse, design, and governance. Situated in agrarian political economy and political ecology, my research addresses this gap by examining how the CRCF embeds market environmentalism in European agricultural governance and investigates the implications for farmers and climate justice.

1.2 Research questions

In summary, my main research question is:

How do agribusinesses and their political allies shape the discourse, design, and governance of the EU's Carbon Removals and Certification Framework (CRCF), and what implications does this have for agricultural decarbonization in Europe?

My sub-questions include:

1. Which discursive frames dominate the CRCF's development and who advances them?
2. Which actors gain regulatory authority, market advantage, or epistemic influence from the CRCF's design, and which actors are marginalized by it?
3. What counter-frames contest the expansion of offsetting policies and how do these critiques reframe debates about equity, integrity, and the trajectory of agricultural decarbonization?

1.3 Analytical framework

The analysis is situated in the work of critical agrarian studies and agrarian political economy, drawing on global political-economic trends to trace the institutional and governance dynamics of European offsetting policies, and how these institutions shape knowledge systems, technological development, and everyday practices in the agricultural sector.

1.3.1 From food regimes to carbon regimes

The creation of market-based policy instruments is broadly linked to global trends of capitalist hegemony that delimit the state's regulatory authority over corporations (Bernstein, 2015). This shift provides the backdrop for transformations in the global food system in which regulatory power increasingly shifts toward market actors. Bernstein's analysis details the rise of corporate food regimes and ensuing "neoliberalization of nature" through intellectual property rights, biotechnology, and the financialization of agriculture. These regimes are marked by vertical and horizontal integration, the globalization of input and output markets, and the dominance of a small number of transnational agribusinesses controlling fertilizer production, seeds, processing, land, and retail (Bernstein, 2015; Clapp, 2014). Agribusinesses have merged into transnational mega-corporations such as Bayer-Monsanto and Dow-DuPont/Coreva, creating oligopolistic control over supply chains, inputs, and data (Clapp, 2014). The current food regime polity is driven by the logics of financialization and shareholder value, incentivizing companies to prioritize speculative and short-term returns over ecosystem stability and farmer livelihoods. This process extends to carbon offset markets, where land, ecosystem services (e.g. biodiversity co-benefits), and farmers are reduced to their productive capacity (Bakker, 2005).

There is a rich literature on the interrelation of climate and agriculture, yet the majority is policy-oriented and "articulated through a language of 'toolkits' and 'pathways', rather than engaging with issues of power, authority, and equity" (Newell & Taylor, 2018, p. 109). Specifically, much of the research on climate smart agriculture (CSA), methods which intend to increase productivity while balancing climate resilience, are authored by agricultural scientists working for neoliberal agenda-setting institutions like FAO and the UN (Newell & Taylor, 2018). This analysis will borrow from the neo-Gramscian framework applied by Newell and Taylor, which examines how hegemony is maintained through three interconnected sites of power:

1. **Discursive power:** How language, narratives, and definitions are used to shape what are considered feasible solutions to climate mitigation.
2. **Institutional power:** How institutions and governance mechanisms are configured (or in the case of the CRCF, pre-configured) to promote the interests of certain actors, while marginalizing others.
3. **Material power:** How control over production, finance, technology, supply chains, and data by transnational agribusiness capital shapes policy outcomes and market access.

These three dimensions of power guide the empirical analysis. Discursive power is largely the focus of Chapter 3, while instiutional and material power are examined through the CRCF's design and distributive effects in Chapters 3 and 4. Using this framework, I will attempt to map and visualize an emerging network of institutions and agribusiness actors that are shaping Europe's offsetting agenda.

1.3.2 Market environmentalism

Much of the discourse and rule-setting of the emerging carbon markets is situated within broader trends of environmental markets supplanting traditional

command-and-control regulations. When neither the political will nor power exists to directly tax or regulate polluters, states begin to create environmental markets as a form of soft-touch governance (Bakker, 2005). The creation of pollutant offset markets takes many forms, from the water quality trading schemes popularized in the US's river basins to carbon farming credits emerging under the EU's CRCF. However, the underlying principle across these marks is consistent: the allowance of polluters to purchase regulatory compliance rather than transform production. Market environmentalism is, thus, "not the retreat but the re-regulation of the state to enable markets in resources" (Bakker, 2005, p. 116). Subsequently, the state designs new property rights (e.g., tradable pollution permits, wetland credits), creates regulatory agencies, and delegates rulemaking to third-party expert committees. While proponents of market instruments frame them as efficient tools for encouraging best practices, critical scholars view them as extensions of capital accumulation into new ecological frontiers (McAfee, 2011; Lohmann, 2010).

Similarly, O'Laughlin (2009) situates this development within a broader project of privatized regulation, in which corporate and civil society actors are mobilized as co-regulators under the pretense of stakeholder engagement and cooperation. The state's role shifts from enforcing compliance through law to facilitating "responsible" corporate behavior. Corporate social responsibility (CSR) reconfigures capitalism as an ethical system, portraying corporations as moral agents rather than engines of economic forces (O'Laughlin, 2009). This raises key questions for climate governance: Can regulatory frameworks created by corporate actors create effective and equitable outcomes or do they risk becoming another ethical façade of green capitalism?

1.3.3. Platformization and the rise of digital agriculture

The logics of market environmentalism are increasingly mediated through digital infrastructure, a process referred to as the "platformization" of agriculture. Where Bakker (2005) locates neoliberal governance in the reordering of state responsibility, recent scholarship highlights a parallel material shift in data ownership and epistemological control (Visser et al., 2021; Rotz et al., 2019). This literature characterizes digital farming practices such as precision agriculture, farm management platforms, and satellite crop monitoring technology as extensions of corporate consolidation. Visser et al. (2021) argues that the widespread influence and adoption of such technologies create a "precision trap", whereby faith in algorithmic accuracy can erode traditional governance checks and balances.

Similarly, Gardezi and Stock (2021) describe algorithmic governmentality as a form of soft power, one that disciplines behaviors through metrics and platform lock-in. Precision agriculture is positioned within a long genealogy of technological modernization that uses environmental crises to expand capital-intensive solutions. Drawing on Althusser's theory of interpellation, farmers are reorganized into new identities, designating those who adopt such practices as "modern" and "intelligent". As a result, agritech firms use this discursive power to claim epistemic superiority and justify the inclusion of technical solutions and monitoring devices into policy frameworks (Sippel, 2023; Gardezi & Stock). In the context of the CRCF, the certification of land-based offsetting projects relies heavily on remote sensing technologies and monitoring platforms, thus

reproducing the asymmetries found more broadly in digital agriculture (Scherger, 2025).

The convergence of climate smart agriculture, market environmentalism, and digital governance signals a deeper transformation of embedding climate regulation in neoliberal politics. To situate the CRCF within these broader transformations, I will draw on Newell and Taylor's (2018) triadic conception of power to examine how voluntary carbon markets are legitimized and structured in European policy.

1.4 Research Methodology

1.4.1 Analytical strategy

The study adopts a critical discourse analysis (CDA) to examine how agribusiness discourse and their institutional participation shape the EU's Carbon Removal Certification Framework. This project follows a constructivist-interpretivist epistemology, in which policy outcomes are viewed as socially produced through meanings, narratives, and practices rather than objective causal mechanisms (Charmaz et al., 2018; Stake, 1995, 2005). This methodology enables a context-dependent understanding of how specific configurations of knowledge, power, and discourse manifest in the architecture of the CRCF.

The analysis employs a qualitative content analysis (Böreus & Bergström, 2017) to identify discursive themes and rhetorical devices used by various stakeholders across policy documents, legislative texts, meeting transcriptions, and interviews. While the analysis was guided by employing concepts drawn from critical agrarian studies, codes were also generated inductively from the primary sources (Braun & Clarke, 2022). Beginning with a few broad themes (e.g. market environmentalism, technocratic governance, win-win framing), the discourses and counter discourses were refined and merged into subcodes. This analytical strategy allows me to address the research question by tracing how the discursive framings, institutional design, and material dynamics around the CRCF are articulated across texts and interviews.

1.4.2 Data collection

The document corpus includes policy and legislative texts, consultation documents, meeting minutes, and corporate net-zero strategies. I supplement these with secondary reports from civil society organizations, think tanks, and investigative journalists such as Carbon Market Watch, IATP, Ecologic, and Follow the Money. Their rigorous methodological analyses and investigative work was essential for contextualizing the CRCF within the broader political landscape of Europe agricultural policy. Table 1 summarizes the main categories of evidence and describes their analytical function within the study.

Table 1. Overview of Evidence Types and Analytical Focus

Evidence Type	Examples	Analytical Focus
Policy and Legislative Texts	COM(2022) 672 *Proposal for a Carbon Removal Certification Framework*; Regulation (EU) 2024/3012 on CRCF	Discursive evidence: structuring of market-based governance and institutional language
Consultation Submission and Meeting Minutes	CREG Meeting Minutes (2023); Impact Assessment SWD(2022) 404	Process evidence: how industry and civil-society actors shaped definitions, metrics, and design choices
Technical and Methodological Reports	Siemens & Schneider (2025) Assessment of Draft Specifications; EEA (2024) Agricultural Decarbonization Briefing	Outcome evidence: translation of discursive framings into technical design features (MRV rules)
Corporate and Industry Materials	Bayer (2023) Carbon Farming Initiative; Nestlé (2022) Net-Zero Roadmap	Corporate framings: offsetting as "win-win" and "scalable"
NGO and Think-Tank Reports	Scherger (2022) How Big Corporations Are Driving the EU's Carbon Removals Agenda; Carbon Market Watch (2024) CRCF Failure	Counter-discourses: highlighting greenwashing and distributive risks

In addition to document analysis, I conducted six semi-structured interviews with various stakeholders and international experts involves with the policy implementation or critique of the CRCF, along with one written response from a major agricultural lobby. Despite contacting many agribusiness and crediting bodies, I received no responses on their behalf. Participants were selected through purposive and snowball sampling to observe a diversity of perspectives across civil society, research institutions, and agricultural experts. All interviews were conducted via Zoom and followed a flexible question guide centered around their expertise, power relations, and institutional design choices. Appendix A summarizes the participants and respondents.

1.4.3 Reflexivity and ethics

My analytical perspective is shaped by an interest in the political economy and a generally critical stance towards market-based instruments and neoliberal governance. Although I approached carbon markets with cautious optimism, exposure to the critical literature and early interviews with civil society experts made me increasingly suspicious of their limitations and distributional harms. This skepticism may have influenced how I interpreted certain discourses or influences throughout the CRCF's design process. To mitigate this, I attempted to engage with a plurality of stakeholders and literature on the topic. During my interviews, I tried to use open-ended lines of questioning and avoid loaded framings to allow participants to articulate their own viewpoints.

Additionally, I complied with ISS ethics protocols and GDPR requirements for all interviews. Participants were provided with prior and informed consent outlining the purpose of my research, their right to withdraw responses, and the option of anonymity. Although all participants allowed the right to use their identifying information, several have asked to read this manuscript if it is ever to be published.

In line with ISS guidelines, I used AI-assisted tools including ChatGPT (GPT 4/5 models) for non-substantive tasks such as improving clarity, wording, and identifying inconsistencies in formatting and grammar.

1.4.4 Limitations

As with much qualitative and document-based research, the scope of this study is shaped by the availability of data and by the interpretive nature of the analysis. Although I analyzed data across multiple forms of evidence, a few methodological constraints remained. Much of EU policymaking takes place through semi-public workshops, consultancy-led technical sessions, and shadow lobbying, rather than exclusively through the formal expert groups and public consultations that I observed.

As a result, I did not have sufficient certainty to trace direct links between specific actors and policy outcomes. These limitations ruled out the use of process tracing, especially given the early stage of the CRCF's adoption. Instead, the analysis observes patterns of influence and power through discursive convergence, institutional participation, and policy uptake.

1.5 Thesis structure

The remainder of this thesis is structured as follows. Chapter 2 traces the historical and institutional development of the CRCF, outlining its legislative processes, crediting system, and connection to broader EU climate and agricultural policy trends. Chapter 3 investigates how agribusiness, consultancies, and EU institutions shape the framework's discursive architecture focusing on the themes of technocratic legitimacy, win-win market environmentalism, and insetting. Chapter 4 examines the counter-discourses of NGOs, researchers, and farmers, and how they contest the CRCF's methodological design and distributive

implications for land, labor, and risk. Lastly, chapter 5 summarizes these findings and considers alternative governance pathways beyond the CRCF.

Chapter 2. Historical and institutional origins of the CRCF

2.1 Agenda-Setting and background

To understand how the CRCF emerged as a venue for negotiating Europe's agricultural climate governance, this chapter traces the policy's historical evolution and institutional architecture, outlining the foundations and key mechanisms upon which later discursive and political contestations will unfold. The inception of the EU's Carbon Removal Certification framework can be understood as the outcome of a convergence between an agricultural, environmental, and climate agenda that began in the late 2010s. Although earlier EU policies, notably the Land Use, Land Use Change, and Forestry Regulation (EU, 2018/841) established an accounting system for land-based carbon sequestration, no policy framework yet existed to incentivize or certify carbon removals across different sectors and mechanisms. The implicit reliance on removals to offset residual emissions and meet net-zero goals under the Green Deal, further pushed the policy agenda to address this regulatory gap (European Commission, 2019).

In 2021, the Commission's *Communication on Sustainable Carbon Cycles* (European Commission, 2021) formally communicated the intention to create a "Union certification framework for carbon removals" and introduced the target of achieving 5 Mt CO_2-eq per year by 2030 through carbon farming (European Commission, 2021). Most importantly, the act created the Carbon Removals Expert Group (CREG) within DG CLIMA[1] to provide stakeholder input and technical assistance for the CRCF's methodologies (European Commission, 2022). CREG is one of the primary venues of analysis in the following chapter.

Simultaneously, the rapid growth of global voluntary carbon markets and corporate insetting schemes generated pressure for EU-level regulation (Scherger, 2022). Agribusiness and fossil fuel firms such as Bayer, Yara, and Shell began developing crediting programs of their own and lobbied for a standardized certification system that would guarantee the fungibility and integrity of their credits (Scherger, 2022; Mardirossian & Arnold, 2023). The CRCF thus fulfils a dual role of mobilizing private investment in land-based offsetting while helping to secure the EU and capital actor's credibility in an age of increased climate scrutiny (Diab, 2024; Hernández, 2024).

In terms of institutional composition, CREG became the core fixture of the CRCF's policy design, bringing together representatives of Member States, research institutes, civil society, and corporations. This body was tasked with supporting DG CLIMA with drafting methodologies and delegated acts under the future framework (European Commission, 2022). In the pre-draft period from 2021-2022, DG Clima also coordinated with the European Environment Agency

[1] DG CLIMA is the European Commission's Directorate-General for Climate Action responsible for drafting, negotiating, and implementing climate policy. It oversees major legislation such as the EU ETS, LULUCF, and the CRCF (European Commission, 2022).

(EEA) and CRETA, a rotating group of consultancies and research institutes, on the robustness of quantification methodologies (EEA, 2023; Siemens & Schneider, 2025).

In late 2022, these preparatory consultations culminated in the Commission's proposal for the CRCF (2022). This was followed by the trilogue process, bringing DG CLIMA into negotiations with the European Parliament's ENVI Committee and the European Council's Environment Working Party on Climate. Over the course of 2023–2024, the three institutions worked through the regulation's scope, safeguards, and oversight provisions, eventually reaching a political agreement in February 2024 (European Commission, 2024). The final legislative text was adopted in December 2024 and entered into force on 26 December 2024 (European Commission, 2024).

Rather than emerging as an isolated policy innovation, the CRCF reflects the convergence of several dynamics across the EU's agricultural politics. The failure of CAP eco-schemes to mitigate emissions (Colombo, 2024), corporate and investor pressures to create a standardized offsetting framework (Scherger, 2022), and the Commission's larger ambition to operationalize negative emission technologies, created a policy environment for the CRCF to function as a bridge between agribusiness, VCMs, and EU climate targets. In the coming years, the Commission will also be mandated to report on the CRCF's alignment with Paris Agreement accounting rules and to establish a Union-wide public registry by 2028 (European Commission, 2024b).

Table 2. CRCF Legislative and Implementation Timeline

Year	Stage	Key Mechanism / Event
Dec 2021	Policy initiation	Communication on Sustainable Carbon Cycles (COM(2021) 800) announces the need for a certification framework
Nov 2022	Legislative proposal	Commission publishes Proposal for a Regulation on the Certification of Carbon Removals (COM(2022) 672 final)
Feb 2024	Trilogues	Parliament, Council, and Commission negotiate scope, oversight, and methodologies
Dec 2024	Final adoption	Regulation (EU) 2024/3012 adopted and enters into force 26 December 2024
2025-2026	Methodology development	CREG develops delegated/implementing acts on certification methodologies for agriculture, peatland, permanent removals, etc.
July 2026	Paris Agreement Alignment	Commission must assess alignment with Article 6 of Paris Agreement and review inclusion of creditable activities
Post-2028	Review & future reforms	Commission to review Regulation for consistency with PA/UNFCCC, biodiversity, biomass, food security, and land markets

2.2 Institutional architecture

The CRCF establishes a voluntary EU-wide certification framework to govern how carbon removal and land-based emission reductions are monitored, verified, and credited. As opposed to LULUCF's accounting practices, the CRCF creates common standards for monitoring, reporting, and verifying removals and reductions under the QU.A.LITY criteria: Quantification, Additionality, Long-term storage & liability, and Suitability / Co-benefits.

The purpose of this section is to unpack the design elements and explain how each category of credit function legally, technically, and economically. Understanding the mechanics of the CRCF is essential for later analyzing how the framework may pre-structure emerging markets in ways that privilege certain actors, and later, for tracing the distributional effects of the policy architecture.

2.2.1 Certification process and project lifecycle

The CRCF's certification cycle unfolds in five main stages: 1) project registration, 2) baseline and additionality assessment, 3) independent certification, 4) periodic monitoring and re-certification, and 5) issuance or cancelation of certification units. Each carbon removal unit is assigned a unique identifier within the Union Registry as a safeguard to prevent double counting (European Commission, 2024a).

In the context of the CRCF, double counting refers to any situation in which the same carbon removal or emission reduction is credited or reported more than once, whether by different actors (e.g., a farmer and its downstream buyer) or under multiple policy instruments (such as CAP payments). The framework therefore requires clear registry tracking to ensure that each ton of CO_2 removed or sequestered is assigned a single, unique credit.

Baselines also serve as the reference scenario in which carbon offsets are measured against. They represent what would happen in the absence of the certified activity, serving as a benchmark for quantifying *additionality*. Credible baselines are critical for the CRCF, as they define the amount of carbon stored in an environment in business-as-usual conditions and therefore determine how many credits a project can accurately generate.

Lastly, permanence refers to how long a certified removal or land-based reduction must remain stored to count. Under the CRCF, geological storage is considered permanent, while land-based and product-based storage and temporary therefore require more stringent monitoring and verification systems to manage the risk of reversal (Articles[2] 3–4, 12–14). As a result, permanence becomes a core design feature of the certification process and project lifecycle, with implications for how credits are issued and who is responsible if stored carbon is reemitted (Art 18).

[2] In EU legislation, recitals provide the context, objectives or rational of an act and are not legally operative. Articles by contrast, contain the binding and enforceable provisions of the regulation.

2.2.2 Credit and activity typology

The CRCF creates three distinct categories of certified units: permanent technological removals, carbon farming sequestration, and carbon storage in long-term products (Arts 3–4)[3][4]. The During the trilogue negotiations, the scope of eligible activities was expanded to cover a broader set of emission reduction activities, including fertilizer and nutrient-management measures (Recital 10; Scherger, 2022). The framework also includes a future review clause to decide whether ruminant methane reductions from livestock should be incorporated under the umbrella of creditable activities (Recital 41).

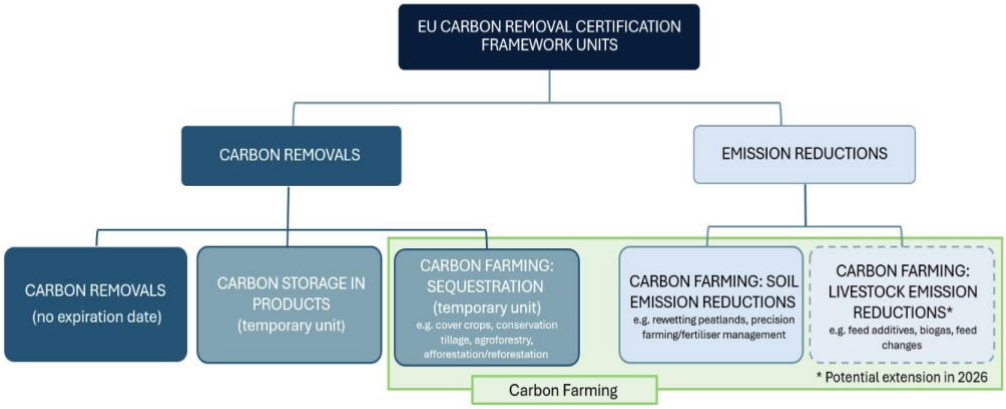

Figure 1. Structure of CRCF unit categories. *Source: Scherger (2022).*

Permanent Carbon Removals

The first Delegated Acts, published in 2025, defined methodologies for Direct Air Carbon Capture and Storage (DACCS), Biomass with Carbon Capture and Storage (Bio-CCS), and Biochar Carbon Removal (European Commission, 2025a-c). These technologies fall under the CRCF's category of permanent carbon removals, defined as practices that capture and store atmospheric or biogenic carbon for several centuries (Art. 2). They represent the framework's technological arm of carbon removals and are characterized by high permanence, stringent MRV requirements, and substantial capital costs (EEA, 2023).

Carbon Farming

Nature-based carbon sequestration represents the CRCF's second pillar. While the finalized Delegated Acts and updated methodologies are expected in 2026, the Regulation defines carbon farming as practices related to managing terrestrial or coastal environments that result in the temporary storage of atmospheric or biogenic carbon or in the reduction of soil emissions (Art. 2). In effect, this article extends regenerative and organic methods already subsidized

[3] The CRCF excludes avoided emissions activities like avoided deforestation, despite inclusion in many voluntary markets.

[4] The CRCF explicitly states that permanent removals, land-based units, and carbon storage units must remain distinct from one another and are therefore not fungible across categories.

under the CAP by linking these practices to certified units. The current scope includes peatland rewetting and restoration, agricultural and agroforestry activities on mineral soils, tree planting, and broader landscape restoration. While carbon farming provides tangible co-benefits like biodiversity protection, erosion control, and improved soil resilience, the variability of sequestration rates and high MRV costs make it a comparatively complex form of climate governance (EEA, 2023).

Carbon Storage in Products

The third category covers carbon storage in durable products, such as timber used in construction and other organic materials that store carbon for extended periods. Under the CRCF, these activities are defined as practices that capture and store atmospheric or biogenic carbon for at least 35 years in certified products (Art. 2) Since storage capacity is time-bound rather than permanent, permanence thresholds are lower, and quantification relies on life-cycle assessments of the product's expected storage duration.

Financial and Market Dimensions

Unlike the EU's Emissions Trading System (ETS), the CRCF does not establish a compliance market. Instead, it creates a voluntary certification framework that links eligible activities to different financial mechanisms. In the public sphere, CRCF-certified activities can receive funding from CAP eco-schemes, LIFE, Horizon Europe, or the Innovation Fund (Arts. 1–2).

In the private sector, certified units can generate finance for climate mitigation in several ways. First, they can be created from results-based schemes in which companies pay land managers or project developers only after a carbon-removal activity has been verified with the QU.A.L.ITY criteria. This reflects the structure of existing voluntary standards but introduces Member State and private oversight for MRV practices (Arts 4–8). Second, CRCF credits can operationalize supply-chain insetting in which firms offset their Scope 3 emissions by financing credits within their own value chains. This is an approach strongly pursued by multinational food and input firms (Mardirossian & Arnold; Scherger, 2025).

Lastly, CRCF units can serve as voluntary carbon offsets for companies aiming to demonstrate "net-zero" or "climate-neutral" claims. Although the use is prohibited in ETS compliance markets (Art. 1(2)), the CRCF establishes a Union-wide registry by 2028 to ensure transparent issuance and traceability of all credits (Recital 36). Importantly, temporary units from carbon farming and product-based storage, carry expiry dates tied to the end of their monitoring period, reflecting the higher risks of reversal (Recital 22). By creating standardized certification rules and a public registry the CRCF attempts to create a higher integrity system of removals and offsets (Hernández, 2025a; Diab, 2024).

2.3 Beyond the CRCF: Potential integration with ETS

The potential creation of an Agricultural Emissions Trading Scheme (AgETS) has become a central point of debate in discussions about the CRCF's long-term implications. Unlike the existing EU Emissions Trading System (ETS), which regulates energy and heavy industry, agricultural emissions separate from compliance mechanisms. As the CRCF develops unified rules for quantifying and

verifying carbon removals, it is laying the technical architecture for future integration with the ETS.

While Article 33 requires a future review of market integration options, no direct pathway into the ETS currently exists. Several Member States including Ireland, Denmark, and France have urged the Commission to explore ETS-linked mechanisms that could support agricultural mitigation without politically challenging reforms to livestock production (Hernández, 2024/2025a). In this sense, the CRCF functions as a regulatory testing ground through which MRV infrastructures, liability rules, and unit registries are constructed in ways that could in the future support compliance-based governance. The political and distributional implications of such a transformation will be discussed in chapters 4 and 5.

Chapter 3: Governing through discourse – expertise, market logic, and self-regulation

Across the European environmental policy landscape, the governance of carbon has become a contested space for how climate responsibility is articulated, measured, and monetized. Emerging from this contestation, the CRCF is not merely a technical instrument but a political project that contours the boundaries of climate policy. Unlike previous carbon trading schemes that defined mitigation in terms of compliance and cap setting, the CRCFs legitimacy is underpinned by its mechanisms of quantification–the models, certification bodies, stakeholder consultations, and methodologies that promise to ensure "high quality" removals. To understand how the CRCF has taken shape, it is necessary to trace how epistemic authority has moved through consultation rounds, expert committees, and negotiations, gradually creating a narrow conception of carbon governance. By tracing the production of knowledge and authority, the analysis does not point fingers or ask who lobbied whom but rather investigate how regimes of truth about carbon governance became institutionalized as common sense.

3.1 The discursive architecture of the CRCF

The consultation architecture of the CRCF shows how corporate and institutional submissions at the onset of the process helped establish the epistemological landscape of the CRCF. The 2021 *Restoring Sustainable Carbon Cycles Consultation,* the European Commission initiative aimed to support the development of sustainable carbon removal solutions, received comments from a wide range of stakeholders including agribusinesses, carbon project developers, fossil fuel companies, NGOs, and farm lobbies. The contributions of corporations such as Bayer, Yara, PepsiCo, and Shell introduced a shared lexicon of policy framing and instruments–"results-based accounting", "insetting" "preferential value-chain access", and "unavoidable residuals"–that translated market logics into policy language. Investor reports and the European Environmental Bureau (EEB) amplified this vision, presenting soil and forestry credits as a "trillion-dollar opportunity" and negative emission technologies as a new investment frontier (Vivid Economics, 2020). Simultaneously, workshops and public forums such as the European Carbon Farming Summit provided a forum where consultancy epistemics, input firms, and agritech startups rehearsed similar narratives of scalability, profitability, and digital monitoring. Collectively, these discursive venues create a moral economy of carbon farming, an opportunity for farmers, corporations, and climate goals alike.

The subsequent stages of the process, including the 2022 Terms of Reference (ToR) for the Informal Commission Expert Group on Carbon Removals (which would lead to the creation of CREG), converted those rhetorical claims into institutional design. The ToR delegated methodological development to technical experts and consultancies, further externalizing the policy design process. The Carbon Removal Expert Group meetings from 2023-2025, solidified a technocratic order through the design of the QU.A.L.ITY criteria, loosely defined

payment models, and the promise of future reviews, which framed methodological uncertainty as a temporary managerial issue. The risk and permanence of offsets were no longer social or political questions but solvable engineering problems. This is when the CRCF entered its *structural phrase*, the moment when discourse becomes institutionalized (Newell, 2018).

In addition to these formal policy venues, the submission of feedback on draft delegated acts and investor-oriented reports further strengthened and blurred the connection between public regulation and private certification systems. Agribusinesses and corporations, through their consultations and lobbying efforts, sought alignment with voluntary standards (Verra, Gold Standard, SBTi) and requested infrastructures that would enable them to provide investor-ready disclosures. The Commission ultimately incorporated these requests into the legislative texts through the language of *improvement* and *harmonization*. This has created what critics have called a self-referential "audit culture" of climate governance by which legitimacy is created by actors who define and benefit from quantification, standardization, and scalability (Shore & Wright, 2015; Sippel, 2023). By the end of the trilogue agreement in 2023, a voluntary framework was finalized and the moral grammar of the CRCF was set: flexibility, scalability, and compatibility were equated with credibility.

Methodologically, this chapter adopts a discursive policy-uptake approach to follow the CRCF's linguistic and institutional development across three analytical framings:

1. Technocratic Legitimacy
2. Win-win-win Market Environmentalism
3. Insetting, corporate responsibility, and the privatization of regulation

Rather than attempting to demonstrate causality, the analysis tracks the repetition, rhetorical uses, and institutionalization of framings across consultations, expert meetings, and regulatory texts. Each section includes a close examination of legislative documents, draft acts, investor reports, and meeting minutes to identify how agribusinesses, consultancies, and states co-produce the CRCF's governing logic. Ultimately, the goal is to illustrate that the CRCF's neutral, apolitical appearance is in itself a political maneuver, one achieved through the exercise of discursive power that makes technocratic, and market solutions seem necessary and inevitable.

3.2 Technocratic legitimacy

The CRCF's promise of "high-quality removals" relies not only on the science of carbon accounting, but on the credibility of those who measure, verify, and standardize its methodologies. The legitimacy is reliant on the technocratic belief that climate change can be governed through expertise, modelling, and auditing logic rather than sociopolitical factors. The following section describes how expert authority, the moral language of quantification, and a reliance on external consultancies merged to create epistemic closure during the policy's drafting and adoption. It traces how the production of knowledge becomes a form of power and transforms political decisions about accountability, land use, and farming practices into questions of technical design.

3.2.1 Expert authority and epistemic closure

The scaffolding of technocratic legitimacy emerged in early 2021 during the 2021 during the initial Commission consultation, when corporate respondents called for the establishment of an independent certification body for the standardization of baselines "based on existing GHG accounting methodologies" (Bayer Feedback, 6 Oct 2021, pp. 4-5). Similarly, PepsiCo and Yara demanded alignment with the SBTi Land Sector Guidance and the European Nitrogen Expert Panel, framing regulatory symmetry as a condition for public trust in carbon markets (PepsiCo Feedback, 7 Oct 2021, p. 3). From the policy's infancy, methodological alignment and commercial feasibility were framed as mutually necessary requirements.

By 2022, the Terms of Reference operationalized the "results-based" and "expert-driven" lexicon by delegating certification methodologies to technical specialists, consultancies, and international standards bodies (European Commission, 2022, section 3–4). The ToR mandated a 70-member body of scientific institutes, consultancies, and corporate representatives to support the Commission with the policy's delegated acts and methodologies. In effect, it created an insulated venue for the policy design process in which decision-making shifted from democratically elected institutions to technical experts.

Across the nine CREG meetings, membership and participation unmistakably skew toward representation from agribusiness lobbies, carbon-market intermediaries, and private consultancies. Fewer than 10% of members are NGOs and representation from small-scale farmers, agroecology movements, or land justice organizations is almost entirely absent (European Commission, 2023a). In my interview with Marlène Ramón Hernández, Carbon Market Watch's lead expert on carbon removals and one of the few NGO representatives participating in CREG meetings, she repeatedly expressed her frustrations with the design process of the CRCF, stating:

> The Commission sets up these expert groups on the excuse that they are very technical topics and that co-legislators can't really flesh out the details. They then hire consultants to draft the methodologies and set up an expert group. But it's inherently unbalanced… it's a closed circuit (2025c).

She also noted that well-connected corporate actors frequently secure meetings with Commission officials to shape draft text, while NGOs–limited by staffing and capacity–struggle to provide an effective counterbalance. Despite consistent participation in the CREG meetings, civil society groups describe being outmaneuvered by large agri-food lobbies and consultancies, many of which are supported by coordinated legal and technical teams. Marlene suggested that this dynamic marginalizes NGO voices in a policy forum where corporate actors are "thoroughly trained in lobbying" and better positioned to influence the methodological design process (Interview, Hernández, 2025).

The ToR also initiated a technical assistance project led by the consultancy Partners for Innovation, later known as CRETA[5], further outsourcing the epistemic groundwork of the CRCF to private experts. This formalized a reliance on technical assistance and consultancies in developing methodologies. Sophie Scherger, a policy officer at the Institute for Agriculture and Trade Policy (IATP) and staunch critic of the CRCF notes, "the complexity and technicality of discussions about carbon farming leave key stakeholders largely out of the process." (Scherger, 2022, p.14).

Early meeting protocols presented CREG as an open multi-stakeholder space in which NGOs, research institutes, and member states would ensure a balanced agenda. In the first few meetings formal inclusivity was practiced through consultation slots. By the 2024-2025 meeting cycles, DG CLIMA alone set agendas and constrained the scope of feedback to written submissions (DG CLIMA, 2023d). In practice, dissenting opinions such as Carbon Market Watch's criticism of low methodological integrity was reframed as "constructive feedback" and absorbed into procedural review processes (Siemens & Schneider, 2025; DG CLIMA, 2023d).

The CRCF's policy architecture has been aided by frequent workshops, stakeholder summits, and technical consultations that further enclose epistemic authority. In June 2025, Deloitte hosted a stakeholder consultation on how to incentivize demand for CRCF units, marketed as an open dialogue on the future of carbon financing. In practice, civil society observed that the event functioned as an "industry sale pitch" with panelists largely representing the corporate sector (Hernández, 2025b). Equinor, a fossil fuel company frequently accused of greenwashing, dominated the discussion, despite not appearing on the event's official agenda. Audience participation was also restricted with attendees' responses logged on an app rather than presented in open discussion. Panelists were allowed to deliver prepared answers to questions asked by the moderator, mainly regarding financial incentives of the CRCF . This workshop exemplifies the orchestration of stakeholder participation, while preserving the epistemic authority of industry actors in the policy crafting process.

Investigative reporting conducted by Amsterdam-based publication *Follow the Money* further traces the phenomena they call "looped authorship" in which corporate and consulting firms generate the knowledge that is later used to govern them. In Thies and Mira's recently published book *Wie betaalt, mag vervuilen (2025)* ("Who Pays, Gets to Pollute"), they illustrate the revolving door of relationships between DG Clima, the agricultural lobby, and the consulting companies commission to create the CRCF's methodologies. Bayer and Yara consultants met with DG CLIMA officials 28 times in just 18 months, advising them on methodological specifications. One Commission member admitted anonymously, "We don't have the capacity to write these methodologies in-house. We outsource to the people who already run the markets." (Ties & Sys, 2025, p. 6).

In another clear instance of policy uptake, the Carbon + Farming Coalition's "white paper on rural resilience" appeared verbatim in an internal non-

[5] CRETA (Carbon Removals Technical Assistance) is the Commission's rotating consortium of consultancies and research institutes contracted to support DG CLIMA in drafting CRCF methodologies.

paper on CRCF methodologies and resurfaced again in Deloitte's background reports prepared under its €1.6 million contract to support Horizon Europe's carbon uptake study (Ties & Sys, 2025). These were the same misinformed background reports later used in a Deloitte-hosted workshop, illustrating a closed loop of research grants, consultancy contracts, and epistemic capture that later materialized in the CRCF's draft legislation. The concentration of epistemic authority sets the stage for the second discursive mechanism whereby precision and quantification become equated with ethical governance.

3.2.2 Quantification as moral language

If expert authority governs who participates, quantification sets the boundaries of legitimacy. Across CREG meetings and expert feedback documents, measurement and data are imbued with an ethical significance. In the Commission's subsequent feedback analysis, agribusinesses begin to pre-emptively moralize measurement as proof of virtue, in which robust modelling is equated with honesty. Bayer's call for "results-based" certification, PepsiCo's "SMART targets," and Yara's "lifecycle approach" all frame policy effectiveness as a question of calibration (Bayer Crop Science, 2021, p. 3; PepsiCo, 2021, p. 2; Yara, 2021, p. 2)

This lexicon is embedded in the CRCF's QU.A.L.ITY criteria during the preliminary CREG meetings. Despite early concerns surrounding additionality, baselines, and methodologies, the framework was presented as an assurance of credibility and transparency (DG Clima, 2023c; Siemens & Schneider, 2025, p.1). By this stage in the policy design process, many of the methodologies for removals, carbon farming, and storage were not explicitly defined, yet the QU.A.L.ITY criteria were repeatedly invoked as if to apply substance to an otherwise empty placeholder.

A trend of data fetishization also arises in many of the external consultation. As the Agora Agriculture (2024) modelling report explains, "A quantitative model (CAPRI) ensures consistency of assumptions and derives economic and environmental results" (p.3). The CAPRI (Common Agricultural Policy Regionalized Impact) model, developed and used by the European Commission for CAP impact assessments, is invoked to accredit technical consistency to CRCF methodologies, despite its use in vastly different contexts.

Across CREG discussions data accumulation is similarly portrayed as a signifier of legitimacy. Asger Oleson, a CREG rapporteur, celebrates that "digitalization is leading to data surplus after a long time of data scarcity," conveying an epistemic optimism that more data will cause better governance (DG CLIMA, 2023b). A reliance on models and data convey a faith in algorithmic accuracy leading to an erosion of traditional checks and balances (Sippel, 2023; Visser et al., 2021). The optimism in the future accuracy of modelling seems to also influence the legislative text of the CRCF. A 2026 review clause (Art. 18, Recitals 40–42) further embeds this logic, treating methodology gaps as temporary, fixable issues and reframing delayed accuracy as due diligence.

Across these subframes, technocratic legitimacy emerges as the discursive architecture that substitutes democratic and rigorous policy making for political convenience. Expertise is consolidated through institutional mechanisms,

legitimacy is conveyed through measurement, and methodological design is outsourced to private-sector actors. This, in effect, depoliticizes climate governance by translating moral and political contestations into technical issues of data access and methodological certainty. Chapter 4 will examine civil society's counter-discourses about why these methodologies may be 'built on shaky ground'.

Ultimately, the CRCF's language of "high-quality" removals and "robust methodologies" conceals a transition away from collective decision making and toward alignment with private-sector interests. The technocratic consolidation of the CRCF provides stability and investor confidence, laying the foundation for future market growth. The next section will trace how these epistemic foundations are reframed as win-win solutions for farmers, investors, and climate goals alike. Once quantification itself becomes a moral currency, market logics arise, framing carbon farming as a seamless win-win opportunity rather than acknowledging its uncertainties and structural limitations.

3.3 Win-Win-Win market environmentalism

The optimistic discourse of win-win market environmentalism is evident in much of the public rhetoric surrounding the CRCF. Throughout consultations, CREG meetings, and trilogue negotiations carbon farming and removals are framed as projects with the potential to deliver economic growth and climate co-benefits. The effectiveness of this discourse lies in its ability to sidestep political contestations such as carbon taxes or direct regulation, instead situating market environmentalism as a mutually beneficial project for all stakeholders involved. Through this framing, market-based environmentalism is not only a policy tool, but a new spirit of governance, embedding capitalist logics into the language of climate action.

3.3.1 Triple-Win logic

Building on the faith in quantification produced by technocratic authority, the triple-win rhetoric frames the CRCF as a tool that can deliver simultaneous benefits for farmers, climate goals, and economic growth. In the DG CLIMA background paper entitled *Agrifood Stakeholder Study: Pricing Emissions* (2024), the triple-wins rhetoric is clear:

> Market-based climate policies could play an important role in achieving this…they unleash the potential for new business opportunities for sustainable agri-food value chains, while ensuring fair rewards for farmers, increased climate resilience, and environmental integrity. (p. 2)

The study repeatedly groups sustainability, competitiveness, and income stability, asserting that these can all be achieved simultaneously. Similarly, EU communications equate environmental and economic goals, describing carbon farming as a strategy to build "resilient and competitive agriculture" (EEA, 2024). This narrative is adopted in the CRCF's final text, where the Commission states that "carbon farming practices can provide co-benefits for biodiversity, soil health

and farm resilience while contributing to the Union's competitiveness and innovation" (Recital 15). Within the legislative framework, a *no-trade-offs* axiom masks redistributive tensions and depicts farmers as beneficiaries despite new market dependencies.

The triple-win rhetoric mirrors what Bakker (2005) describes as de-regulation through re-regulation. The state's authority is reconfigured not to limit markets but enable their expansion into new domains. Here, the Commission's reluctance to impose stricter regulations on corporations, while attempting to appeal to powerful farmer coalitions, finds compromise in the creation of new environmental markets and investment opportunities. In this sense, the triple-win rhetoric functions to depoliticize agricultural reform, replacing questions of accountability and environmental justice with a new narrative of mutual benefit. The fundamental growth imperative is allowed to remain in place, even as the conversation moves toward resilience, stewardship, and competitiveness.

3.3.2 Carbon commodification and the entrepreneurial farmer

With the triple-win premise in place, a second discursive formation redefines nature as a domain for producing economic services. In this symbology, the environment is an input for a new carbon business model and farmers are reimagined as entrepreneurial managers of carbon assets. This shift combines ecological processes with financial incentives, transitioning agroecology and carbon removals into new capital frontiers.

The commodification of carbon, first introduced through the EU's ETS, has since extended to the domains of land, soils, and biomass. This evolution is captured in investor reports predating the CRCF. The Vivid Economics report (202), commissioned to assess the design and performance of the EU's carbon pricing architecture, enthusiastically presents the investment potential of land-based solutions:

> Forestry-related Nature-Based Solutions (NBS) could generate US$800 billion in annual revenues by 2050…unlocking new business models and investment opportunities for re/afforestation and land restoration (p. 2). The report concludes that "an entire new industry may emerge that values carbon stored in vegetation and soil." (p. 23).

During the CRCF's policy development, corporate actors, project developers, and consultancies played a key role in furthering the narrative of investment opportunity. In the *Restoring Sustainable Carbon Cycles Feedback*, the dominant narrative articulated by Copa-Cogeca, the EU's largest big ag lobby group was that "carbon should be seen as a new and additional stream of income for farmers and foresters" (Scherger, 2022, p.6). Yara notes that improving soil health and biodiversity increases yields and income, while Bayer envisions farmers as early adopters of digital tools through "capacity building farmer networkers" (Yara Belgium, 2021, p. 1; Bayer Crop Science, 2021, p. 6). These visions imagine carbon credits as a form of income diversification for farmers, while agribusinesses

situate themselves as the suppliers of technology and inputs necessary for participation.

This rhetoric, is however, not only unique to large agribusinesses and input firms. The 2025 European Carbon Farming Summit in Dublin platformed many firms, academics, and farmers to share their input on the CRCF's deployment. Peter Fisch, one of the founding farmers of the European Alliance for Regenerative Agriculture (EARA), refers to soil biomass as our planet's "ecological income". Yet, he also speaks passionately about the "holistic life-giving process" of replenishing soil carbon stocks, reframing SCS beyond a narrow climate tool. Still, he is pragmatic about the economic realities of farming, repeatedly asserting that any transition must be built on a viable business proposition. Farmers need tangible added value and long-term purchasing preferences, to truly engage with such markets. Peter, among the many farmers and policymakers tasked with creating robust methodologies and systems of carbon verification, must also contend with the realities of favorable market conditions.

This sentiment is directly expressed in the CRCF's legislative text. Article 1(2) asserts that the Framework must "promote the development of carbon removal activities, creating new business opportunities in the bioeconomy and support for farmers and forest managers". Recital 31 expands this ethos asserting "it is crucial to create further business opportunities for a sustainable agrifood value chain and leverage private funds in synergy with public funding…[resulting]…in a fair reward for farmers and new source of funding for investments". Farmers are positioned as business actors in the broader value chain, where environmental action becomes an investment opportunity. The trilogue negotiations confirmed this orientation with Member States agreeing that methodologies must remain market-friendly to ensure private investment participation (Scherger, 2024). The next chapter explores what exactly is meant by "market-friendly" methodologies and the design flaws they are poised to create.

What emerges is not only a regulatory plan for marketization, but an epistemic drift in the reframing of soil as a productive asset and land stewardship as a service. By portraying farmers and land developers as climate-aligned actors via these assets and services, the moral logic implies that profit-seeking and stewardship can co-exist. The framing of the *entrepreneurial farmer* thus valorizes participation in carbon markets and equates ecological stewardship with digital farming practices. The discursive path from triple-win rhetoric to the commodification of nature is effective in reframing climate action as an agricultural market service. Farmers, thus, serve as the key to this transformation, both as service providers and participants in a technology-driven market.

3.3.3 Scaling as progress and investment readiness

The next step in the CRCF's discursive architecture is to lower the barriers to entry and construct market growth as a necessary and time-sensitive progression. Once carbon farming and removals have been reframed as a business model, the political question shifts from whether to commodify carbon to how rapidly these markets can be scaled. In this frame, scaling is moralized through appeals to simplification, standardization, and investment readiness, rhetoric that encourages market expansion at the expense of regulatory rigor.

The consultation rounds consistently emphasized the need for standardization to build investor confidence. The CREDIBLE project brief (2025) calls for the consistency and integrity to facilitate market demand, while reducing administrative burdens and adopting a pragmatic design to enhance farmer participation**.** Simiarly, in the Restoring Sustainable Carbon Cycles feedback consultations, agribusiness like Yara deploy phrases like "large-scale implementation" with the "largest possible number of growers" (2021, pp. 3-4). Bayer, Yara, and Pepsico cite "standardized baselines" and "simplified methodologies", embedding the rhetoric of corporate efficiency (Yara, 2021; Bayer, 2021; PepsiCo, 2021). Such phrasing naturalizes the trade-offs between precision and participation–methodologies are no longer a liability, but simply the price of inclusivity.

The early CREG meetings highlight conflicting discussions between precision and participation. What began as a forum for technical discussion evolved into a testing ground for market-oriented simplification in which concepts of "low cost," "aggregation," and "broad participation" became regulatory ideals. In response to concerns about non-permanence and additionality at the individual farm level, Indigo Agriculture Europe, a U.S.-based carbon-credit company, proposed that "a potential solution to the risks of carbon farming could be to scale up and manage farmers collectively as a population" (DG CLIMA, 2023a, p. 34). The proposal effetely applies auditing logic to MRV by which aggregated carbon performance can be statistically modelled. The draft delegated act eventually reflects this recommendation stating, "Certification schemes shall allow for group auditing upon request of groups of operators for carbon-farming activities" (DG CLIMA, 2023d).

By the second CREG meeting in June 2023, loosely defined modelling approaches and techno-managerial solutions were inscribed in the policy's architecture for the sake of simplification and equity. The CRETA technical consultants reported that most methodologies already "quantify removals using standard emission factors and hybrid measure-and-model approaches," though "more data [was] needed to improve the reliability of estimations" (DG CLIMA, 2023b, p.3). Uncertainty was reframed as an information deficit rather than a structural limitation and solvable through technical scaling solutions. In the sessions on forestry and peatland methodologies, rapporteurs concluded that "innovation, including low-cost sensors and tools for measurement is needed" and that "uptake is limited due to difficult rules and lack of long-term economics perspectives" (DG CLIMA, 2023b, pp. 10, 27). In each of the CRCF's activity categories, technological and regulatory simplification was framed as necessary for participation, entrenching a circular logic where efficiency enables scale and scale drives efficiency.

The meetings and consultations covering the delegated acts for permanent removals reiterated the need for market readiness and flexibility for early adopters. The Zero Emission Platform, one of the EU's longest-standing industry lobbies for carbon capture, stated that "grandfathering is necessary to facilitate investment, seeing merit as a compromise for first movers" (DG Clima, 2023d, p.2). Arguing that early adoption projects like BECCS or DACCs facilities already present significant investment risk, they push for legislation that ensures pioneer projects would remain certified even under stricter future accounting rules. In another

instance of temporal deferral, DG CLIMA defended "standardized baselines set to zero," ensuring that land-use impacts and methodological rigor would be "reviewed regularly in the future" (DG ClIMA, 2023d, p. 3). In this way, temporal leniency and methodological minimalism were rearticulated as investment and uptake incentives rather than regulatory compromises. The deferral of policy weakness to future reviews is what Khaled Diab (2024) of Carbon Market Watch terms "turning delay into diligence".

Upon its final adoption, the rhetoric of large-scale uptake and investment readiness became codified in the CRCF. The final draft invokes the IPCC to stress that "the deployment of carbon dioxide-removal approaches at *large scale* is *unavoidable* if the Union is to achieve its 2050-climate neutrality goal and pursue neutrality goal" (Recital 3). The summary documents of the Trilogue Negotiations also observe that ease of participation and scalability were decisive factors for agreement on agricultural removals (CREDIBLE, 2024).

The emphasis on scale and investment-readiness hints at the Commission's exploration of alternative policy options to ensure the success of the CRCF. Recent policy discussions explore the creation of a Market Crediting System (MCS) and potential free allocation of CRCF units to high-emitting non-agricultural sectors (Hernández, 2025a). An MCS would allow regulated firms to purchase CRCF units to fulfil compliance obligations, thus creating artificial demand and linking the units to ETS. Free allocation of credits would also grant high-emitters credits at no cost, replicating the subsidies of early ETS phases (Hernández, 2025a). Together these proposals could shift the CRCF into an state-engineered market, where liquidity and market maturation take precedence over emissions reductions. The combined effect is a scalable but low-integrity solutions–one in which farmers and land stewards bear the burden of project compliance, while emitters gain low-cost compliance assets. Although these outcomes remain uncertain, the CRCF's governing ethos is clear: scalability must take precedence over credibility.

3.4 Insetting, corporate responsibility, and the privatization of regulation

Where technocratic design legitimizes quantification and market environmentalism asserts efficiency, the discourse of insetting reframes carbon governance as an ethical duty of the corporation. Faced with public backlash against greenwashing and scandals in global voluntary markets, the language of insetting emerged as reputational pivot for corporations and agribusinesses (Mardirossian & Arnold, 2023; Scherger, 2025). Rather than purchasing credits generated from other industries, firms claim to offset their emission within their own value chains. For instance, a livestock company would buy credits from an agroforestry project on a supplier's farm, theoretically neutralizing a portion of GHG emissions from their end product. As Jack Arnold of the Columbia Center on Sustainable Investment observed:

> We saw insetting first with Nestlé… it's more or less the same as offsetting – the only difference is it's within the value chain. But that begs the question: what even counts as your supply chain? (Interview, 2025).

According to Jack and other sceptics, insetting represents a sort of discursive laundering, a tool that serves the same purpose, but is marketed with a new moral vocabulary. By anticipating the public shift toward stricter offsetting regimes, corporations position themselves as policy co-designers, recasting climate governance as a matter of internal optimization rather than structural change.

3.4.1 Corporate self-regulation

Around 2021, agrifood multinationals such as Bayer, Yara, Nestlé, and PepsiCo began promoting "value-chain climate action" as a novel form of governance (Mardirossian & Arnold, 2023). During the Restoring Carbon Cycles, PepsiCo asserted that agribusinesses should be given "preferential access to carbon credits from the farming sector to ensure that sequestration is reflected in the decarbonization of the agri-food chain." (PepsiCo, p.2). While this appears to be a sound remark, civil society observers note that insetting and preferential access would prevent polluters from other sectors from buying these credits before agribusinesses (Scherger, 2022). In Brussels, the Europea Carbon + Farming. (EC+F) Coalition, led by firms like Bayer, Yara, Shell, Cargill, Danone, and Nestlé, urged DG Clima to integrate CRCF units into the ETS before 2030 to ensure liquidity and price stability for offsetting projects (Ties & Sys, 2025). During CREG consultations, the EC+F also pushed for the "recognition of insetting under CRCF equivalence," enabling firms to utilize internal supply-chain projects as compliance tools (Ties & Sys, 2025, p. 112). This would, in essence, allow corporations to generate and distribute internal carbon credits, bypassing public oversight and financially benefiting from their own supply-chain projects. Despite persistent accountability issues, the EC+F–supported by Deloitte and McKinsey–spread this discourse through workshops that presented insetting as a tool of rural innovation and corporate transparency (Ties & Sys, 2025). In these settings, corporations' voluntary engagement was equated with an ethical commitment to quality carbon markets.

By substituting regulation with self-commitment, this rhetorical inversion exemplifies O'Laughlin's (2009) concept of *governing through freedom*: a form of neoliberal governance in which the state recedes as corporations exercise voluntary self-regulation. Jie et al. (2025) empirically observe that as regulatory pressure increases, firms often intensify climate lobbying under the banner of improved "policy efficiency". The same patterns can be observed in the context of the EU's agribusiness coalitions, which insert themselves in the policy design process not to contest regulatory governance, but to reproduce it through their own technocratic authority.

3.4.2 Policy uptake and institutionalization

These early discursive investments appear to pay-off in the CRCF's codification of private-sector responsibility. Articles 7-11 of the CRCF deploy a *voluntary* union framework in which the primary operational functions (auditing, verification, and issuance of units) are not executed by Member States but rather by independent certification organizations. Recital 32 and Articles 10(2)-(4) further

emphasize that the legally independent bodies will perform audits "in the public interest", with supplementary oversight conducted by Member States.

Article 13 of the regulation further extends private control of auditing, formally recognizing public, private, or mixed certification schemes for renewable five-year periods. Once recognized, a certification body has the authority to set internal rules, approve projects, and oversee credit issuance. In effect, consultancy or industry groups gain the ability to act as *de facto* regulatory bodies within the CRCF ecosystem. Most notably, Annex III(h) requires registries to disclose the end-use of certify units and the entity that uses them. This stipulation exists to anticipate that primarily corporations, not Member States or public bodies, will be the end-users of credits. By requiring traceability for credit users and end-uses, the CRCF effectively builds the accounting infrastructure for Scope 3 reporting and supply-chain insetting. The CRCF therefore structurally plans for corporate use-cases, integrating value-chain reporting into the regulation, and creating an architectural bridge for future integration into the ETS.

By mid-2025 the Commission had not yet allowed direct ETS use of CRCF credits, but Recital 4 of the regulation mandates that the Commission assess if and how to account for carbon removals in the Union emissions trading system. This anticipatory clause signals the Commission's intention to integrate CRCF units with a future AgETS. For corporations, this possibility of future linkage with ETS increases the strategic importance of CRCF credits, transforming voluntary credits into future compliance assets. This creates anticipatory involvement in which firms and industry coalitions act as early movers to shape the methodologies and certification rules of the CRCF, understanding that future ETS compatibility would significantly enhance the political and financial value of these units.

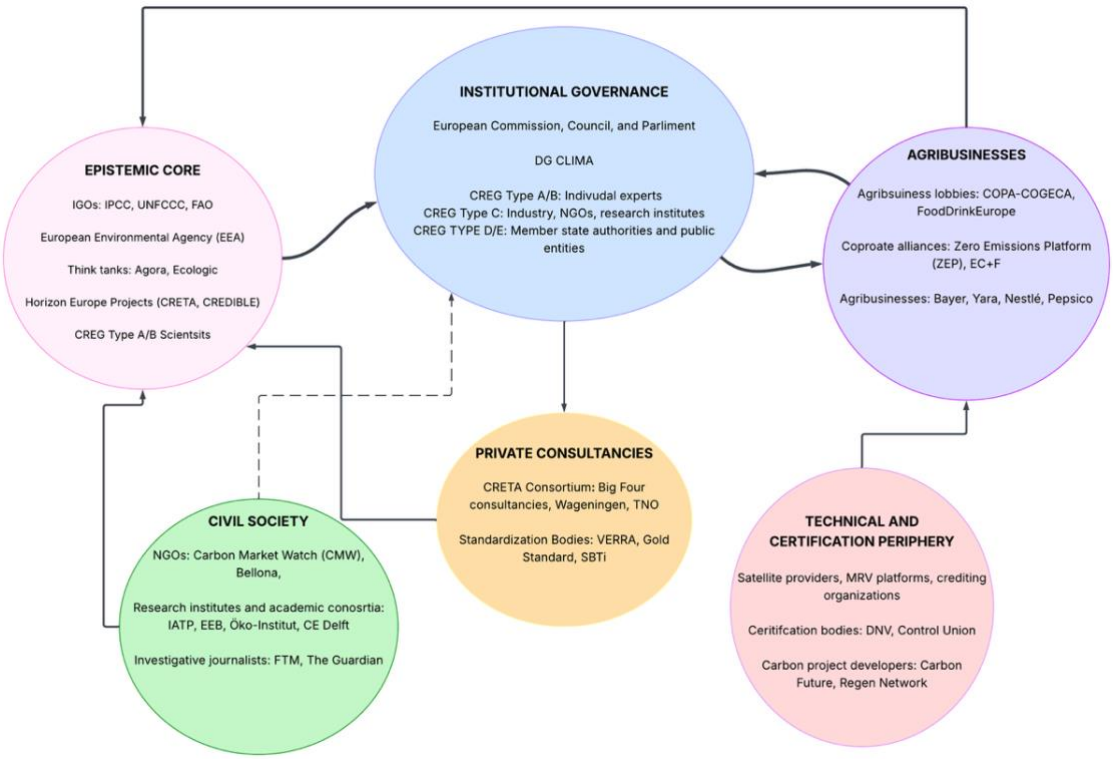

Figure 2. CRCF Policymaking Map.

The discourse of insetting and corporate responsibility thus completes the moral arc of the CRCF. It institutionalizes voluntary certification, delegates authority to private actors, and anticipates the value of future regulation. Together, these design elements transform the CRCF into a self-regulatory architecture, in which private certification bodies, corporations, and consultancies become the primary intermediaries of carbon governance. The state, in turn, is relegated to a supervisory role, overseeing a market whose rules are produced by the very actors they are meant to regulate.

In FTM's investigation on the transformation of Europe's voluntary carbon markets, they use the metaphor of "carbon indulgences" to illustrate the underlying moral economy: corporations obtain absolution through their performance of participation (Ties & Sys, 2025). The book closes with a striking scene at a Brussels networking reception in which a lobbyist raises a glasses and toasts, "We've made nature investable. That's progress" (p. 15). The discursive architecture of the CRCF, constructed through years of consultation rounds, workshops, and industry-centric expertise, culminates in a framework that consolidates corporate rhetoric and institutionalizes their interests.

Throughout this process, the vocabulary of climate responsibility is reiterated through quantification, flexibility, and investment readiness, while voices from civil-society groups, farmers, and climate scientists are routinely sidelined in bureaucratic processes. The following chapter gives voice to these marginalized perspectives. It examines how NGOs, independent scientists, and farmer organizations have and continue to articulate counter-discourses about carbon offsetting and the development of the CRCF.

Chapter 4: Contestations of the CRCF

The previous chapter traced how EU institutions, corporate coalitions, and consultancies designed the CRCF as a credible, scalable, and *quality* solution for governance offsets. Through rhetorical appeals to quantitative accuracy, economic pragmatism, and methodological robustness, these actors articulated sequestration and removals as viable and market-ready solutions. This chapter adopts a different angle, instead focusing on how civil society, independent experts, and farmer groups contest the framework's political and epistemic assumptions.

Counter discourses do not reject the CRCF in its entirety; they offer a critical diagnosis of its design and a reimagination of its governance mechanisms. What its proponents call methodological rigor, critics view as conceptual misalignment and weak safeguards. What is referred to as entrepreneurial stewardship is reframed as administrative burden. And what is described as a critical tool to meet climate goals, civil society identifies as a path to deepen mitigation deterrence[6] (MD).

The discussion reconstructs these counter-discourses by following a top-down analytical pathway It starts with the macro and technical critiques of the CRCF methodologies, treatment of permanence, and MRV assumptions. It then shifts downward to social and agential concerns, examining how the CRCF shifts risk onto farmers, consolidates material power in intermediaries, and alters land-use dynamics. Ultimately, the purpose is not to arbitrate these debates, but chart how counter-discourses challenge the dominant narratives presented in Chapter 3. In doing so, these contestations reveal what is at stake with the current institutional decisions and open to a concluding discussion on the forms of climate governance that the CRCF enables or delimits.

4.1 Methodological and market critiques

Chapter 3 traced how the CRCF was imbued with an epistemic certainty due to the technocratic design and consultancy process that designed its methodologies. For civil society groups and critical scientific researchers, it is precisely its methodologies and QU.A.L.ITY standards that create weak safeguards and processes to produce and verify legitimate credits. Rather than analyzing the frameworks methodological design in a vacuum, these actors draw from a longer history offsetting failures, particularly under the UN's Clean Development Mechanism (CDM), and warn of a replication of these loopholes in Europe's agricultural sector (Schneider et al., 2024; Stoefs, 2025).

From the first feedback consultations in 2021, Europe's civil society groups and researcher have warned against a variety of interrelated flaws. While the full scale and depth of methodological critique can't be fully covered here, this analysis attempts to outline the major categorical issues. First, temporary sequestration, particularly in soils and biomass, is being treated with equivalence to

[6] Mitigation deterrence is the phenomena in which removals and offsets delay, displace, or reduce the ambition of immediate emissions cuts (Hernández, 2025a).

permanent emissions reductions. Secondly, the rules surrounding baselines , additionality, and MRV as are relatively weak compared to international standards. Third, these institutional design choices create the conditions for mitigation deterrence.

4.1.1 Permanence and the issue of reversibility

A first area of concern relates to the "L" in QU.A.L.ITY, defined as the *long-term storage* of carbon in the CRCF's various storage and sequestration activities. NGOs and methodology reviewers argue that the frameworks confuse the dynamics of these removals and ignore the scientific critique that soil carbon, cover crops, and many biochar applications are reversible and time constrained.

Methodological assessments led by the Öko-Institut, assert that many biomass mitigation activities "may merely shift carbon from one pool to another…not resulting in any enhancement of removals relative to baseline" (Schneider et al., 2024: pp. 1,4). In their modelling, increased harvesting activities (removals of biomass for use in wood products or energy) can reduce an ecosystems carbon stock, thus creating zero-sum or negative reductions over 30-100 years periods (Schneider et al., 2024). They find that the majority of biomass uses simply redistribute carbon elsewhere, undermining the capacity for long-term storage.

Recent findings on soil carbon sequestration further question the narrative of permeance. Wang et al. (2023) find that most soils reach a new equilibrium within a few decades of regenerative application, after which additional sequestration attempts slow rapidly. They also demonstrate that soil carbon is highly reversible, with sequestration gains lost rapidly when management practices change or during drought and climate extremes (Wang et al., 2023). Thus, agricultural soils, which exist across heterogenous landscapes and land management practices in Europe, are ill-fitted to serve as long-term carbon sinks.

Civil society groups have repeatedly communicated the scientific concerns in policy venues. In their public critiques of the CRCF's methodology, Carbon Market Watch analysts warn that "temporarily parked carbon" cannot serve as an offsetting instrument (Diab, 2024), also noting that "as emitted carbon stays in the atmosphere for centuries, sometimes longer, removed carbon must be stored permanently to keep the climate goals of the Paris Agreement within reach" (Laugesen, 2023). From this viewpoint, the CRCF's conflation of soil carbon and biochar with permanent removals amounts to a violation of basic climate science and legal principles.

4.1.2 Additionality and baselines

A second category of critiques questions the additionality tests and baseline design of project verification standards. Whereas the discourse analyzed in Chapter 3 presents the framework as incentivizing the creation of new carbon offsetting projects and opportunities for farmers, the CRCF's methodologies may instead create loopholes for projects to take advantage of.

The Öko-Institut critically note that the draft methodologies "do not contain provisions limiting the eligibility of past actions… [which] could result in

many non-additional units" (Schneider et al., 2024, pp. 1, 3.). The absence of adequate definitions or requirements for "prior consideration" mean that projects could be credit after the fact, even if their deployment was made independently of CRCF incentives. Further, the methodologies may allow for offsetting activities already funded by other public mechanisms, such as CAP eco-schemes (Scherger, 2022; Schneider et al., 2024).

Scherger (2024) observes another subtlety in the wording of the legislation's rules which state that "an activity be considered additional if it goes beyond the standardized baseline" (p. 8). Following this logic, a farmer may not be required to change preexisting practices for an activity to count if it already exceeds a modelled baseline. This creates a loophole in which business-as-usual activities are issued credits, one that may frequently recur if baselines are set conservatively.

These flawed design choices connect back to the political dimensions of methodology creation. Carbon Market Watch, in partnering with Öko-Institut, claims that the CRCF methodologies were developed in a corporate-dominated institutional venue (e.g. CREG, CRETA), forcing NGOs to "hire their own consultants to counterbalance" their influence (Hernández, 2025b). In their observation, weak safeguards surrounding baselines and additionality are a purposeful design choice–one that ensures a deep pool of credits and frictionless market expansion.

4.1.3 Double counting and category conflation

Critics also punctuate the risks of double counting in financial and accounting contexts. Even without ETS integration, CRCF units are still applicable in the broader European climate-accounting ecosystem, including Member States' LULUCF targets and the EU GHG inventory. If the same certified unit is used in both EU-level reporting and corporate net-zero pledges, it becomes difficult to differentiate public and private mitigations (Scherger, 2024). For example, a soil-carbon projected accredited by the CRCF could simultaneously be counted by the project's host nation to meet its 2030 net-zero carbon sink pledges under the LULUCF Regulation. The same removal could be logged again as a private offset in a corporate net-zero plan, transforming a single project into multiple mitigation claims. As a result, double counting could disincentive aggregate climate action across public and private actors.

The Öko-Institut draws attention to the fact that mitigation activities are often subsidized through other support schemes such as CAP and thus, "public subsidies would artificially lower CRCF unit prices…implicitly [subsidizing] continued use of fossil fuel" (Schneider et al., p. 2). In this scenario, CAP funds underwrite the cost of offsetting, effectively funneling public money into cheap compliance or reputational currency for polluters. The authors recommend more transparent differentiation between public funds and CRCF finance, but no such allocation rules currently exist in the legislation (Scheider et al., 2024).

In another circumstance of methodological conflation, Wijnand Stoefs, Carbon Market Watch's lead expert on carbon removals, recommends that to avoid overlapping claims "certification for both carbon farming and biochar application should be explicitly banned for the same plot of land' (Stoefs, 2025, p. 14). Still, the draft methodologies do not clearly enforce the separation of eligible

activities within the same ecosystem. It's argued that these categories are deliberately kept vague to encourage what one critic dubbed "creative accounting" (Diab, 2024).

4.1.4 Weak monitoring, reporting, and verification (MRV)

While presented as a universalizable framework for robust monitoring and verification, the scientific consensus argues that the CRCF's MRV conditions are underspecified, overly generalizable, and reliant on private certifiers. Despite the ongoing process of methodological redrafting through delegated acts and EU-funded research, critics argue many of the same underlying MRV flaws seem to keep arising with iteration.

A first set of concerns arise from lenient materiality thresholds which under the CRCF, allow project developers to exclude emission sources even when it inflates the credited amount. This design choice may lead to an overestimation of removals and emission reductions and is inconsistent with more conservative international standards (Schneider et al., 2024). In effect, if a biochar project generates $10tCO_2$ of gross removals but emits $2tCO_2$ through transport and processing, those 2 tons could be excluded, resulting in a 25% overestimation. Similar omissions are allowed across the SOC and biomass methodologies.

The scientific literature on soil organic carbon (SOC) and SCS further substantiate these worries. Wang et al. (2023) asserts that data scarcity and substantial model limitations remain major barriers. Global SOC estimate relies heavily on highly simplified linear models that fail to capture nonlinear dynamics such as soil saturation, decay, and interannual variability. During my interview with Tristano Baccheti de Gregoris (2025), a leading agronomist and microbial ecologist, he summarizes these findings more whimsically:

> It is difficult to create a standard that is robust and clear with biological carbon…things live and die...tomorrow I change my mind and…that's all gone in a second.

At present, the lack of global datasets on soil variability across soil types, climate, and management systems is creating significant uncertainties about the application of SCS and carbon farming practices (Wang et al., 2023). The EU-funded Horizon Europe research project, MARVIC, also found that inconsistent definitions of management practices and missing variables such as system age or tree density further undermine MRV deployment (Milagros et al., 2025). Taken together, these methodological inconsistencies suggest that sequestration estimates are fundamentally context-specific, exposing structural vulnerabilities in the CRCF's framework to issue SOC-based credits. Critically, Stoefs (2025) notes that "none of the methodologies contain any language on how the methodologies will be reviewed or updated when new scientific findings are forthcoming" (p.10). Rather than cultivating an evolving set of standards, critics worry market, and political expectations will crystallize them over time (Stoefs, 2025; Hérnandez, 2025).

4.1.5 CRCF vs international standards

While the EU has promoted the CRCF as a global benchmark for carbon governance, comparative assessments suggest that its methodologies are far below the international standards. In a comprehensive comparative study, the Öko-Institut researchers find that the CRCF is below the minimum integrity threshold of globally accepted standards including the Integrity Council for the Voluntary Carbon Market (ICVCM), Carbon Credit Quality Initiative (CCQI), Clean Development Mechanism (Kyoto Protocol), and Article 6.4 of the Paris Agreement (Schneider et al., 2024). Specifically, a lack of prior consideration, weak additionality, non-conservative materiality thresholds, poor biomass account, weak transparency requirements, and no revision mechanism set a "much lower standard than the Paris Agreement Crediting Mechanism and best practice in the voluntary carbon market" (Stoefs, 2024, p.2).

For NGOs, the comparable weakness of the CRCF's methodologies represent a double standard in which the EU is applies weaker rules to itself than it advocates on the international stage. Scherger (2024) reminds policymakers that in adhering to the IPCC AR6 assessment of climate change "carbon removals cannot serve as a substitute for deep emissions reductions" (p. 3). She argues that even if its methodological architecture were robust, positioning the CRCF as a core component of the EU's agricultural decarbonization strategy is not a substitute for absolute emissions reductions.

All together, these critiques cast significant doubt on the quality of the CRCF's methodologies. A reliance on dubious measurement practices, over-crediting and double counting concerns, and a lack of institutional safeguards are among civil society's primary critiques. Whereas Chapter 3 presented the framework as a form of technocratic assurance, civil society actors counter that it represents market manipulation and a political strategy to delay deep structural emissions cuts. These critiques serve as a backdrop for the next section which examines the social and agrarian consequences of CRCF implementation.

4.2 Land, Labor, and Uneven Risks

Shifting from methodology to material realities, this section analyzes the debates surrounding the potential redistribution of costs, control, and uncertainty within emerging offset schemes. Instead of operationalizing a neutral incentive structure, the CRCF is evolving as a carbon-services economy in which farmers are burdened with high MRV costs, administrative duties and economic uncertainty. All the while, input providers, certifiers, digital platforms, and agribusinesses are poised to consolidate more control over land use, value chains, and credit incentives. These dynamics intersect with broader patters of land consolidation and the loss of nearly 5 million small farms across Europe in the past 15 years (European Commission, 2023b). The section will retrace how the CRCF may reshape land and labor relations between agribusinesses, intermediaries, and farmers. Ultimately, these arguments serve as a direct contestation to the frames of win-win environmentalism and entrepreneurial stewardship presented in chapter 3.

4.2.1 Cost barriers, platformization, and vertical integration

Across regulatory documents and industry reports, the cost and complexity associated with carbon farming and removals are framed as manageable technical challenges rather than systemic barriers. The legislative reports following the trilogue discussions almost glance over the fact that "on-site measuring can be quite costly for farmers" yet only offers a requirement that certification bodies make their fees public (European Commission, 2024b). While stakeholder analyses have suggested implementation with CAP-funding mechanisms or a hybrid adoption of action-based payment schemes (CREDIBLE, 2024), the current architecture largely shifts financial responsibility onto producers.

Farmer-centric discourses have provided a counterbalance to the dominant technocratic optimism. One Dutch agricultural outlet describing carbon farming income as "voorlopig nog toekomstmuziek", *music of the future*, noting that prices on international VCMs still remain below a practical uptake standard (Oppewal 2021, p.13). Analyses of international VCMs estimate farmers receive only USD 15-20 per ton of CO_2, more than half of what would be necessary to incentivize uptake (Day et al., 2023; Oppewal, 2021). Studies on the adoption of regenerative methods note the costly and skill-intensive machinery requirements, and a lack of rural lenders further restricts access (Debernardini, 2025). Even CREDIBLE, the DG CLIMA funded research project, admits that participation will remain limited among farms without targeted financial support (CREDIBLE, 2024).

As a result, agritech and corporate discourse is eager to lend its "high efficiency" "low-cost" solutions to farmers, promoting "end-to-end services from baseline modelling to verification" (Scherger, 2025). As noted in chapter 3, CREG discussions repeatedly emphasize the need for hybrid modelling, sensors, and large-scale data infrastructures, casting technology adoptions as necessary for creditability. Concerns around the increase dependence on these digital intermediaries has been documents with nearly 70% of farmers expressing concerns that corporations may unjustly access or sell their data (Gardezi & Stock, 2021).

Agribusiness are increasingly building proprietary systems that combine MRV, data collection, and auditing services (Scherger, 2025). Yara and Bayer, for instance, promote 'precision decarbonization', a bundled package of agronomic machinery, synthetic input packages, and GHG calculators to create certification-ready data (Scherger, 2025, p. 16). Bayer's new FieldView also offers farmers a digital recommendation and tracking platform for their hybrid seeds (Bayer AG, 2023). Although Bayer maintains that farmers aren't required to purchase its seeds or inputs to participate in the platform, critics note that FieldView subscriptions are bundled with its seeds and pesticides (Scherger, 2025).

As platform participation becomes the *de facto* requirement to engage in carbon markets, corporations gain more control over the operations, finances, and land tied to project sites. These dynamics of supply chain concentration and corporate leverage foreshadow the dynamics shaping farmer autonomy and land consolidation pressures in the following section.

4.2.2 Land Control Dynamics

While the CRCF is made out as a voluntary, opportunity-driven scheme for farmers, counter discourses expose novel spatial pressures that redefine who controls land and under what conditions. The increasing assetization of emissions introduces new dynamics of land speculation and investment. The financial potential of generating carbon credits is already drawing investors across the globe to purchase agricultural lands, with rural communities in the United Kingdom and Australia already experiencing soaring land prices (Scherger & Sharma, 2023). Speaking with a representative from Land en Tuinbouw Organistie (LTO), the Netherlands' largest farmers' union, similar concerns were reiterated. He asserted that if purchasing CRCF credits becomes cheaper than internal mitigation in ETS sectors, the value of agricultural land could become linked to carbon credit demand elsewhere in the economy (LTO Response, 2025). Other interviews echo this concern, warning that CRCF units could accelerate land consolidation by channeling investment and technical support to capital-intensive farms (Tristano & Márlene Interviews, 2025).

Another set of discourses observes the forms of indirect land control created by digital farming platforms. Corporate net-zero initiatives are increasingly leveraging farm management systems through insetting to gain "decision-making power over farming practices despite not owning land" (Scherger, 2025, p.13). This type of soft control is enhanced by contractual obligations which require farmers to adopt specific mitigation practices, such as fertilizers and feed additives to qualify for premiums, "effectively conditioning market access on carbon performance" (Scherger, 2025. p.18). Credit eligibility becomes yet another lever for large agribusinesses to shape land-use decisions throughout their supply chains.

An emerging literature also describes how large firms are reshaping land practices and proprietorship. The monopolization of digital agricultural through the consolidation of farm-level data and intellectual property transforms "farmers from independent business owners to captured users" (Gardezi & Stock, 2021, p.3). If CRCF access is mediated through platform-specific metrics, and given these tools are optimized for a small set of staple crops (Visser et al., 2021), the framework risks creating a form of algorithmic gatekeeping over which landscapes, crops, and farms qualify for credits. These combined discourses illustrate how carbon farming is reshaping land relations through speculative land investment, platformization, and data-driven oversight. This is explored further through the lens of labor and liability distributions in the next section.

4.2.3 Distributions of risk, liability, and labor

Where the architecture of the CRCF frames distributional risks such as liability and permeance as technical issues; civil society asserts that the downstream effects may place the heaviest burdens on farmers. CREG discussions surrounding liability and risk offer buffer pools and periodic verification cycles as neutral safeguards (DG CLIMA, 2023e), yet questions about who ultimately bears the cost for reversals remains unanswered. Such rhetoric frames these distributional challenges as an actuarial problem rather than a socio-ecological one, transferring long-term risk onto farmers and land managers.

The strict MRV and results-based payment schemes currently adopted by the regulation portray carbon farming as a linear and easily scalable set of practices. In reality, seasonal planting constraints, weather variability, and skill-uptake leave farmers with little capacity to experiment with new practices. As Debernardini (2025) notes, "farmers may only get one or two chances a year to perform [practices] and thereby learn from their mistakes" (p. 6). The timelines of adopting new practices are often misaligned with the 5-year activity periods designed in the CRCF. For instance, if a farmer is to adopt a no-till practice, the soil and crop yields may take years to recover (Debernardini, 2025). Results-based carbon credits, designed around multi-year contracts and permanence metrics, thus shift the burden of variable carbon outputs and uptake onto farmers (Scherger, 2025).

The administrative and technological burdens of platform and precision agriculture compound these pressures. Adopting new agricultural technologies has been described by researchers as a "never-ending treadmill" for farmers (Gardezi & Stock, 2021, p. 4). The rapid innovations in agritech, required for participation in results-based schemes deepen inequities between conventional and organic farmers while creating stronger dependencies between farmers agribusinesses. The CREDIBLE advisory group seemed to initially favor flexible Farmer Environment Plans (FEPs)[7], but one of the group's key stakeholders explained that the Commission tends to prioritize strict inclusion/exclusion lists for activities that are tied to the EU's taxonomy (Interview, 2025). These paperwork-heavy systems increase the administrative burden for farmers render compliance with digital systems a form of unpaid labor.

Financial uncertainty further exposes the risk of credit schemes for farmers. Studies observe that across international VCMs, credit prices remain highly volatile and payout much lower than cost of adoptions (Day et al., 2023; Borderij, 2021). Unlike the consultants, MRV providers, and other intermediaries who operate under a fee-based model, farmers revenues in carbon markets depend on long-term and variable sequestrations metrics. My interview data suggests anxiety among farmers and policy makers about the future CRCF-ETS integration and long-term implications for contract validity and price stability (LTO Response, 2025; Tristano Interview, 2025).

What is framed by the legislative text and consultation documents as an economic opportunity for farmers, instead shifts financial, territorial, and temporal burdens onto farmers while consolidating decision making and organizational authority for intermediaries and agribusinesses. Cost and administrative requirements funnel producers into digitized systems, insetting redistribute controls and demand over land, and the volatile realities of carbon farming shift risk onto farmers rather than intermediaries. All together, these counter-discourses expose the CRCF's promise of farmer-centered markets which instead privilege agribusinesses and intermediaries. These arguments challenge the dominant narratives of win-win market environmentalism, entrepreneurial stewardship, and the tradeoffs of rapid market scaling by demonstrating the CRCF's consequences for social agrarian transformation across Europe.

---

[7] Farmer environmental plans (FEPs) are farm-level documents outlining an operation's ecosystem conditions, planned management practices, and anticipated impacts.

Chapter 5: Conclusion

This thesis has demonstrated that the CRCF's development is shaped by mutually reinforcing forms of discursive, institutional, and material power that align EU agricultural governance with agribusiness interests. By tracing the CRCF's development, the analysis reveals how technocratic epistemologies, consultancy-led expertise, and corporate participation collectively define what counts as legitimate forms of climate action. Ultimately, it finds that the CRCF embeds a form of market environmentalism that preferences agribusiness expertise and access, relies on dubious environmental principles, and shifts risk onto farmers while avoiding deeper structural transformation.

Across consultation rounds, meetings, policy documents, and interviews, a consistent dynamic kept resurfacing. The dominant voices of agribusiness, digital agriculture firms, industry alliances, and Commission groups frame offsetting as a simple, robust, win-win solution for agricultural decarbonization. This rhetoric recasts the technical and managerial challenges of the CRCF as issues of optimization, rather than political or distributional hurdles. It also treats MRV platforms, certifiers, and agribusinesses as necessary intermediaries for climate governance. As a result, the CRCF orients itself towards lenient methodologies and rapid market expansion, consolidating the vertical integration of agribusinesses by expanding their control over data ownership and farm-level decision making.

The counter discourses from NGOs, academics, scientists, and some Member states, contest these narratives, drawing attention to the socio-political and material consequences latent within the regulation. From administrative burdens to volatile carbon markets, land-grabbing dynamics and financial risks, these valuable perspectives enliven the potential realities of farmers under the CRCF. From these critiques, carbon offsetting is reframed as a service economy in which platforms, certifiers, and firms accumulate value, while farmers absorb the risk. These shifting dynamics bring questions of equity and integrity into the debate, highlight the CRCF's challenges to solve decarbonization beyond technical methodologies.

Against this backdrop, potential integration with the ETS marks a critical moment for European agriculture. As discussed in Chapter 2, the CRCF is already being positioned as a precursor for future compliance markets. Emerging scholarship warns that such integration creates a risky trajectory for extending mitigation deterrence and deepening agribusiness leverage over climate governance. Franks (2023) asserts that carbon markets are structurally unable to produce verifiable removals and offsets, and so, must maintain a strict separation between emissions cuts, land-based removals, and technological removals. Others warn that a reliance on an AgETS for offsetting is a maneuver for policy makers to sidestep politically sensitive reforms to CAP payments, livestock cultivation, and GHG emissions taxes (Hernández 2024; 2025a).

These findings suggest the urgent need for alternative governance models. A more robust pathway might involve separate targets for reductions, land-based offsets, and removals, instead drawing from public or "polluter-pays" funding to support carbon farming practices. A meaningful transformation of the food system

would further demand CAP reform, demand-side policies, and a just-transition fund for farmers, changes that market instruments alone cannot achieve (Newell & Taylor, 2021). Lastly, as the CRCF largely delegates political and epistemic authority to private actors, democratic and farmer-led models of governance are needed to prevent further corporate influence in agricultural policy (Fouilleux & Loconto, 2017).

While this analysis is partially constrained by the anticipatory nature of the CRCF and the latent political dynamics shaping it, future research may track how Member States implement the framework, investigate how corporate insetting programs operate and consolidate farm-level control, or explore democratic and farmer-centric alternatives to market-based policies. Ultimately, the choices made during this formative policy stage will shape whether Europe's agricultural transition deepens its reliance on market-based climate solutions or opens pathways for more equitable and democratically governed decarbonization efforts.

References

Agoro Carbon Alliance (2021) Position paper on leveraging agricultural voluntary carbon credits: Feedback on the Roadmap on Restoring Sustainable Carbon Cycles. Oslo: Agoro Carbon Alliance.

Arnold, J. (2025) Interview with the author, Research and Policy Analyst, Columbia Center on Sustainable Investment, 18 September. Conducted via Zoom.

Bacchetti de Gregoris, T. (2025) Interview with the author, Regenerative agriculture specialist, SAE Innova, 6 October. Conducted via Zoom.

Bakker, K. (2005) 'Neoliberalizing nature? Market environmentalism in water management', *Annals of the Association of American Geographers*, 95(3), pp. 542–565.

Bayer AG (2023) 'Crop Science Innovation Summit 2023: Bayer sees more than doubling of accessible markets and potential to shape regenerative agriculture on more than 400 million acres', 20 June. Available at: https://www.bayer.com/media/en-us/bayer-sees-more-than-doubling-of-accessible-markets-and-potential-to-shape-regenerative-agriculture-on-more-than-400-million-acres.

Bayer Crop Science (2021) Comments on the Roadmap on Restoring Sustainable Carbon Cycles. Brussels: Bayer Crop Science.

Bernstein, H. (2015) Food regimes and food regime analysis: A selective survey. Chiang Mai, Thailand: International Academic Conference on Land Grabbing, Conflict and Agrarian–Environmental Transformations, RCSD Chiang Mai University, 5–6 June. Available at: http://rcsd.soc.cmu.ac.th

Böreus, K. and Bergström, G. (2017) *Analyzing text and discourse: Eight approaches for the social sciences*. 2nd edn. London: SAGE.

Braimoh, A.K. (2013) 'Global agriculture needs smart science and policies', *Agriculture & Food Security*, 2(6), Article 6.

Braun, V. and Clarke, V. (2022) *Thematic analysis: A practical guide*. London: SAGE.

Bronson, K. (2015) 'Responsible to whom? Seed innovations and the corporatization of agriculture', *Journal of Responsible Innovation*, 2(1), pp. 62–77.

Bronson, K. (2019) 'Looking through a responsible innovation lens at uneven engagements with digital farming', *NJAS – Wageningen Journal of Life Sciences*, 90, 100294.

Carrington, D. (2024) '"Bewildering" to omit meat-eating reduction from UN climate plan', *The Guardian*,18 March. Available

at: https://www.theguardian.com/environment/2024/mar/18/bewildering-to-omit-meat-eating-reduction-from-un-climate-plan.

Carton, W., Asiyanbi, A., Beck, S. and Buck, H. (2020) 'Negative emissions and the long history of carbon removal', *WIREs Climate Change*, 11(6), e671.

Carolan, M. (2017) 'Publicising food: big data, precision agriculture, and co-experimental techniques of addition', *Sociologia Ruralis*, 57(2), pp. 135–154.

Carolan, M. (2020) 'Automated agrifood futures: robotics, labor and the distributive politics of digital agriculture', *Journal of Peasant Studies*, 47(1), pp. 184–207.

Charmaz, K., Thornberg, R. and Keane, E. (2018) 'Evolving grounded theory', in Denzin, N.K. and Lincoln, Y.S. (eds) *The SAGE handbook of qualitative research*. 5th edn. Thousand Oaks, CA: SAGE.

Clapp, J. (2014) 'Financialization, distance and global food politics', *The Journal of Peasant Studies*, 41(5), pp. 797–814.

Clapp, J. and Fuchs, D. (eds) (2009) *Corporate power in global agrifood governance*. Cambridge, MA: MIT Press.

Colombo, S., Czekaj, T.G., Pe'er, G., Röder, N., Haller, L. and Wüstemann, H. (2024) 'Analysis of environmental and economic performance of CAP eco-schemes', *Ecological Economics*, 220, 108183.

Copa-Cogeca (2021) Draft Copa-Cogeca answer to the Roadmap on "Restoring Sustainable Carbon Cycles". Brussels: Copa-Cogeca.

CREDIBLE Project (2024) *Ensuring carbon farming delivers sustainability benefits: Recommendations for carbon farming certification methodologies*. Project CREDIBLE, Horizon Europe. Available at: https://www.project-credible.eu.

Cullenward, D. (2023) *A framework for assessing the climate value of temporary carbon storage*.Brussels:Carbon Market Watch. Available at: https://carbonmarketwatch.org/publications/a-framework-for-assessing-the-climate-value-of-temporary-carbon-storage/.

Davidson, J. (2018) *Bayer, Monsanto and Big Data: Who will control our food system in the era of digital agriculture and mega-mergers?* [MISSING: publisher/place].

Day, T., Hans, F., Mooldijk, S., Smit, S., Woollands, S. and de Grandpré, J. (2024) *Corporate Climate Responsibility Monitor 2024: Assessing the transparency and integrity of companies' emission reduction and net-zero targets*. Cologne: NewClimate Institute and Carbon Market Watch. Available at: https://newclimate.org/resources/publications/corporate-climate-responsibility-monitor-2024.

Debernardini, M., Candel, J. and Schulte, R.P.O. (2025) 'From the ground up: exploring European carbon farming through social practice theory', *Journal of Rural Studies*, 120, 103850.

Diab, K. (2024) *The EU's Carbon Removal Certification Failure*. Brussels: Carbon Market Watch. Available at: https://carbonmarketwatch.org/publications/crcf-the-eus-carbon-removal-certification-failure/.

Directorate-General for Climate Action (DG CLIMA) (2023a) Minutes: 1st Meeting of the Carbon Removals Expert Group, 7 March 2023. Brussels: European Commission, Directorate-General for Climate Action.

Directorate-General for Climate Action (DG CLIMA) (2023b) Minutes: 2nd Meeting of the Carbon Removals Expert Group, 21–22 June 2023. Brussels: European Commission, Directorate-General for Climate Action.

Directorate-General for Climate Action (DG CLIMA) (2023c) Minutes: 3rd Meeting of the Carbon Removals Expert Group, September 2023. Brussels: European Commission, Directorate-General for Climate Action.

Directorate-General for Climate Action (DG CLIMA) (2025d) Minutes: 8th Meeting of the Carbon Removals Expert Group, 10 July 2025. Brussels: European Commission, Directorate-General for Climate Action.

Directorate-General for Climate Action (DG CLIMA) (2025e) 9th Meeting of the Carbon Removals Expert Group, Brussels, 10 November 2025. Personal observation by the author.

European Commission (2019) *The European Green Deal*. COM(2019) 640 final. Brussels: European Commission. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2019:640:FIN.

European Commission (2021a) *Communication on Sustainable Carbon Cycles*. COM(2021) 800 final. Brussels: European Commission. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2021:800:FIN.

European Commission (2021b) *The EU's 2021–2027 Multiannual Financial Framework and NextGenerationEU*. Brussels: European Commission. Available at: https://commission.europa.eu/strategy-and-policy/eu-budget/long-term-eu-budget/2021-2027_en.

European Commission (2022a) *Proposal for a Regulation of the European Parliament and of the Council establishing a Union certification framework for carbon removals*. COM(2022) 672 final. Brussels: European Commission. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2022:672:FIN.

European Commission (2022b) *Informal Commission Expert Group on Carbon Removals: Terms of Reference*. Directorate-General for Climate Action (DG CLIMA). Brussels: European Commission.

European Commission (2023a) Carbon Removals Expert Group: Membership List.

European Commission (2023b) *Farms and farmland in the European Union – statistics*. Eurostat. Available at: https://ec.europa.eu/eurostat.

European Commission (2024a) 'EU Emissions Trading System (EU ETS): About the EU ETS'. Available at: https://climate.ec.europa.eu/eu-action/carbon-markets/eu-emissions-trading-system-eu-ets/about-eu-ets_en.

European Commission (2024b) *Regulation (EU) 2024/3012 of the European Parliament and of the Council of 27 November 2024 establishing a Union certification framework for permanent carbon removals, carbon farming and carbon storage in products*. *Official Journal of the European Union*, L 2024/3012, 6 December, pp. 1–29. ELI: http://data.europa.eu/eli/reg/2024/3012/oj.

European Court of Auditors (2024) *Special Report 20/2024: Common Agricultural Policy Plans – Greener but Not Matching the EU's Ambitions*. Luxembourg: European Court of Auditors.

European Environment Agency (2023) *Briefing: Cutting greenhouse gas emissions from agriculture*. Copenhagen: EEA.

European Environment Agency (2025) *Trends and projections in Europe 2025*. Luxembourg: Publications Office of the European Union. Available at: https://www.eea.europa.eu/en/analysis/publications/trends-and-projections-in-europe-2025.

Fouilleux, E. and Loconto, A. (2017) 'Voluntary standards, certification, and accreditation in the global food system', in Clapp, J. and Moseley, W.G. (eds) *The Routledge handbook of food and nutrition security*. London: Routledge, pp. 272–284.

Frank, S. (2023) Why carbon removals do not belong in carbon markets. Carbon Market Watch. Available at: https://carbonmarketwatch.org/2023/10/04/why-carbon-removals-do-not-belong-in-carbon-markets/.

Fraser, A. (2019) 'Land grab/data grab: precision agriculture and its new horizons', *The Journal of Peasant Studies*, 46(5), pp. 893–912.

Gardezi, M. and Stock, R. (2021) 'Growing algorithmic governmentality: interrogating the social construction of trust in precision agriculture', *Journal of Rural Studies*, 84, pp. 1–11.

Günther, T., Bengtsson, M., Kraxner, F. and Fuss, S. (2024) Carbon farming's potential for negative emissions is overestimated. International Institute for Applied Systems Analysis (IIASA), Laxenburg.

Hernández, M.R. (2024) *Does the EU Need an Emissions Trading System for Agriculture?* Brussels: Carbon Market Watch. Available

at: https://carbonmarketwatch.org/publications/does-the-eu-need-an-emissions-trading-system-for-agriculture/.

Hernández, M.R. (2025a) *Is the EU Farming Out Its Responsibility to Slash Agricultural Emissions?* Brussels: Carbon Market Watch. Available at: https://carbonmarketwatch.org/publications/is-the-eu-farming-out-its-responsibility-to-slash-agricultural-emissions/.

Hernández, M.R. (2025b) *Corporate Workshop Plants the Seeds for Greenwashing*. Brussels: Carbon Market Watch. Available at: https://carbonmarketwatch.org/publications/corporate-workshop-plants-the-seeds-for-greenwashing/.

Hernández, M.R. (2025c) Interview with the author, Expert on Carbon Removals, Carbon Market Watch, 23 July. Conducted via Zoom.

IPCC (2022) *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge: Cambridge University Press.

Lohmann, L. (2010) 'Uncertainty in the carbon offset market', in Böhm, S. and Dabhi, S. (eds) *Upsetting the offset: The political economy of carbon markets*. London: MayFly.

LTO Nederland (2025) *Written consultation response to the author*. 9 September. Correspondence via email.

Mardirossian, N. & Arnold, J. (2023). Nature-Based Insetting: A Harmful Distraction from Corporate Decarbonization. New York: Columbia Center on Sustainable Investment (CCSI), for the ALIGN project.

McAfee, K. (2012) 'The contradictory logic of global ecosystem services markets', Development and Change, 43(1), pp. 105–131. Available at: https://doi.org/10.1111/j.1467-7660.2011.01745.x.

McDonald, H. (2025) Interview with the author, Climate Policy Researcher, Ecologic Institute, 25 September. Conducted via Zoom.

McDonald, H., Siemons, A., Bodle, R., Hobeika, M., Scheid, A. and Schneider, L. (2023) *QU.A.L.ITY soil carbon removals? Assessing the EU framework for carbon removal certification from a climate-friendly soil management perspective*. Berlin: Ecologic Institute.

Newell, P., Taylor, O. and Touni, C. (2018) 'Governing food and agriculture in a warming world', *Global Environmental Politics*, 18(2), pp. 53–71.

Newell, P. and Taylor, O. (2018) 'Contested landscapes: The global political economy of climate-smart agriculture', *The Journal of Peasant Studies*, 45(1), pp. 108–129.

Newell, P. and Taylor, O. (2021) 'Contested landscapes of climate-smart agriculture', in Taylor, M. (ed.) *Climate-Smart Agriculture: A critical review*. London: Routledge, pp. 101–122.

O'Laughlin, B. (2009) 'Governing capital? Corporate social responsibility and the limits of regulation', *Development and Change*, 40(6), pp. 945–957.

Oppewal, J. (2021) Koolstof vastleggen vraagt veel geduld. Boerderij, no. 6, 2 November, p. 12.

PepsiCo (2021) PepsiCo's position on the Roadmap to Restore Sustainable Carbon Cycles. Brussels: PepsiCo Europe.

Perram, A. (2025) Interview with the author, Programme Coordinator, Forest Peoples Programme, 6 August. Conducted via Zoom.

Rotz, S., Gravely, E., Mosby, I., Duncan, E., Finnis, E., Horgan, M., LeBlanc, J., Martin, R., Neufeld, H.T., Nixon, A. and Pant, L. (2019) 'Automated pastures and the digital divide: How agricultural technologies are shaping labour and rural communities', *Journal of Rural Studies*, 68, pp. 112–122.

Scherger, S. (2022) *Carbon Farming: How Big Corporations Are Driving the EU's Carbon Removals Agenda*. Minneapolis/Washington, DC/Berlin: Institute for Agriculture and Trade Policy. Available at: https://www.iatp.org/big-corporations-driving-eus-carbon-farming-agenda.

Scherger, S. (2024) *Unpacking the EU Carbon Removal Certification Framework: Implications for EU Climate and Agriculture Policy*. Minneapolis: Institute for Agriculture and Trade Policy. Available at: https://www.iatp.org/unpacking-eu-crcf

Scherger, S. (2025) New paint on old barns: How "insetting" allows agribusiness to greenwash livestock supply chains. Minneapolis: Institute for Agriculture and Trade Policy (IATP). Available at: https://www.iatp.org/sites/default/files/2025-01/new-paint-old-barns-insetting-report_0.pdf.

Scherger, S. and Sharma, S. (2023) *Twelve Problems with the European Commission's Proposal for a Carbon Removal Certification Framework*. Minneapolis: Institute for Agriculture and Trade Policy. Available at: https://www.iatp.org/twelve-problems-ec-crcf

Shell (2021) Shell response – Restoring Sustainable Carbon Cycles. Brussels: Shell Companies in the EU.

Shore, C. and Wright, S. (2015) 'Audit culture revisited: Rankings, ratings, and the reassembling of society', *Current Anthropology*, 56(3), pp. 421–444.

Siemens, A. and Schneider, L. (2025) *Second assessment of the draft technical specifications for certification under the EU CRCF – Agriculture and agroforestry on mineral soils*. Berlin: Oeko-Institut and Carbon Market Watch.

Sippel, S.R. (2023) 'Tackling land's "stubborn materiality": the interplay of imaginaries, data and digital technologies within farmland assetization', Agriculture and Human Values, 40, pp. 849–863. Available at: https://doi.org/10.1007/s10460-023-10453-3.

Stoefs, W. (2025) *Analysing the Carbon Removal and Carbon Farming (CRCF) methodologies for permanent removals: Faulty to the core*. Brussels: Carbon Market Watch. Available at: https://carbonmarketwatch.org/publications/faulty-to-the-core-analysing-the-carbon-removal-and-carbon-farming-methodologies-for-permanent-removals/

Sys, M. (2025) Interview with the author, Investigative journalist, Follow the Money, 22 October. Conducted via Zoom.

Ties, M. and Sys, M. (2025) *Wie betaalt, mag vervuilen?* Amsterdam: Follow the Money.

Trinomics (2023) *Pricing agricultural emissions and rewarding climate action in the agri-food value chain*. Luxembourg: Publications Office of the European Union.

Unilever (2021) Unilever's position on the Commission's Communication on "Restoring Sustainable Carbon Cycles". London/Brussels: Unilever.

Visser, O., Sippel, S. and Thiemann, L. (2021) 'Imprecision farming? Examining the (in)accuracy and risks of digital agriculture', *Journal of Rural Studies*, 86, pp. 623–632.

Wang, S. et al. (2023) 'Spatial-temporal variations and drivng factors of soil organic carbon in forest ecosystems of Northeast China', *Forest Ecosystems,* 10, 100101. Available at: https://doi.org/10.1016/j.fecs.2023.100101

Yara (2021) Reply to the Roadmap Consultation: Restoring Sustainable Carbon Cycles. Brussels: Yara Belgium SA/NV.

Appendix A

Participant	Organization	Position	Date	Mode
Marlene Ramón Hernández	CMW	Carbon removals expert	23 Jul 2025	Zoom
Hugh McDonald	Ecologic Institute	Climate policy researcher	25 Sep 2025	Zoom
Tristano Bacchetti de Gregoris	SAE Innova	Agronomist	6 Oct 2025	Zoom
Jack Arnold	CCSI	Policy analyst	18 Sep 2025	Zoom
Anusha Perram	Forest Peoples Programme	Program Coordinator	6 Aug 2025	Zoom
Mira Sys	FTM	Journalist	22 Oct 2025	Zoom
Anonymous	LTO Nederland	Written Input	9 Sep 2025	Email