

Financing the transition to regenerative agriculture in the European Union



Executive summary

This report reviews the need for additional financing to support the transition to regenerative agriculture in the European Union (EU). Covering two-fifths of Europe's land area, agriculture is both at risk from and a major contributor to environmental challenges. Regenerative agriculture seeks to enhance productivity and environmental management by applying context-specific practices based on biological principles. Regenerative agriculture practices can contribute to a variety of public and private sector objectives, including on climate, biodiversity, soil, and water. Building on a review of the status of regenerative agriculture and the financing currently available to the agriculture sector, the report identifies a financing gap in the hundreds of billions of Euros annually, and approaches and mechanisms to address this gap. It concludes with recommendations to key stakeholders.

Successful transition to regenerative agriculture in the EU requires cross-sectoral collaboration to produce relevant proof of concepts, test new financing structures, and to develop clear and predictable value chain and policy support. During this period of rapid change – both environmental and socio-economic – it will be critical to mobilize additional private sector support, from investors, credit providers, and companies, to overcome counterpart and business-model challenges. The public sector, i.e., the EU and Member States, have an important role in creating an enabling environment that supports emerging investment counterparties and business models. Similarly, companies in the agriculture sector can incentivize farmers to adopt regenerative practices and help attract additional funding to landscapes and value chains. As highlighted in this report, Results Based Financing (RBF), including carbon finance, and other innovative financing mechanisms should be explored to accelerate the transition to regenerative agriculture. Achieving this will require cross-sector collaboration and additional investments in data collection.



Wildflower meadow. Photo: Stephan Eickschen (unsplash)

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European farming landscape. Photo: Viktor Hesse (unsplash)

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Abbreviations

AFOLU	Agriculture, Forestry and Other Land Use	NGEU	Next Generation EU
AUM	Assets Under Management	NGO	Non-Governmental Organization
BAU	Business As Usual	NIB	Nordic Investment Bank
CAP	Common Agricultural Policy	N₂O	Nitrous Oxide
CDP	Carbon Disclosure Project	NPL	Non-Performing Loan
CEB	Council of Europe Development Bank	OP2B	One Planet Business for Biodiversity coalition
CH₄	Methane	PE	Private Equity
CSRD	Corporate Sustainability Reporting Directive	RBF	Results Based Financing
EBRD	European Bank for Reconstruction and Development	R&D	Research & Development
EC	European Commission	SBTi	Science Based Targets initiative
EIB	European Investment Bank	SBTN	Science Based Targets Network
EIC	European Innovation Council	SFDR	Sustainable Finance Reporting Directive
ESG	Environmental, Social and Governance	SME	Small and Medium-sized Enterprise(s)
EU	European Union	SOC	Soil Organic Carbon
GHG	Greenhouse Gas emissions	TA	Technical Assistance
LULUCF	Land Use, Land Use Change and Forestry	tCO₂e	Tons of carbon dioxide equivalent
MRV	Monitoring, Reporting and Verification	TFCD	Task Force on Climate-related Financial Disclosures
MS	Member State(s)	TFND	Task Force for Nature-related Financial Disclosures
NFRD	Non-Financial Reporting Directive	VC	Venture Capital

1. Introduction and context

Agriculture is both impacted by, as well as a major contributor to, socio-economic and environmental challenges. The agricultural sector is central to many current priorities including food security, climate change, biodiversity loss, soil health and water quality. Changing agricultural practices are central to meeting pressing socio-economic needs, and also to addressing the alarming loss of ecosystem goods and services.ⁱ Agricultural systems must transform to become 'regenerative' - including in the European Union (EU), one of the largest global agricultural economies, with total production valued at over EUR 411 billion in 2020.¹ Given agriculture's importance, including to socio-economic² and environmental objectives,³ transitioning to regenerative land management is urgent but requires new and additional resources. This report provides context and ideas for mobilizing additional private finance for the transition to regenerative agricultural landscapes in the EU.

Circa 40% of Europe's land is used as grassland and cropland,⁴ additional areas are under productive use for bioenergy and fiber, primarily forestry. Intensification and specialization has led to significant biodiversity loss, for example due to improper fertilizer and pesticide use, land modification and fragmentation, soil drainage, and water, air, and soil pollution.⁵ For example, over-fertilization and improper fertilizer and manure management contribute to high nitrate levels in groundwater and eutrophication.⁶ About 60-70% of soils in the EU are considered 'unhealthy' and at risk of erosion, organic matter and soil carbon loss, salinization, sealing, and compaction. Circa 70% of agricultural soils in Europe have excess nutrient levels, contributing to the deterioration of water quality and biodiversity loss. About 25% of land in Southern, Central, and Eastern Europe is at high risk of desertification.⁷ The costs associated with soil degradation in the EU are estimated to exceed EUR 50 billion per year.⁸

The Land Use, Land Use Change and Forestry (LULUCF) sector is central to the EU 2050 Climate Law⁹ and the 2030 Climate Target Plan, as it includes all CO₂ emissions and potential removals associated with forests and agricultural land use.¹⁰ This has global significance: the EU is the second largest emitter of GHG emissions from drained peatlands, second only to Indonesia.¹¹ Increasing the land sink is a key part of the 2035 target for a climate neutral land sector. The other part of the land sector is the agricultural sector, which accounts for circa 10% of all EU greenhouse gas (GHGs) emissions.¹² Agricultural GHG sources include methane (CH₄) from enteric fermentation, manure, and rice cultivation,¹³ nitrous oxide (N₂O) emissions from fertilization¹⁴ and land conversion, including drainage of organic soils and management of mineral soils. Reliable data on LULUCF soil carbon stocks and fluxes and agricultural GHG emissions, particularly N₂O emissions from manure and CH₄ emissions from rice,¹⁵ is lacking but must not hinder urgent action.

While there is no single definition of what regenerative agricultureⁱⁱ means¹⁶, it can be described along a set of principles and practices that work with natural systems and restore eco-system services.ⁱⁱⁱ The farm is treated as part of a wider landscape that generates ecosystem services and socio-economic benefits. Regenerative practices include – depending on the specific site and context – minimized soil disturbance, crop rotation, cover cropping and mulching, integrated pest management, no or reduced use of synthetic pesticides and fertilizers, managed grazing, silvo-pasture, and agroforestry. Regenerative agriculture can also be described by intended outcomes including increased biodiversity, improved soils, carbon sequestration, nutrient density, increased farmer incomes and rural resilience. Annex 1 contains a list of practices.

Regenerative agriculture is receiving increasing attention from farmers,¹⁷ companies,¹⁸ foundations,¹⁹ and governmental²⁰ and non-governmental²¹ organizations. Public funding to support regenerative agriculture exists but is inadequate. Opportunities exist to harness corporate accountability and green finance trends to mobilize additional finance to support regenerative agriculture practices through various private^{iv} and EU

ⁱ Ecosystem goods refer to physical products that result from ecosystems (e.g., cotton, honey, water). Services are categorized into Provisioning (e.g., food, fresh water, fuel, and fibre), Regulating (e.g., climate, flood, disease, water purification), Supporting (e.g., nutrient cycling, soil formation, primary production) and Cultural Services (e.g., spiritual, recreational).

ⁱⁱ There are different terms used with varying histories and paradigms, such as Agroecology, Permaculture and Conservation Agriculture. In practice, however, they have many similarities. This paper focuses on regenerative agriculture, as it seems to be the most broadly accepted concept.

ⁱⁱⁱ Note that this report does not cover other developments such as indoor or vertical farming.

^{iv} Private sector initiatives include the Science Based Targets Initiative (SBTi), the Carbon Disclosure Project (CDP), the Task Force on Climate-Related Financial Disclosures (TCFD), the One Planet Business for Biodiversity Coalition (OP2B), the Task Force for Nature-related Financial Disclosures (TFND) Regen10.

(public) sector initiatives.^v While these are positive steps, for most farmers to transition, comprehensive regulation covering a broad range of land management, demand-side and finance-related interventions must be implemented. Alternatively, reliable market-based mechanisms must be found to compensate land managers (farmers) for the additional real or perceived potential costs and risks. While there may be long-term economic benefits of transitioning to regenerative agriculture, both for farmers and a wider set of stakeholders, the upfront costs and farm-level business risks cannot be borne by farmers alone. Consumers, agriculture value chain stakeholders, governments, citizens, and other stakeholders share responsibility for the transition. Finance is a tool that must accompany transition plans, and one that becomes easier to deliver when sufficient regulatory and market commitment exists.

Finally, a few important points regarding this report:

- While farm-level approaches are critical, regenerative practices must be considered at value chain and landscape levels to be impactful. This means that a wide range of stakeholders and entry-points must be considered, including farmers, cooperatives, municipalities, utilities, local governments, citizens, and private companies, including agri-businesses and financiers. While demand and value-chain interventions are critical, this report focuses on agricultural production.
- There are many potential entry points, including socio-economic ones such as equity, consumer behavior, and demographics. However, the focus of this report is on mobilizing additional private finance to change agricultural land management practices and for environmental outcomes (i.e., address environmental externalities).
- A sector as large and complex as agriculture requires interventions on multiple levels with regards to the mobilization of capital, including potentially debt relief and restructuring, changes to subsidies, and subsidized insurance. While these types of interventions should be considered when designing appropriate financing solutions, they are not the focus of this report.
- This report provides some examples of financing structures that have resulted in the mobilization of private capital as inspiration (Annex 2). However, the design of a specific financing plan must be done based on local needs, capacities, resources, and objectives. Financing instruments should be considered as tools to achieve socio-economic and environmental (impact) objectives, rather than the goal.



Photograph: Emiel Molenaar (unsplash)

^v These include the EU Green Deal, Next Generation EU (NGEU) recovery plan, EU Non-Financial Reporting Directive (NFRD), Corporate Sustainability Reporting Directive (CSRD), revised Common Agricultural Policy (CAP), Sustainable Finance Disclosure Regulation (SFDR) and EU Taxonomy.

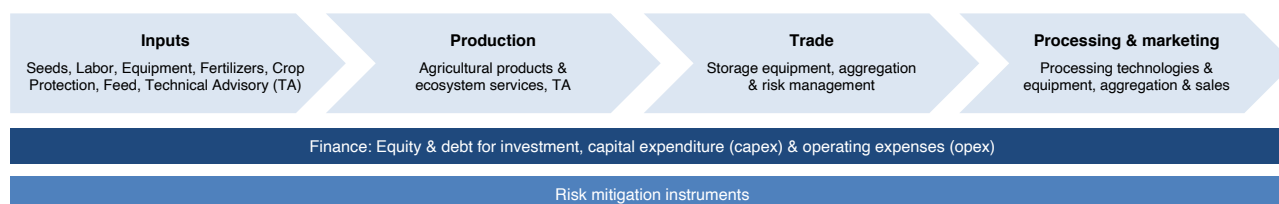
2. The EU agriculture finance and investment landscape

Public finance and business as usual will not be adequate to achieve Europe's green ambitions. Estimates indicate that EUR 260²² - 470²³ billion per year in additional capital will be required to meet the EU Green Deal targets, including for agriculture. Additional capital related to transforming the agricultural sector is required for *inter alia* infrastructure, operating costs, and to form and scale relevant organizations including building technical and human capacity. This section provides an overview of the European agriculture-related finance landscape, as a basis for exploring potential intervention mechanisms.

Investors' exposure to agriculture can be expanded through most of the standard asset classes, notably stocks, bonds, and alternatives – and into both institutional and retail financial products. Asset allocation is influenced by the macroeconomic environment including regulation. The past few years have seen an increasing allocation to alternatives, including private equity, private credit, commodities, and real assets,^{vi} notably with ESG integration.²⁴ This has been driven by the introduction of the SFDR,²⁵ for example. This could benefit sustainability-oriented European agriculture and land management initiatives, signaling greater access to Western Europe's growing EUR 30 trillion²⁶ institutional asset pool, particularly the EUR 11 trillion²⁷ of sustainability-oriented investments, though this needs to be offset by challenges such as rising macroeconomic uncertainty, and regulatory and intermediation costs.²⁸

A range of relevant investable assets exist in the public and private markets including in debt and equity instruments. Investment opportunities exist in farmland and related infrastructure ("real assets"), operating companies along the supply chain and in Research & Development (R&D) including agricultural technologies ("ag-tech") for inputs, production and processing technologies including those that enable access to finance, production, and market data, and consumers. Figure 1 illustrates the agricultural value chain and potential intervention points. Investment opportunities vary widely by the size of the potential investment universe (scale), liquidity, risk-return and arguably the ability of additional investment capital to enact change. However, while there are many opportunities to invest in this theme, there are also challenges. These are summarized below and in Table 1.

Figure 1: illustration of a typical agricultural value chain.^{vii}



Real assets

Farmland and consumer markets in Europe are fragmented. Of the 10.5 million agricultural holdings in the EU, as of 2016 two thirds were less than 5 ha in size.²⁹ This makes it difficult for institutional investors to find opportunities that meet their minimum investment thresholds for real asset strategies, which are investment products that typically have a total capitalization of EUR 200m and above. Aggregation is necessary but may add intermediation and management costs. The relatively high cost of land and low profit margins in agriculture³⁰ mean that potential returns from pure farmland investments tend to be modest, though they may be an important part of a larger portfolio. While the EU internal market supports intra-regional trade, there are also significant differences between Member States, including in local regulations, which makes achieving scale in the EU challenging. EU and Member State policies also drive agriculture-related returns, which may dissuade investors who have previously been affected by sudden changes in *inter alia* renewable energy subsidies: subsidy payments contribute on average 19% of EU agricultural producers gross income.³¹ The reliance on subsidies and the potential for sudden changes to subsidy regimes may be a particular deterrence to long-term investments with low margins such as green field agriculture and large capex-heavy investments.

^{vi} Investment in agriculture and farmland has typically relied on real asset strategies, i.e., the purchase and lease of farms, creating potential misalignment between land managers and owners. New real asset financing models are being developed including profit-sharing arrangements that incentivize environmental and social contributions alongside production.

^{vii} Note that while input needs in regenerative systems may be reduced, we include the full suite of potential agricultural supply chain stages and associated requirements.

These characteristics have arguably led many institutional investors to prioritize sustainable agriculture-oriented real asset (farmland, timberland) investments outside the EU.

Private Equity & Venture Capital

The European Private Equity (PE) and Venture Capital (VC) industry has grown at record-levels in the recent past. However, this may be dampened in future years due to macroeconomic conditions including rising inflation. European PE and VC investors have primarily focused on transactions in business products and services, followed by consumer products & services, and Information Technology (IT).³² According to Invest Europe, the agriculture sector received actual investments of 1.5% of the estimated EUR 708 billion invested by PE and VC funds in Europe in 2020.³³ The total European VC funding across industries surpassed USD 100 billion for the first time in 2021.³⁴ Most investment in European agriculture is flows to France and Benelux (Belgium, Netherlands, Luxembourg), followed by UK and Ireland and DACH (Germany, Austria, Switzerland). Pension funds and insurance companies contributed less than half of this capital. While investor trends in PE and VC for regenerative agriculture have been largely positive, challenges remain, notably harnessing pension and insurance capital for EU-focused strategies. It also remains challenging for smaller companies, primarily outside of France, Benelux, Ireland and DACH, to obtain PE and VC funding.³⁵

AgTech innovation across the value chain to improve efficiency, profitability and, or sustainability has received significant interest as a VC investment theme. This encompasses investments in upstream,^{viii} midstream,^{ix} and downstream companies.^x AgTech can contribute to the regenerative agriculture transition by addressing a variety of challenges including farm inputs, logistics, ingredients, finance, and insurance. The AgTech investment market is largest in the US (USD 24 billion / ca. EUR 20 billion), followed by China (USD 17 billion / ca. EUR 14 billion).³⁶ In the European region it is led by the UK, despite Brexit-related uncertainty.³⁷ According to AgFunder, European Agtech investments reached almost USD 9 billion (ca. EUR 7.6 billion),³⁸ mostly focused on downstream activities (e-grocery). Of this, only about 25% went to startups targeting positive environmental impact.³⁹ The EU provides support to AgTech investments from central funding pools, such as the European Investment Fund (EIF), as well as national and regional funds⁴⁰. However, greater support may be required to develop and grow this market, notably for environmental and up and mid-stream focused businesses.

Bank credit

In a recent fi-compass study, the European Investment Bank (EIB) estimated the current bank financing gap for the European agriculture sectors to be between EUR 19 - 46 billion p.a., and more than EUR 12.5 billion p.a. for the agri-food sector.⁴¹ fi-compass identified the following priority areas for additional lending: operating costs and cash flow management, land lease costs, livestock, machinery and equipment investments, and funding needs associated with aligning to higher environmental and safety standards, exacerbated by low levels of farmers' financial literacy and a lack of banks' knowledge on agriculture. There is a marked difference in access to finance between different groups of farmers, particularly by farm size and experience - i.e., larger and more established farmers have greater access to bank credit. Across the agriculture and agri-food sectors, start-ups and innovative companies had the greatest difficulties in accessing funding.⁴² Note the abovementioned estimates do not consider funding needs from the wider value chain (downstream supply chain), including for technological innovation and does not consider the needs of new businesses and transition finance.

According to fi-compass, compared to businesses in other sectors, agricultural Small and Medium-sized Enterprises (SMEs)^{xi} apply less often for bank financing and face greater difficulty in accessing it when they do apply.⁴³ Companies in the agricultural value chain, in particular upstream businesses, tend to face higher financing costs. In many Member States, cooperative banks are the primary sources of agriculture financing and lending is often concentrated to just a few banks. This issue is exacerbated by lack of agricultural expertise among bank staff,⁴⁴ and a lack of information for sound assessment systems that, for example, demonstrate positive correlation between regenerative land management and financial health.⁴⁵ This trend has been reversing over the past years, with the sector gaining interest from banks, potentially due to

^{viii} For example, agriculture biotech, farm management software, farm robotics & farm equipment, bioenergy & biomaterials, novel farming, agribusiness marketplaces

^{ix} For example, processing related technologies, innovative food products

^x For example, delivery and retail applications, online restaurants and meal kits, eGrocery, home & cooking related services

^{xi} Note that SMEs are defined as farms below 20 hectares in the fi-compass study.

investment support, EU and government policies, and emerging information on the correlation between good farming practices and creditworthiness. Farmers with viable project proposals, strong balance sheets and proven creditworthiness should not face constraints in accessing finance. However, accessing financing remains difficult for younger, smaller businesses with little or no collateral (including land ownership), particularly for new types of investments with business model uncertainty that require specialized technical input, long-term finance with multi-year grace periods, and financing approaches that do not rely on traditional collateral. The financing gap is highest in Greece, Spain, Poland, Romania, France, Germany, Lithuania, Croatia, Ireland, and Italy, in that order.⁴⁶

While the bank financing gap for the agri-food sector (processing, distribution, marketing) is smaller than for farming, it is still important, as it influences practices upstream. The sector is the EU's largest manufacturing industry and a major source of employment and tax revenues. The investment volume in this sector increased 27% between 2011 and 2020, with a focus on efficiency gains, automation, and digital technologies. The main financing gaps are for short and medium-term loans, working capital and investments, again primarily for young and innovative companies with limited collateral. The financing gap is highest in France, Germany, Greece, Italy, Spain, Portugal, Czech Republic, Romania, Netherlands, Ireland, and Belgium, in that order.⁴⁷

Non-bank debt

The non-bank debt markets have grown significantly since the 2008 financial crisis in response to more stringent regulations placed on banks (e.g., Basel III^{xii}). As of March 2021, assets under management (AUM) in the European private debt market were at USD 320 billion (ca. EUR 271 billion), up from 30 billion (ca. EUR 21 billion) in 2009.⁴⁸ Capital has primarily flowed to established asset managers (70% of capital raised in 2021), with a focus on direct lending and on IT, business support services, consumer products, food, materials, medical devices, equipment, and packaging sectors.⁴⁹ Private debt markets are expected to play an increasingly important role in financing the real economy in Europe – though there are concerns about potential regulatory changes that may limit private debt instruments in the EU.⁵⁰ However, the private debt market could be an important source of finance for the transition to regenerative agriculture,⁵¹ in part given an expected continued shift from traditional bank lending, a move to private debt by private equity firms, technological innovation, ability of private credit investors to employ more innovative lending approaches, and an increasing appetite from institutional investors.⁵²

Other sources

This section has focused on the supply of capital from professional (institutional) investors. It is worth noting that other sources of funding exist, including from foundations, angel investors, crowdfunding, peer-to-peer lending, and fintech platforms.⁵³ While these are important, and EU-level initiatives and proposals being advanced to support them, they are relatively small.

Summary

Significant gaps remain in mobilizing financing for regenerative agriculture. Furthermore, the potential supply of capital is limited by current dynamics in the financial and agricultural commodity markets, including heightened concerns about food security. Traditional lenders such as banks and other deposit-taking organizations are also increasingly limited in their ability and interest to take risks.⁵⁴ Institutional investors and asset managers have increased compliance and regulatory costs that further reduce the resources they have available to investigate new investment strategies, and to address smaller-scale funding needs that require aggregation and specialized structuring.⁵⁵ While the European Green Deal Investment Plan⁵⁶ and Capital Markets Union (CMU) provides significant opportunities for mobilizing additional finance, a lot of work is still to be done, including on clarifying regulations and implementation of important tools such as the European Single Access Point (ESAP) for collecting and integrating sustainability data in decision-making.

In the next section we discuss issues related to the demand for capital and the potential mismatch between supply and demand for capital.

^{xii} Basel III is an internationally agreed set of measures developed by the Basel Committee on Banking Supervision in response to the 2007-2009 financial crisis. The measures aim to strengthen the regulation, supervision, and risk management of banks. For more information see: <https://www.bis.org/bcbs/basel3.htm>

Table 1: potential agriculture financing sources by relevant asset class (note that cash and cash equivalents and financing from the value chain such as pre-finance have been excluded). Institutional investors engage with these opportunities through a variety of asset classes and financing channels.

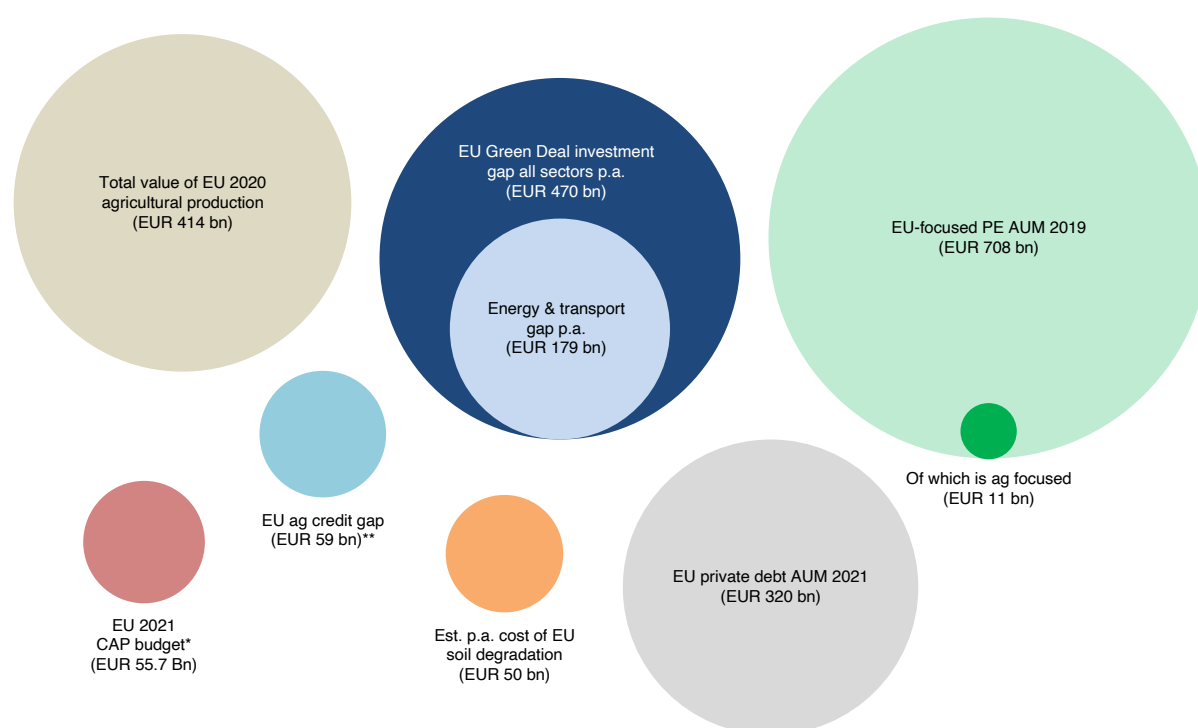
Asset class	Financing channel	Opportunities	Challenges
Stocks (public equity)	<ul style="list-style-type: none"> Listed companies Listed investment products 	<ul style="list-style-type: none"> Increased integration of environmental issues in stock screening, selection, and management strategies Shareholder activism and corporate engagement by investors and investor groups 	<ul style="list-style-type: none"> Lack of expertise and information to effectively engage with corporates on technical topics and ability to build momentum and prioritize specific issues Trade-offs between short-term profit maximization and long-term value Few companies have a pure exposure to Europe
Bonds and liquid fixed income	<ul style="list-style-type: none"> Government or municipal bonds Corporate bonds 	<ul style="list-style-type: none"> Increased availability of lower cost funding to support environmental sustainability 	<ul style="list-style-type: none"> Scale and cost required to issue – these would rarely be around a single intervention topic Relatively few investment-grade green bonds that focused on agriculture in Europe
Alternatives			
Real assets: farmland & infrastructure	<ul style="list-style-type: none"> Investment company Investment fund 	<ul style="list-style-type: none"> Long-term access to capital for regenerative land management Potential to leverage new revenue streams (e.g., carbon, biodiversity) Multifunctional land-use models beyond traditional farming models Potential inflation hedge 	<ul style="list-style-type: none"> European farmland incomes subsidy dependence Cost and availability of farmland Lack of specialist expertise Relatively low short-term profit margins (i.e., these are long-term and relatively illiquid investments)
Private equity & venture capital	<ul style="list-style-type: none"> Investment funds Direct private investment 	<ul style="list-style-type: none"> Capital to support innovation in the regenerative agriculture sector 	<ul style="list-style-type: none"> European markets are relatively small and fragmented
Private credit (liquid & semi-liquid structures)	<ul style="list-style-type: none"> Private credit funds and bundled structures (e.g., securitization of loan portfolios) Direct private loans (e.g., through direct lending platforms) 	<ul style="list-style-type: none"> Access to additional resources to support a specific sector or green objective 	<ul style="list-style-type: none"> Challenge and costs associated with structuring institutional investor credit-worthy loan packages focused on the theme Underwriting on direct private loans Potentially emerging EU regulation on private credit structures^{xiii}

^{xiii} The European Commission made a proposal to amend the Alternative Investment Fund Managers Directive (AIFMD) in June 2022, which if implemented unchanged could severely undermine the potential for private credit structures to channel finance: <https://impact-investor.com/impact-investors-rally-against-a-small-but-potentially-fatal-part-of-proposed-eu-legislation/>

3. Contextualizing additional finance needs for regenerative agriculture

The transition at the scale and pace required to avoid significant economic damage from environmental degradation and to meet EU targets needs additional systematic mobilization of private capital from companies and investors. While there is significant policy commitment, the resources assigned to agriculture, including under the revised CAP, are insufficient for – and in some cases undermine – Europe’s transition targets including climate and biodiversity targets. This is further complicated by varying levels of ambition and action on agri-environmental measures (targets) by Member States⁵⁷ and by lack of guidance on important non-agriculture policies including in the EU Taxonomy. EU support for agriculture has also been declining, and support to specific countries is negotiated between Member States.⁵⁸ From the assessment of the existing and promised financing needs, additional funding is urgently required (Figure 2) and is necessary across financing instruments and the agricultural value chain and must be deployed through and to a wider range of stakeholders.

Figure 2: the EU green finance and agriculture figures in perspective. Note that these are not necessarily comparable but are illustrated to give a sense of the proportional volumes of finance. Additional steps should be taken to address finance and investment needs in agriculture.



* Note that the total EU CAP budget for the period 2021-2027 is EUR 387 billion, of which EUR 291.1 billion is for the European Agriculture Guarantee Fund (EAGF) and EUR 95.5 billion for the European Agricultural Fund for Rural Development (EAFRD)⁵⁹

** Note that this figure represents the credit gap across primary production and processing from the fi-compass study, of which the majority is for primary agriculture.

Figure 2 estimates are compiled from various sources: EU focused PE (AUM) 2019⁶⁰, EU focused private debt (AUM) 2019⁶¹, costs of EU soil degradation p.a.⁶², EU CAP (Common Agricultural Policy) budget 2021⁶³, annual BAU finance gap for EU agriculture & agri-food⁶⁴, annual BAU finance gap for EU agri-food⁶⁵, total value of EU agricultural production 2020⁶⁶, agriculture gross added value 2020⁶⁷, estimated annual EU Green Deal investment gap (all sectors)⁶⁸, estimated EU annual EU Green Deal investment gap (energy & transport).

Understanding the demand side

Funding needs exist across the agricultural value chain (Figure 1) for on and off-farm interventions, seeds and other inputs, technology, human capital, processing infrastructure, distribution logistics, product development and marketing. Funding needs include technology innovation (R&D), as well as new sources of transition funding. The sector contains a wide variety of stakeholders and potential counterparts, including small and large farmers, cooperatives, companies (including processors and traders), banks and non-bank financial institutions, and government agencies – and thus a large variety of funding requirements and suitable funding instruments. While some funding needs could be addressed by traditional instruments and business

models and with established counterparts, it will remain challenging for the necessary new counterparts and business models to access appropriate capital. Some of these challenges are summarized in Boxes 1 and 2 below.

Box 1: Funding counterpart challenges

- New entities: for example, emerging farmers and new companies who have no track record and very limited assets against which to secure funding.
- Weak entities: for example, SMEs, counterparts with high debt levels (e.g., highly indebted farmers) who have limited access to assets that could be used to secure funding, limited track record or that may be in default or restructuring.
- Risk averse entities: for example, conventional farmers, established companies with a high internal opportunity cost of capital that limits their interest in taking business risk.

Box 2: Business model challenges

- New business models, where there is no track record, there is a lack of clarity of risks, revenues, and timing. For example, a new payment for ecosystem scheme where legal rights are unclear and legal contracts must be implemented with a range of stakeholders who may not be used to such collaboration. Such models might also require different types of contracts for the same area, i.e., splitting out different rights or payment streams.
- Emerging business models, where there are few comparable financial instruments and where returns are unpredictable. For example, digital farm advisory and monitoring tools that seek to monetize non-financial benefits.
- Changing existing practices – existing entities with well-established, profitable business models may recognize the need to transition but may be unwilling to take on the full risk of changing practices, for example due to their governance structure or regulations. For example, conversion from annual crops to more mixed production systems that change business cash flows, provision of longer-term off-take contracts to farmers that may create longer-term liabilities, development of new financing products that tie-up capital in long-term investments.

Many of the activities and counterparts that require funding are challenging to fund under business-as-usual: investment counterparts may not exist, are too weak or are risk averse, or business models are unproven. Many of the additional environmental outcomes are public goods, that may not be easy to capture in private sector-driven financing models. Regenerative agriculture transition funding instruments require specialist technical knowledge, informed by local data sets, which may be unavailable or prohibitively expensive. Furthermore, interventions tend to require a whole value chain or landscape approach, which necessitates resources towards extensive stakeholder consultation and management. Many of the finance related challenges are symptomatic of fundamental issues in the sector. These need to be considered and contextualized to understand how the necessary financing can most effectively and efficiently be mobilized, including from the private sector.

For example, many European farms have relatively low profit margins and may be over-indebted and thus have little appetite and capacity for long-term investments, notably those that entail additional risk. Farmers are generally over 40 years old⁶⁹ and have incomes that are ca. 40% lower than the EU average.⁷⁰ The agriculture sector tends to have higher interest rates and requirements for guarantees.⁷¹ For example, despite the availability of CAP funds, there has been limited interest in agroforestry in most of Europe – as it requires new skills and upfront investment including in labor, and has a longer rotation (and revenue) cycle.⁷² Introducing cover crops, or more diversified farm and landscape production systems requires access to a wider range of inputs (including planting material, machinery and labor), different farm management approaches, connection to a wider range of off-takers and specialized technical and market knowledge. New farm management approaches may alter farm cash flows and business relationships in the long and short term, for example requiring new off-takers, experience with managing a wider range of production systems, and short-term income losses during transition periods. This means that farmers will require a supportive policy, business, and financing environment to transition.



Potential counterparts include small rural, family-owned businesses. This is a particular issue in several new and potential Member States, for example this farm in Serbia.
Photo: Discover Serbia (unsplash)



Farm in Portugal. Photo: Ryan Searle (unsplash)



A photo of a larger farm. Photo: Jed Owen (unsplash)

Developing landscape level regenerative agriculture approaches or setting up new schemes to monetize ecosystem services such as carbon and water benefits requires up-front investments in terms of time, data, and technical expertise. While some programs are emerging that would provide additional compensation to support regenerative agriculture including through carbon finance, many of these are still relatively new, small, and require localized engagement to confirm priority interventions.^{xiv} Groups and initiatives such as Commonland, Livelihoods Fund, Earthworm Foundation, Soil Capital, and Sols Vivants are working in multi-stakeholder partnerships to introduce new farmer engagement and funding models. For example, Commonland supports local associations in Spain (Association AlVelAl) and the Netherlands (Wij.land) to enable farmers' transition to regenerative practices. Through this work, Commonland has learned of the importance of developing regenerative business cases in partnership with farmers and other actors who are incentivized by co-ownership models that keep value-added in their communities. These initiatives and others across the EU need additional support to develop and scale, including to attract private finance.

Larger more credit-worthy companies in value chains and government agencies, including state-owned utilities and municipalities, are important stakeholders in mobilizing additional financing. However, while many companies have public commitments to regenerative agriculture, these are mostly not reflected in and aligned with their procurement and treasury policies. Many agricultural goods are bought and sold a short-term (spot) basis and contracting for environmental goods and services is nascent. Quality standards for agriculture goods favor scale and specialization, and there has been little meaningful coordination among off-takers and other landscape stakeholders to holistically support farmers, for example on shared sustainability goals and metrics. Furthermore, larger companies are also under constant pressure from their shareholders to reduce costs, including working capital costs, including by extending payment terms and reducing risk. Value chain partners can support financing the transition to regenerative agriculture practices, including by providing long-term contracts, outcome funding (including premia and payment for impact outcomes), guarantees and partial guarantees, advances, supplier credit and purchase order financing facilities, technical assistance (grant) funding, investments and co-investments and bulk contracting for inputs and services. Larger companies with sustainability targets can assess the financing needs and financial implications of such targets for their suppliers and implement suitable financial instruments to support suppliers.

Mobilizing additional and appropriate finance must be done with consideration to the context. Many of the demand-side challenges are not necessarily financial, but rather related to market, political, business, and socio-economic trends where solutions must be accompanied by financial instruments, many of which are not necessarily fundable on a fully commercial basis – and thus require blended finance approaches. Some of these are summarized in Table 2.

The transition to regenerative agriculture in the EU is in a pioneering stage and requires new and additional investment, including in R&D, data, expertise, and developing track record, as well as clear and predictable value chain and policy support. The existing and emerging policy, investment and corporate stewardship trends means that the period between 2022-2030 should be seen as an opportune time for cross-sectoral collaboration to test new financing structures. However, given that many of the financing needs are not currently addressable on a purely commercial basis, and that public funding will not be adequate to address transition financing needs, blended finance approaches – i.e., the strategic use of concessionary development-oriented funding is used to mobilize additional private capital⁷³, will be necessary.

^{xiv} For example, according to a study published in 2021 by the European Joint Programme on Soil (EJP Soil), stakeholders interviewed across all Member States indicated their priorities for soil health as maintaining / increasing soil organic carbon, enhancing soil nutrient retention, enhancing water storage capacity, avoiding N₂O and CH₄ emissions, optimizing soil structure, and avoiding soil erosion. However, the largest gaps to current EU targets and policies across Member States are enhancing water storage capacity, avoiding emissions, avoiding soil sealing, avoiding salinization, and optimizing soil structures.

Table 2: overview of challenges and potential funding-related interventions.

Challenge	Examples	Funding-related interventions
Varying levels of different technical capacity and information among farmers, companies, government agencies and financiers	<ul style="list-style-type: none"> ▪ Agronomic and environmental science expertise and data ▪ Actionable and reliable information to inform investments (i.e., the European Single Access Point⁷⁴) ▪ Specialized financial structuring expertise informed by regenerative agriculture transition plans 	<ul style="list-style-type: none"> ▪ Public-Private Partnerships including grant funding for data and data platforms ▪ Technical assistance to various stakeholders alongside financing interventions ▪ Rebates for technical advisory and data sharing
Cost and complexity to develop and scale of financing mechanisms and intermediaries	<ul style="list-style-type: none"> ▪ Cost-effective and material local data sets ▪ Cost to establish financing mechanisms and intermediaries 	<ul style="list-style-type: none"> ▪ Guarantees & de-risking including subordinated share classes to new financial intermediaries ▪ Seed funding to new financing programs
Policy uncertainty, size, accessibility, and flexibility of public funding modalities	<ul style="list-style-type: none"> ▪ Limited EU-wide funding support mechanisms and high barriers to entry for new financial intermediaries ▪ Uncertainty on key funding instruments, including private credit funds⁷⁵ 	<ul style="list-style-type: none"> ▪ Expansion of EU-wide funding programs, incentives, and intermediaries including to support results and performance-based payments ▪ Assurances on specific subsidies and policies where these can unlock financing for impactful activities

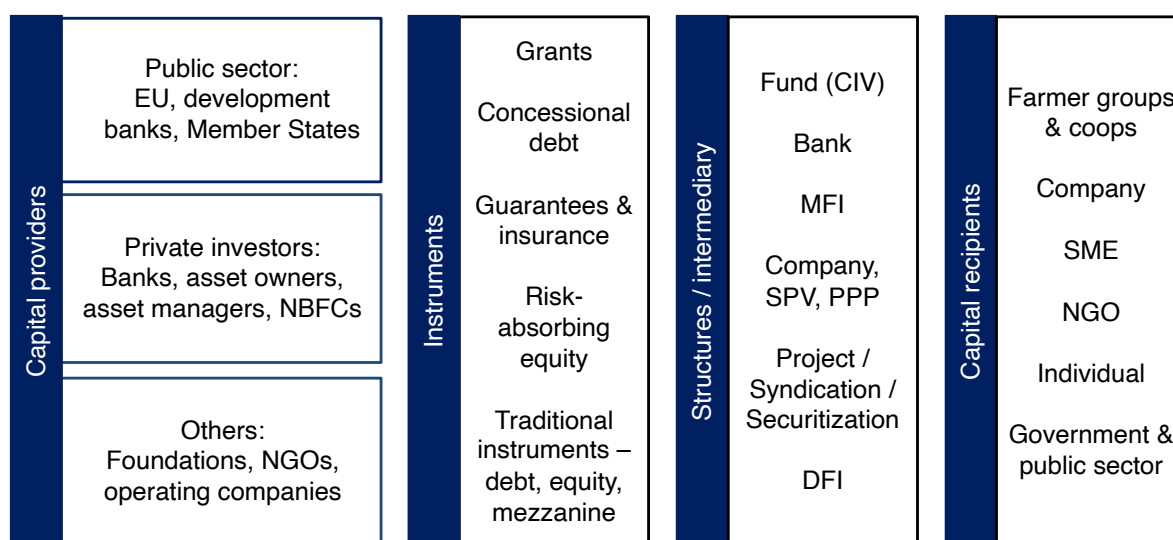


Photograph: Zoe Schaeffer (unsplash)

4. Stakeholders for additional capital mobilization

Existing providers of finance include cooperative banks, commercial banks, national promotional banks, agriculture cooperatives and leasing companies, as well as private sector financiers such as pension funds and insurance companies that invest through a variety of investment structures (e.g., listed, and non-listed (private) funds and bonds). There are also important sources of public finance from the EU and Member States, which must be used to leverage additional finance to address the capital gap - i.e., through the instruments and intermediaries, as illustrated in Figure 3. This section reflects on Figure 3 by first describing the potential sources, instruments, and structures available from the public sector (notably the EU) and following this the mandate of private investors and “others”. Most of the section is dedicated to public sector funding as this has the potential to be catalytic to private finance (e.g., in blended finance structures).

Figure 3: capital providers, instruments, structures, intermediaries, and capital recipients.⁷⁶ Note that specific finance flows will differ greatly depending on the specific issue to be addressed, recipients, intermediaries, and capital providers. Some combinations are unlikely – for example, private investors are not expected to provide grants to banks to finance individuals. This diagram describes some potential sources of capital, instruments, structures, and recipients.



Abbreviations: NBFCs: Non-Bank Financing Companies, NGOs: Non-Governmental Organizations, CIV: Collective Investment Vehicle, MFI: Microfinance Institution, SPV: Special Purpose Vehicle, PPP: Public Private Partnership, DFI: Development Finance Institution, SME: Small and Medium Enterprise

Public sector: the EU and Member States

In addition to setting policies and contributing to research and critical public infrastructure, the EU and Member States provide different sources of funding that could be used to mobilize more financing directly or indirectly for regenerative agriculture. Public sector funding has a significant influence on land management in the EU, both from what is funded as well as what is not funded. Public sector funding primarily comes from taxes and other revenues that are due to the government and sub-national government or quasi-government agencies. While the EU has an important role to play, individual Member States and sub-national entities (e.g., municipalities and regions) have differing levels of fiscal capacity to contribute, with some being more indebted (e.g., Greece, Italy, Portugal, Spain, Cyprus⁷⁷), and different national allocations under the various EU arrangements including the CAP. In addition to funding from tax measures and EU contributions, other sources of funding could potentially come from debt refinancing, allocation of certain public sector revenue streams (e.g., through PPPs) as well as cost savings (e.g., savings from avoiding fines for breaching EU environmental rules).

There are several opportunities for EU and Member State funding to contribute to the transition to regenerative agricultural systems⁷⁸ by utilizing different instruments and structures or intermediaries.

Instruments available could include grants, guarantees and investments in a range of intermediaries and structures including securitization structures.^{xv} These could include:

- a) Grants to develop or subsidize financing structures that can leverage additional private sector capital for technical assistance and R&D, or Results-Based Payments.
- b) Concessional debt that can be subordinated, longer-term and/or cheaper, thus enabling additional private capital from investors and companies.
- c) Guarantees and insurances - for example, to minimize actual or perceived risks hindering private sector investment.
- d) Risk-absorbing equity that, like concessional debt, can provide comfort to investors and private capital providers.
- e) Traditional instruments, participating in these as seed (anchor) investors, or investors that give comfort on impact objectives, or enabling the investment instrument to reach an economically viable scale.

One significant source of funding to the agricultural sector is the CAP. Revisions of the CAP were finalized in 2021, with the CAP for 2023-2027 prioritizing greener agricultural practices, including action on climate change, environmental care, landscapes, food value chain and food health. These changes will impact farmers' direct payments⁷⁹ - both mandatory and voluntary⁸⁰ - and result in additional funding for innovation, value chain interventions and financial intermediaries. The CAP is administered through two funds, the EUR 291 billion European Agricultural Guarantee Fund (EAGF), which primarily provides income support for farmers and market measures,⁸¹ and the EUR 95.5 billion European Agricultural Fund for Rural Development (EAFRD), which provides investment support through financial instruments.⁸² CAP-related grant funding is primarily controlled by MS in coordination with the EU, and are linked to the Good Agri-Environmental Conditions (GAEC), which describe eligible practices at the national or regional level in Member States.⁸³ While there are reportedly around 200 EU-related agri-environment indicators,⁸⁴ there are criticism about their suitability to consistently track progress and enable private finance under the EU Green Deal due to the scale and quantification.⁸⁵

Specific CAP-related sources of funding that could help to address investor concerns, include the CAP's eco-schemes and rural development agri-environment-climate measures, European Innovation Partnership (EIP-AGRI), LIFE Programme (e.g., funding pilot projects on the upscaling of carbon farming, Carbon Farming Scheme project testing, Cohesion Policy – for example, restoration of peatland, the Just Transition Fund and regional cooperation under INTERREG), as well as State Aid, where there is potential to include result-based carbon farming schemes and incentive payments. Some of the regenerative agriculture opportunities that have the highest potential under the CAP involve reduced nitrogen inputs, managed livestock grazing, improved management of organic soils, expansion of uncultivated areas and agroforestry systems.⁸⁶ The CAP could potentially help to cover the costs of regenerative agriculture activities, including intermediating additional finance, and compensating a wider range of stakeholders in the private sector for impact results, and subsidizing the monitoring, reporting and verification costs where these are aligned with the public sector including the 28 Agri-Environmental Indicators (AEIs) tracked under the CAP.⁸⁷

^{xv} Securitization refers to the pooling of various financial assets into one marketable financial instrument. The EU is trying to promote the use of securitization, particularly for SMEs. It is estimated that reviving the EU securitization market could enable an additional EUR 100 – 150 billion in additional funding for the economy. See: https://ec.europa.eu/commission/presscorner/detail/es/MEMO_15_5733



Peatland conservation and restoration are important for Europe to meet its climate targets. Photo: K. B. (unsplash)



The livestock sector, including grazing and manure management, also have a role in climate targets.
Photo: Amir Deljouyi (unsplash)

In addition to funds allocated under the CAP, the EU has different types of blended finance instruments to help mobilize debt and equity.⁸⁸ These instruments include technical advisory services, grants, loans, guarantees, and equity, and are usually administered through the European Investment Fund (EIF) and the EIB. For example, the Sustainable Europe Investment Plan seeks to mobilize at least EUR 1 trillion of private and public investments over the next decade, primarily through guarantees and grant funding to regions under the Just Transition Mechanism with the EIB acting as the EU's "climate bank".⁸⁹ The EIF and EIB are expected to partner with relevant regional and national financial institutions and promotion agencies.⁹⁰ The new EU Common Provisions Regulation for the 2021-2027 budget programming period create an expanded space for blended finance. Under the EU rules, financial instruments and grants can be used for strategic projects that are expected to be financially viable, but do not find sufficient funding from market sources. Recent changes mean that grants can now be combined with financial instruments in a single operation, not only to provide technical support, subsidize interest rates or the costs of a guarantee, but also allowing direct grants to be paid to final recipients (rather than through intermediaries). The new rules also allow for final recipients to get more support from grants than from the final product, if the support from grants does not exceed the value of the investments supported by the financial product at the instrument level.⁹¹

There are other emerging opportunities under the new Green Deal, including through strands on innovation, climate, and bioeconomy - e.g., through the launch a EUR 100m circular bioeconomy investment platform and the new European Innovation Council (EIC), which can provide grant funding and equity investment.⁹² Some of the specific targets under Green Deal-related policies may lend themselves to impact or results-based financing structures. For example, the EU Farm to Fork strategy aims to reduce the use of chemical pesticides by 50% and promote less intensive farming including a 20% reduction in fertilizer use,⁹³ and the Zero Pollution Action Plan targets a 50% reduction in nutrient loss by reducing runoff of nitrogen and phosphorous by fertilizers while protecting soil fertility.⁹⁴

Provisions exist under European State Aid frameworks for the EU and Member States to invest alongside the private sector in 'blended finance' transactions – though these have recently been tested and found lacking.⁹⁵ In the agriculture sector, investment aid is allowable for improvements to the environmental sustainability of agricultural holdings and the natural environment, infrastructure related to water, achievement of agri-environment-climate objectives, aid for disadvantages related to Natura2000, the Water Framework Directive, for organic farming, and for cooperation for joint actions undertaken with a view to mitigating or adapting to climate change. However, while there are substantial resources available there are opportunities to use them more efficiently and effectively by greater strategic involvement of the private sector.

For example, the Spanish government has incurred substantial lump sum and daily fines with respect to infringements related to agricultural water practices that are leading to the destruction of the Doñana national park - an important world heritage site and part of the "green lungs of Europe".⁹⁶ Under the scope of the EU Urban Wastewater Treatment Directive and the Water Framework Directive, the government could have avoided the fines and benefitted from EU funding available for mitigating activities.⁹⁷ The barrier may be the upfront funding and political support required to kickstart the activities and access public (EU and national) support, which could be used to catalyze private capital.

Furthermore, the EU and Member States largely rely on a narrow set of intermediaries to channel public funds, i.e., established banks and private equity funds. Member States try to reduce conflicts of interest by requiring banks to participate in the transaction risk by investing on a *pari passu* basis with commercial investors. This means that the institutions that typically qualify for EU funds must have certain years in operation and assets, which hinders emerging counterparts (i.e., new fund managers) to participate. Member States appetite for different instruments also varies greatly.⁹⁸ While it is clearly important to safeguard taxpayers' funds, there has been criticism that the approaches are too conservative - e.g., with respect to the EIB, which has a mandate for innovative finance but also needs to minimize Non Performing Loans (NPLs) and maintain its credit rating.⁹⁹ A review of some of the latest guarantee programs in the agriculture sector shows that utilization rates have been relatively low, between 3-35%. Instruments that have provided a greater range of funding or funded dedicated and specialized intermediaries had greater absorption rates than institutions without technical expertise or impact focus.¹⁰⁰ A wider range of specialized intermediaries, instruments and counterparts must be considered and supported to adequately address the financing gap, including financing intermediaries that have a technical understanding of the production system and value chains, that are able to consider different de-risking and valuation approaches and that can provide additional value to farmers and other stakeholders including through new technologies and technical advisory support.



Flamingos can be seen at Doñana National Park in Andalusia, among many other species of birds that migrate from Africa in the spring and summer. The site is home to over 400 species of birds. Photo: Dani Argandona (unsplash)

Commercial (private sector) investors

This group of capital providers allocate funds primarily with the intent of maximizing risk adjusted returns using a portfolio approach consisting of short and long-term and private and public investment strategies. Commercial investors that manage money for third parties, such as pension funds, have fiduciary responsibilities to minimize losses and act with duty of care and loyalty. This means that they tend to be conservative, and primarily utilize traditional instruments with the objective of achieving acceptable risk adjusted returns according to their strategy. These investors may increase their allocations to relevant opportunities if there is a fit with the investment type (e.g., debt, equity), liquidity or term, expected risk-adjusted return based on comparable opportunities, and the counterpart is considered suitable, including in terms of demonstrated experience (track record) and asset type. These investors increasingly also seek to demonstrate contributions to environmental and social objectives alongside achieving commercial financial returns, including driven by EU policies. In addition to allocating capital, these investors can influence the behavior of companies, including operating companies' sourcing and supply chain practices. Such investors might influence the behaviors of public or private agri-business companies, investors, and lenders, and potentially also government institutions (e.g., through green bonds issued by regional governments).

Agri-business companies including farmer cooperatives

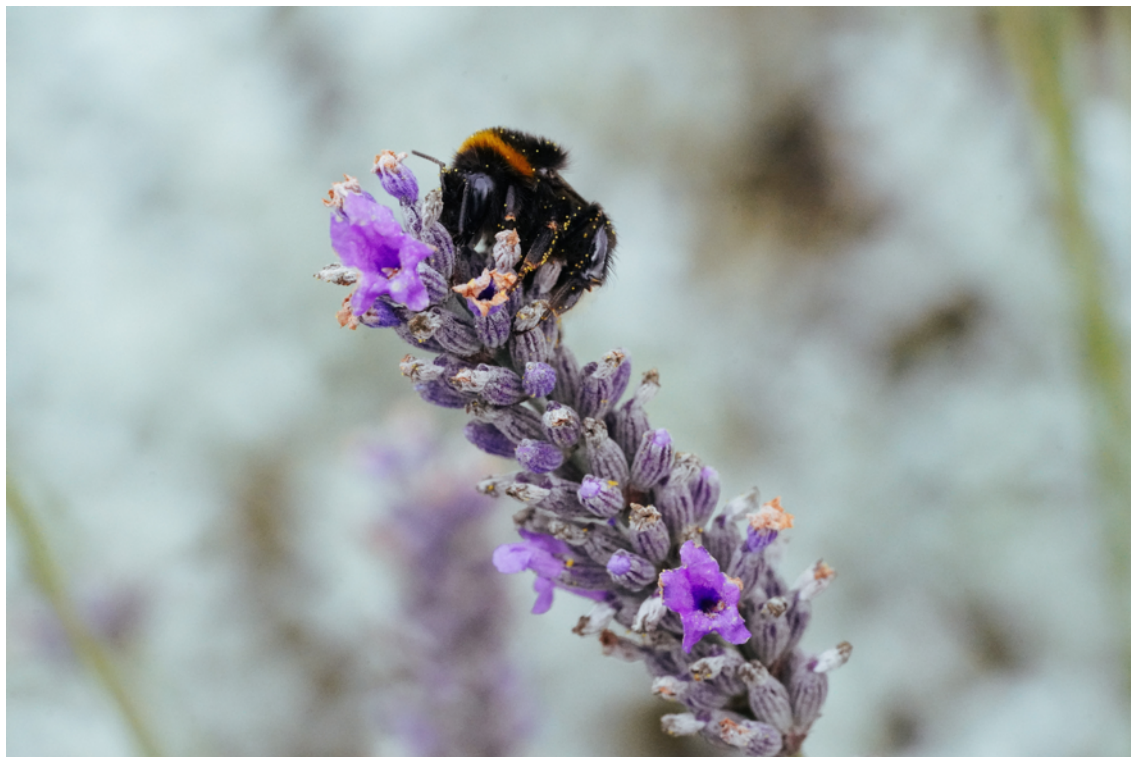
Operating companies in agricultural value chains are increasingly recognized as being important: not only can they influence agricultural practices in the areas they source from through their procurement and supplier reporting programs, they can also make investments (notably equity investments), provide grants, and offer suppliers other forms of support that may enable investments - e.g., through off-take contracts which help to guarantee or de-risk investments, or make additional payments for more nutritious products or environmental benefits, including through insetting programs.^{xvi} The support of operating companies in the

^{xvi} Insetting refers to an investment in GHG emission reduction activities and projects within a company's own supply chain, which may count towards its GHG mitigation claims. These are significant and have significant potential for unlocking additional support for farmers from agri-businesses.

value chain will be necessary to achieve many of the policy targets. Some companies, notably consumer facing goods companies (brands), traders, and cooperatives, have taken active steps in this direction by developing regenerative agriculture frameworks and initiatives, investing in pilot projects, and facilitating appropriate funding to their suppliers to incentivize regenerative agriculture practices.^{xvii}

Research groups, NGOs, and foundations

Research groups can help to generate an actionable evidence base to support interventions. NGOs can provide grant funding and potentially be a source of additional revenue, for example through schemes that enable higher prices for farmers, such as eco-certification labels. Foundations can provide grant funding and, in some cases, can also make strategic investments, though such mission-aligned investments are less common in the EU compared to the US.



Introduction of regenerative agriculture practices might help protect important pollinators, which contribute significant economic value to European economies. Photo: Daniel Norin (unsplash)

^{xvii} For example, Mars, Danone, Nestlé, Unilever, Cargill, Land O'Lakes

5. Selected approaches that could address the regenerative agriculture financing gap

While it is important to highlight that specific financing structures should be developed based on actual conditions including funding needs and counterparty capacity and capabilities, this section provides an overview of selected approaches and examples. This is intended to inspire new and more action on mobilizing finance for the transition to regenerative agriculture in the EU, including by exploring opportunities related to Results Based Finance (RBF) including carbon finance, and a range of blended finance concepts. Annex 2 provides some examples but are by no means exhaustive. Other relevant concepts exist including debt restructuring and debt-for-nature swaps,^{xviii} utilizing cost savings from avoided penalties, and mechanisms that pre-finance EU and Member States results-based payments.

Results-Based Financing (RBF) for regenerative agriculture. RBF is a category of funding instruments whereby financing is linked and provided tied to the delivery of pre-agreed and independently verified results, i.e., outputs, outcomes, or other impacts.^{xix} RBF models could be used to mobilize additional finance for regenerative agriculture projects, notably where existing datasets and institutional capacity allow for such approaches – this is already been trialed in the agri-environment sectors with initial positive results¹⁰¹, and in the social sectors¹⁰². RBFs are a category of funding that include impact bonds, results-based climate financing, outcome, and performance-based financing. We also consider include Payments for Ecosystem Services (PES) and carbon finance to be RBF approaches. RBF approaches are suitable where:

- There is a known baseline.
- It is possible to tie measurable results within a pre-specified period to intervention activities with a reasonable high degree of statistical certainty, typically verified by a qualified and independent third party.
- Financing terms are linked to such pre-agreed – typically non-financial (impact) results.

The suitability of RBF approaches for regenerative agriculture depends on the context and the specific results (indicators) considered. Activity-based payments for certain management practices or policies have largely been the norm under the CAP,¹⁰³ though this may be changing.¹⁰⁴ Results-based payment approaches^{xx} are increasingly being pursued to achieve agri-environment objectives, which could pave the way for RBFs. While there have been trials with results-based agri-environment payment schemes (e.g., in Ireland, Spain, Germany, Italy and France¹⁰⁵), these were farm level payments that did not explicitly seek to mobilize additional private finance and were developed as discrete, localized projects. As a result, effectiveness has been difficult to assess.¹⁰⁶ Scaling up RBF approaches and utilizing them to mobilize additional private finance for regenerative agriculture will require policy changes, and may upfront investment in baseline data sets,¹⁰⁷ counterpart risk guarantees, and institutional capacity building¹⁰⁸ including to develop and manage more cost-effective model-based agri-environmental RBF approaches.¹⁰⁹

Investments in data collection and management on a range of biophysical, species and habitat data will be necessary to scale RBF approaches.¹¹⁰ In addition to systems to collect and manage primary data, agreement on how certain results are measured is required – including on Soil Organic Carbon (SOC),¹¹¹ though a common European soil monitoring system is being discussed.¹¹² While the EU does have an emerging suite of monitoring systems and datasets that could contribute to the development of RBF structures these would need to be complemented by additional upfront investments in order to make them appropriate for RBFs.^{xxi} In general, it would be beneficial to have a European platform, rather than single Member State platforms, to harmonize and incentivize improved environmental impact information^{xxii} involving the private sector including

^{xviii} Debt restructuring programs to enable additional financing for nature have been used in emerging markets. These programs involve portions of government (or municipality) debt to be forgiven or restructured at improved terms (potentially utilizing guarantees from development finance institutions or public sector bodies), in exchange for commitments to invest in biodiversity conservation and environmental measures.

^{xix} Definition modified from the Global Partnership for Results-Based Approaches (GRPBA): <https://www.gprba.org/results-based-financing>

^{xx} In this paper, we distinguish results-based payments from RBF in that results-based payments only refer to payments for results (outcome payments), rather than a wider range of financing, which may for example include sustainability-linked loans.

^{xxi} For example, the EU has a variety of datasets and indicators that could potentially be used for RBF structures including under the CAP, Eurostat, Land Use and Coverage Area frame Survey (LUCAS), Biodiversity Data Centre (BDC), Streamlined European Biodiversity Indicators (SEBI), Mapping and Assessment of Ecosystems and their Services (MAES) – under the Biodiversity Information System for Europe (BISE), AgriAdapt, Copernicus European environment information and observation network (Eionet), and other European Environment Agency (EEA) initiatives. Other emerging initiatives include the European map of High Nature Value (HNV) farmland and changes to the EU Farm Accountancy Data Network (FADN).

^{xxii} Note that such a system has been proposed by Clarmondial and Versant Vision, under a EU Climate KIC project, i.e. Environmental Impact Reporting for Agriculture (EIRA): https://www.clarmondial.com/wp-content/uploads/2019/04/EIRA_Report_April_2019.pdf

opportunities for private sector contributions. This should ultimately also be integrated with the ESAP. Furthermore, while recent changes to the CAP may create opportunities to develop and test RBFs (e.g., under Eco-Schemes¹¹³), these have not been designed with the objective of mobilizing additional private finance including potential combinations with other available blended finance mechanisms including guarantees. Finally, it is critical for those designing environmental RBFs to understand the underlying environmental science underpinning the financing structure including payment triggers, quality of baseline data including potential measurement error margins, external influencing factors and monitoring costs, and for these to be appropriately communicated to counterparts and investors.



Certain bird species are in decline across Europe due to the clearing of wildlife habitat, including draining and pollution of wetlands from agriculture, including the Common Snipe (pictured here). Photo: Julian (unsplash)

Carbon finance for regenerative agriculture in the EU

Carbon finance is essentially a type of RBF whereby contributions to climate (GHG) mitigation is the result trigger. While an active regulatory carbon market exists in the EU, and voluntary ones globally, the basis for a private market in EU carbon credits for mitigation activities in EU agriculture has generally been lacking. This is the result of how mitigation responsibilities were structured - i.e., with Member States being responsible for reporting and emissions reduction targets for the land use sectors with little or no ability to credit non-state actors. However, the EU Effort Sharing Regulation (ESR) for 2021-2030, adopted in 2018, sets national targets for emissions reductions, including for agriculture. Specifically, each Member State is subject to GHG emission reduction targets under the ESD (until 2020) and the ESR¹¹⁴ (for 2030) for non-CO₂ gases and the LULUCF Regulation for CO₂ (i.e., removals).¹¹⁵ The ESR allows nine Member States to use a limited number of ETS allowances (up to 2%) for offsetting emissions in the ESR sectors including land use, up to 2% for Austria, Belgium, Denmark, Finland, the Netherlands, Malta, and Sweden and up to 4% for Ireland, Luxembourg, and Iceland.¹¹⁶ The European Commission (EC) is planning to introduce binding targets for Member States to increase net carbon removals from land use and forestry from 2026, and there are opportunities for bilateral Member State transfers.¹¹⁷ In addition, there is emerging convergence between climate goals, the CAP and MRV challenges, including the 2021 communication by the EC that by 2028 every land manager should have access to verified emission and removal data, and that carbon farming should support the achievement of the proposed 2030 net removal target of 310 MT CO₂eq in the land sector.¹¹⁸

While the current and expected regulations – including under the EC communication on Sustainable Carbon Cycles¹¹⁹ – provide some hope for EU carbon removal markets, it is currently unclear how national and bilateral actions may involve non-state private sector actors (e.g., through allowances, credits, or tradeable units). An EU regulatory framework for the accounting and certification of carbon removals is expected for

the end of 2022.¹²⁰ An expert group will shortly be established in the EC to help ensure quality and links between carbon finance for AFOLU and existing policy and regulations, including on MRV and links to existing systems^{xxiii}. To this extent, assessments¹²¹ and technical guidance¹²² have been issued by the EU on setting up and implementing various voluntary and preparatory projects and initiatives in preparation.^{xxiv} However some MS are developing their own (national) terrestrial carbon finance methodologies (e.g., France,¹²³ Finland¹²⁴), and the EU is supporting various local pilots including a RBF mechanism for carbon farming in EU mixed crop livestock systems.¹²⁵ Other MS structures have been launched where state funds are used for climate mitigation interventions in the land use sectors and private sector is encouraged to participate - e.g., the Danish Klimaskovfond¹²⁶ and the Irish Woodland Nature Credit, which generates claims that investors can use for sustainability reporting and tax benefits¹²⁷. However, these and other initiatives are currently nascent, and have limited opportunities for scale and engaging private sector carbon finance.^{xxv} There have so far been no assignment of benefits from bilateral AFOLU-related sales between MS under the ESR and there are still potential concerns about double counting between state and project level initiatives. Note that any future European regulations for carbon removal must also be consistent with the Directives on Sustainable Corporate Governance and on Corporate Sustainability Reporting and with corporate efforts to minimize double counting and focus emission reductions within supply chains, including under emerging SBTi guidance.

While the EU and Member States regulatory frameworks are emerging, various private schemes are being tested.¹²⁸ These typically rely on private platforms combining activity and field-level data (i.e., model-based approaches). These centre largely on payments for carbon sequestration in soils and plants, rather than regenerative agriculture, which is more context specific and has a wider set of impact objectives. There are also concerns about data ownership, governance including on contract lengths, payment terms and result triggers, and intermediation costs. Many of the emerging private approaches are based on data collection using the Cool Farm Tool¹²⁹ (where such data is currently not verified and is self-reported), the outcomes of which rely on consistently high-quality data inputs to translate into datasets that would enable robust credit-based systems. This is a particular challenge for Soil Organic Carbon (SOC) and non-CO₂ GHGs (nitrous oxides and methane). For example, SOC increases can be relatively small in magnitude per unit area, slow to be achieved, difficult and costly to measure, and may be impacted by factors outside the control of land managers (i.e., may have high reversibility).^{130,131} Furthermore, given the emerging EU guidance on Sustainable Carbon Cycles, including on MRV in the land sector^{xxvi}, and on an EU-wide approach to the certification of carbon removals¹³², there is uncertainty on convergence between the EU, MS, and private sector approaches.

Blended finance approaches

The five examples in Annex 2 illustrate a variety of blended finance approaches that may have relevance in financing the transition to regenerative agriculture in the EU. Many of these are based on models that have been developed to address similar challenges in other locations and would be theoretically feasible to implement in the EU. The development of such mechanisms is often complex and requires significant up-front funding and de-risking, including through guarantees, during the initial period. Dedicated resources to support the design of such instruments, like the Convergence design award grants¹³³, could be utilized to stimulate the development such funding instruments in the EU. While the development of such approaches may be time consuming and complex, they will be necessary to ensure that sufficient additional private sector resources, from financiers and companies, are available to support the transition.

^{xxiii} These include the Integrated Administration and Control System (IACS) for farmer payments, Copernicus Land Monitoring Service, and the Agricultural Knowledge and Innovation System (AKIS), the CAP Farm Sustainability Tool (FaST), avoidance of double-counting and synergies with the Nature Restoration Law, as well as the European Climate Pact and Horizon Europe (e.g. through the “Soil Deal for Europe”, thematic clusters, and the European Innovation Council) and the EIC Accelerator Challenge program (“Fit for 55”), new EU Forest Strategy 2030 and Circular Bio-based Europe Partnership.

^{xxiv} For example, under the Horizon Europe and LIFE Budgets. These include projects such as CO2PES&PEF in Italy, MULTI PEAT and the North Sea Carbon Farming project as the German MoorFutures project and CarboHedge project, Austrian Humus Kaindorf, Dutch Green Deal, French CarboCage mechanism, AGFORWARD, and Montado.

^{xxv} For example, the Danish Klimaskovfond encourages private companies and investors to participate and allows them to make a climate-related claim (e.g., reporting under CDP), but these cannot be traded and ultimately these emission reductions count under the Danish government’s climate targets. See: <https://fvm.dk/landbrug/klima-og-landbrug/faq-klima-skovfonden/#c78383>.

^{xxvi} MRV guidance is expected for the following carbon farming practices: afforestation and reforestation, use of conservation tillage, catch crops, cover crops (legumes, rapeseed, rye, vetch), restoration, rewetting and conservation of peatlands and wetlands, targeted conversion of cropland to fallow, set-aside to permanent grassland, agroforestry, and other mixed farming approaches.

6. Conclusions and recommendations

This report provides an overview of selected needs, challenges, and opportunities for financing the transition to regenerative agriculture in the EU. While it has focused on the financing aspects, it is important to emphasize that the design of financing instruments should be developed according to the needs of farmers and other landscape stewards including local governments and citizens. Regenerative agriculture investments are required to meet various public and private sector commitments and additional private finance will be necessary to address the significant funding gap associated with the transition, for both existing and new business models and counterparts. Many of the financing needs require blended finance approaches that blend public and private sources, including from the EU, Member States, agri-business companies and cooperatives and financial intermediaries. Table 3 summarizes the main recommendations to each stakeholder group.

Table 3: recommendations for action by stakeholder group

Stakeholder group	Recommendations
<i>Farmers and farmer groups</i>	<ul style="list-style-type: none"> Assess short and long-term financing needs across the farm and landscape to transition to regenerative agriculture practices. Engage with other farmers and other relevant groups in the area to develop landscape-level investment plans. Engage with local government agencies, financiers and other partners to develop locally appropriate funding mechanisms and jointly seek additional funding.
<i>Policy makers & regulators</i>	<ul style="list-style-type: none"> Set and enforce legislation that is aligned with regenerative agriculture approaches, including existing policy objectives – and provide certainty on policy incentives where such policies require long-term investments. Support and enable the use of public sector funding and resources so that these can mobilize additional private sector capital in a practical, replicable, and scalable manner from companies and financiers - i.e., the full use of blended finance tools (e.g., risk sharing including guarantees, seed funding, PPPs), notably supporting new intermediaries and new business models. Resource, incentivize and facilitate the creation of dynamic pan-European datasets that can be used for RBF structures. Raise awareness with investors, credit-providers, farmers and farmers groups, and other relevant potential partners about existing support programs that could enable additional finance.
<i>Investors & credit providers</i>	<ul style="list-style-type: none"> Review existing investment strategies to agriculture, to check alignment with existing EU policies and inform opportunities for additional engagement under existing strategies (e.g., engagement strategies on agri-business companies' procurement). Develop and assess opportunities to provide additional financing to regenerative agriculture practices (e.g., to test new RBF approaches with appropriate partners). Where opportunities exist but require additional public sector support, actively engage with policy makers, regulators and other potential partners as needed to address challenges.
<i>Agri-business companies</i>	<ul style="list-style-type: none"> Engage with suppliers to understand financing needs linked to regenerative agriculture and environmental commitments, including sustainable sourcing protocols. Develop instruments with partners, including specialized financiers, to support suppliers, including short-term financing instruments linked to seasonal procurement, and long-term financing needs for example through longer-term procurement arrangements. Invest in pilot projects and programs.

- Engage with partners in sourcing landscapes to build useable datasets and pilot new business and financing models including diversifying farmer incomes.

Research groups

- Work with the public and private sector to identify address information opportunities and gaps (e.g., to enable RBF).
- Contribute to a scientific evidence-base for specific interventions.

Non-governmental organizations & foundations

- Support action oriented cross-sector partnerships to design and test new funding approaches for regenerative agriculture.
 - Enable additional blended finance by providing (design) grant funding, facilitating new revenue streams and mission-aligned investments.
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Annex 1. Environmental challenges, recommended regenerative agriculture practices, and investment needs in the EU.^{xxvii}

This table has been developed by the author, based on various sources. Note that this table is not exhaustive.¹³⁴

Topic area	Environmental challenges	Potential regenerative agricultural practices	Investment needs
Climate change			
Climate mitigation	<p>CO₂ emissions from land use change, inputs (lime, urea); N₂O emissions from fertilizers, soil management, rice production, manure, field burning; CH₄ emissions from manure & livestock, rice production, field burning; CO₂ emissions from machinery use.</p> <p>Priority countries: France, Germany, Spain, Poland, Italy, Ireland, Romania, Netherlands, Denmark, Belgium¹³⁵, Greece, Romania¹³⁶</p>	<ul style="list-style-type: none"> Forest & tree protection, reforestation, afforestation, including agroforestry^{xxviii} Peatland re-wetting & restoration including paludiculture^{xxix} Reduced or more efficient input use (improved fertilizers, biological crop protection products) Improved soil management including no or reduced till where appropriate Manure management Improved water & input management in rice systems (Alternate Wetting & Drying – AWD) Creation of protected areas and buffer strips Biodegradable soil covers Cover crops; catch and companion crops Reduced use of machinery (e.g., no-till practices) or use of low-GHG sources for machinery Animal feed amendments 	<ul style="list-style-type: none"> Land preparation Seedlings & planting material Infrastructure Training & technical advice Labor & equipment Compensation for income loss – medium term (e.g., to maturity of tree crops) and permanent (e.g., creation of protected areas) Research & development (R&D)
Climate adaptation ¹³⁷	<p>Temperature - heat & cold stress; water – dry conditions, drought & heavy precipitation; changes in ecosystem productivity including land degradation, erosion & desertification; shift & composition change in major biomes; sea level rise & salinization; rock falls & landslides; pests & diseases</p> <p>Priority regions: Southern, Central Europe</p>	<ul style="list-style-type: none"> Adapted crops and cropping systems (e.g., salt-resistant potatoes; adaptation of recommended sowing & harvesting schedules) Agroforestry and companion crops to maintain local microclimates (e.g., diversified cropping systems) Improved water & plant nutrition management, e.g., drip irrigation & precision agriculture Protection of existing tree cover 	<ul style="list-style-type: none"> R&D Seedlings & planting materials Training & technical advice Labor & equipment Compensation for medium-term income loss

^{xxvii} Note that priority regions and countries are based on literature covering expert interviews and self-reported data from Member States and may not represent all local priorities.

^{xxviii} The term 'agroforestry' covers a variety of systems from growing of perennial crops (e.g., fruit orchards), hedgerows on field boundaries to fast-growing coppices and scattered single-tree systems as well as agricultural production in forests.

^{xxix} Paludiculture is "the productive land use of wet and rewetted peatlands that preserves the peat soil and thereby minimizes CH₄ emissions and subsidence." See: https://www.eurosite.org/wp-content/uploads/paludiculture_CAP_definition_final.pdf

- Potentially biochar^{xxx} (depending on soil type), cover crops and organic matter, feedstock, etc.¹³⁸

Biodiversity

Protected areas	<p>Conversion of EU protected areas to arable and grassland production; degradation of protected areas from pollution (e.g., manure runoff) and invasive species</p> <p>Priority countries: Belgium, Denmark, Malta, Sweden, Netherlands, Hungary¹³⁹</p>	<ul style="list-style-type: none"> ▪ Input reduction including organic farming – in particular reduced used of harmful inputs ▪ Management of invasive species ▪ Peatland and wetland restoration ▪ Wildlife corridors, including hedgerows and buffer strips, for habitat connectivity ▪ Establishment of new protected areas, set asides and increased resources for maintenance and enforcement of protected areas ▪ Special management of transition zones 	<ul style="list-style-type: none"> ▪ Training & technical advice ▪ Labor & equipment ▪ Seedlings & planting materials ▪ Compensation for income loss (medium-term & permanent)
Production areas incl. agrobiodiversity	<p>Intensification of production areas, including through high livestock stocking rates, mono-cropping, heavy input use, loss of hedgerows, elimination of on-farm wildlife habitat</p> <p>Priority countries: Belgium, Netherlands, Lithuania, Hungary, Czech Republic, Croatia, Denmark, Romania, Poland, Slovenia¹⁴⁰</p>	<ul style="list-style-type: none"> ▪ Revised farm fencing, farm layout ▪ Farming ecosystem management including High Nature Value (HNV) pastoral systems & sacrificial arable crops ▪ Input reduction incl. organic farming – in particular reduced used of harmful inputs ▪ Crop rotation, companion crops, cover and catch crops, mixed farming systems including buffer strips^{xxxi} ▪ Reduced stocking rates and adapted livestock management 	<ul style="list-style-type: none"> ▪ As above, plus infrastructure to process additional crops

Water

Quality – fertilizers (nitrates & phosphates)	<p>Fertilizer and manure runoff into surface and groundwaters¹⁴¹ leading to eutrophication</p> <p>Malta, Germany, Spain, Belgium¹⁴²</p>	<ul style="list-style-type: none"> ▪ Reduced input use and improved input efficiency (e.g., more careful timing of fertilizer applications, precision agriculture) ▪ Where possible, change production systems (e.g., from sugar beet to oilseed rape) ▪ Buffer strips around fields and alongside streams, rivers, and lakes 	<ul style="list-style-type: none"> ▪ R&D ▪ Training & technical advice ▪ Infrastructure ▪ Planting materials ▪ Labor ▪ Income compensation – medium & permanent
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^{xxx} Biochar is a carbon-rich material produced during pyrolysis that is a thermochemical decomposition of biomass at a controlled temperature and in the absence or limited supply of oxygen: <https://www.sciencedirect.com/topics/engineering/biochar>

^{xxxi} Buffer strips are areas of natural vegetation cover (grass, bushes, trees) at the margins of fields, arable lands, transport infrastructures and water courses. They offer effective water infiltration and slow surface water flow, promoting the natural retention of water, reduce the volume of suspended solids, nitrates and phosphates originating from agricultural runoff. For more information see: <http://nwrn.eu/node/3811>

		<ul style="list-style-type: none"> ▪ Livestock management (e.g., reduced stocking rates) & manure management ▪ Appropriate application and management of organic fertilizer (e.g., biochar) 	
Quality- pesticides	Pesticide runoff into surface and groundwaters Priority countries: Belgium, Czech Republic, Finland, Germany, Hungary, Ireland, Italy, Netherlands ¹⁴³	<ul style="list-style-type: none"> ▪ Reduced input use and improved input efficiency (e.g., more careful timing of fertilizer applications) ▪ Integrated Pest Management (IPM) systems ▪ Conversion to organic agriculture ▪ Diverse farming systems with pest & disease resistant combinations of crops 	<ul style="list-style-type: none"> ▪ As above plus organic certification costs
Quantity – water flow	Altered water flow impacting biodiversity, flood, sediment dispersal, soil erosion risk Priority countries: Belgium, Netherlands, Germany, Poland, Hungary, Czech Republic, Austria ¹⁴⁴	<ul style="list-style-type: none"> ▪ Wetland restoration ▪ Floodplain restoration ▪ Riverine buffer areas ▪ Improved irrigation technologies & precision agriculture¹⁴⁵ ▪ Keyline farming^{xxxii} 	<ul style="list-style-type: none"> ▪ Infrastructure ▪ Labor ▪ R&D ▪ Income compensation – medium & permanent
Soil health^{xxxiii}			
Erosion from water, wind, and forest land management	Improper management of agricultural lands in particular on steep slopes Priority countries: Italy, Slovenia, Austria, Malta, Greece, Spain, Cyprus, Romania ¹⁴⁶	<ul style="list-style-type: none"> ▪ Cover & catch crops^{xxxiv} ▪ Reduced (low) or no till ▪ Restoration and protection of hilltops and steep areas ▪ Land conversion (e.g., to permanent grass cover) ▪ Reduced impact farming on steep slopes ▪ Potentially biochar 	<ul style="list-style-type: none"> ▪ Labor, infrastructure & equipment ▪ Planting materials ▪ Training & technical advice ▪ Income compensation – medium & permanent
Salinization & sodification	Accumulation of water-soluble salts in the soil profile (salinization) and progressive saturation of the exchange complex with sodium (sodification),	<ul style="list-style-type: none"> ▪ Adapted salt-tolerant species & phytoremediation ▪ Green manuring^{xxxv} ▪ Inoculation with mycorrhizal associations, biological agents, & bio-stimulants 	<ul style="list-style-type: none"> ▪ Land preparation ▪ Seedlings & planting materials ▪ Infrastructure ▪ Training & technical advice

^{xxxii} Keyline farming refers to a special farming technique is applied using a special plough and creates a water flow system to move water from wet to dry areas in order to maximize rainwater infiltration in the soil and decrease soil erosion from runoff. This is being tested in Southern Europe, e.g., in the Portuguese Montado ecosystem: https://ec.europa.eu/eip/agriculture/sites/default/files/awp2020-press-10-soil_final.pdf

^{xxxiii} Note that we have not included soil sealing and land take, as this is not primarily related to agriculture. We have also not included contamination (e.g., by heavy metals & mineral oils). Peatland drainage is covered under climate change. We have not included compaction of agricultural soils and acidification.

^{xxxiv} Catch crops are fast growing crops that are grown between successive main crops to provide soil cover, organic matter, rooting structure and sometimes livestock grazing (typically 6-10 weeks). Cover crops are grown for protecting or improving something on the farm between regular crop production (usually autumn / winter). Companion crops are planted with the main crops for pest control or pollination, provide nutrients, or act as a nurse crop and can help increase productivity. See: https://www.agricology.co.uk/sites/default/files/Cover%20Crops-%20Final_0.pdf

^{xxxv} Green manure, also called fertility building crops, are defined as "crops grown for the benefit of the soil", i.e., crops grown to be incorporated into the soil as manure.

	<p>leading to a soil pH increase to over 8.5 and reduced crop yields</p> <p>Priority countries: Belgium, Slovakia, Portugal, Netherlands, Austria, Spain, France</p>	<ul style="list-style-type: none"> ▪ Crop rotation with salt-tolerant crops ▪ Changes to drainage and irrigation systems ▪ Fresh water harvesting & storage ▪ Land conversion (e.g., to pastureland) ▪ Removal of salt crusts; deep tillage ▪ Organic & inorganic amendments ▪ Conservation agriculture & precision farming¹⁴⁷ 	<ul style="list-style-type: none"> ▪ Labor & equipment ▪ Compensation for income loss ▪ R&D
Desertification	<p>Improper management of agricultural lands</p> <p>Priority countries: Spain, Portugal, Italy, Cyprus, Greece, Bulgaria, Romania, France¹⁴⁸</p>	<ul style="list-style-type: none"> ▪ Adapted drought-tolerant varieties or altered production systems ▪ Agroforestry, companion crops to maintain local microclimates 	<ul style="list-style-type: none"> ▪ Planting materials ▪ Training & technical advice ▪ Labor & equipment ▪ Compensation for income loss – medium term (e.g., to maturity of tree crops) and permanent (e.g., creation of protected areas) ▪ R&D

Annex 2. Five examples of financing approaches to support the transition to regenerative agriculture in the EU

Box 1: European Soil and Water Outcomes Fund

Idea in brief

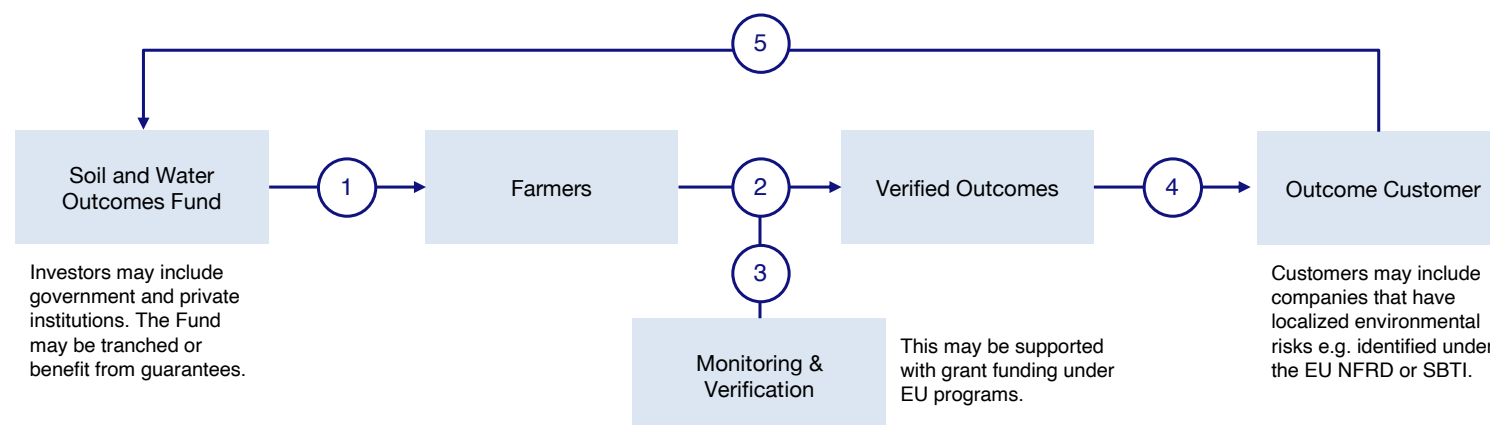
Providing a financial reward to farmers that contribute to positive soil and water-related outcomes

Existing examples outside of the EU

US Soil and Water Outcomes Fund – an investment vehicle that provides financial incentives to farmers for the implementation of agricultural best management practices that generate beneficial financial returns.

See: <https://www.theoutcomesfund.com>

Proposed adaptation for the EU



1. Fund is established for a specific area – for example, for measures that are aligned with but go beyond the national CAP Strategic Plan, or where the existing funds are inadequate to cover pre-financing needs. This may be used to compensate farmers for desired environmental outcomes that outcome customers will pay for. Customers may include local governments, municipalities and utilities or private companies seeking to mitigate Scope 3 emissions. The Fund may benefit from support, for example as part of a national Eco Scheme under the new CAP or, for example, guarantees and funded risk sharing.
2. Farmers are selected, baselines established, additional benefit contributions estimated, and contracts executed to deliver the outcomes. Compensation to farmers may take the form of ex post and potentially ex ante payments. Farmers may also be supported with technical assistance - e.g., to develop qualifying farm-level management plans.
3. Results are monitored and verified by an independent third party based on pre-agreed science-based approaches - e.g., leveraging EU data sets and institutions.
4. Verified outcomes are sold to the pre-identified customers - e.g., on a set price or an index.

Box 2: Environmental Impact Bond

Idea in brief

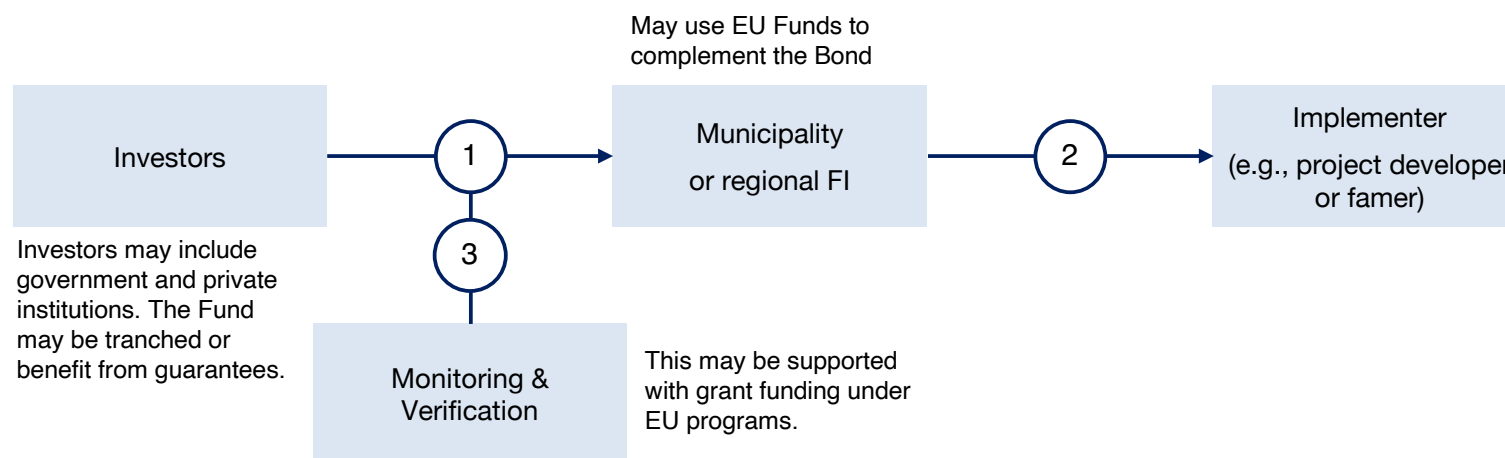
Financing for municipalities, regions and landscapes tied to environmental interventions with economic benefits.

Existing examples outside of the EU

Adapted from the US DC Environmental Impact Bond – a municipal bond that provides payment for environmental outcomes with measurable public benefits.

See: <https://www.goldmansachs.com/media-relations/press-releases/current/dc-water-environmental-impact-bond-fact-sheet.pdf>

Proposed adaptation for the EU



1. A municipality or regional financial institution issues an Environmental Impact Bond to finance specific interventions with public benefits – e.g., nature-based interventions to reduce nitrate run-off or reduce flood risk (such as stormwater management).
2. Funds are used to finance pre-determined interventions that have clear economic benefits. For example, to prevent fines being paid or to avoid public health costs or to mitigate legal costs associated with non-compliance.
3. Investors are repaid based on the success of the intervention, monitored, and verified by a qualified independent third party.

Box 3: Blended finance fund for agricultural transformation

Idea in brief

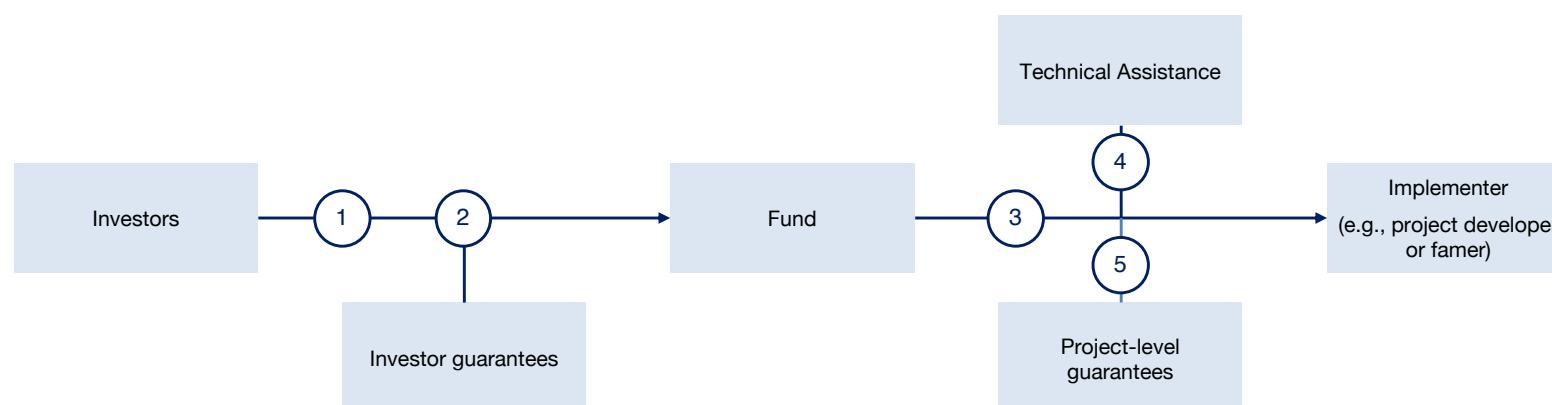
A fund that can support regenerative agriculture development projects by combining investments, blending and TA

Existing examples outside of the EU

This model is based on blended finance funds found in emerging markets. Note that this has some similarities with funds such as the Livelihoods Funds, Tropical Landscapes Financing Facility (TLFF) and others.

See: <https://livelihoods.eu/l3f/> and <https://www.tlffindonesia.org>

Proposed adaptation for the EU



1. A European or national fund is established to invest in sustainable agricultural transformation. Investment returns may be financial and / or non-financial - e.g., linked to impact or in verified impact outcomes (e.g., carbon or biodiversity claims).
2. This may be facilitated by risk sharing for investors - e.g., subordinated tranches or guarantees.
3. The Fund makes investments, likely long-term debt, or quasi-debt (i.e., debt with revenue or impact shares) as per the investment strategy.
4. Technical Assistance is provided to the implementers and / or the Fund manager - e.g., on Monitoring and Reporting and on technical (agronomic) matters.
5. Project level guarantees may be given by public or private institutions - e.g., risk sharing by larger companies in whose supply chain the project operates, or from Member States.

Box 4: EU Green Deal project development fund for agricultural landscapes

Idea in brief

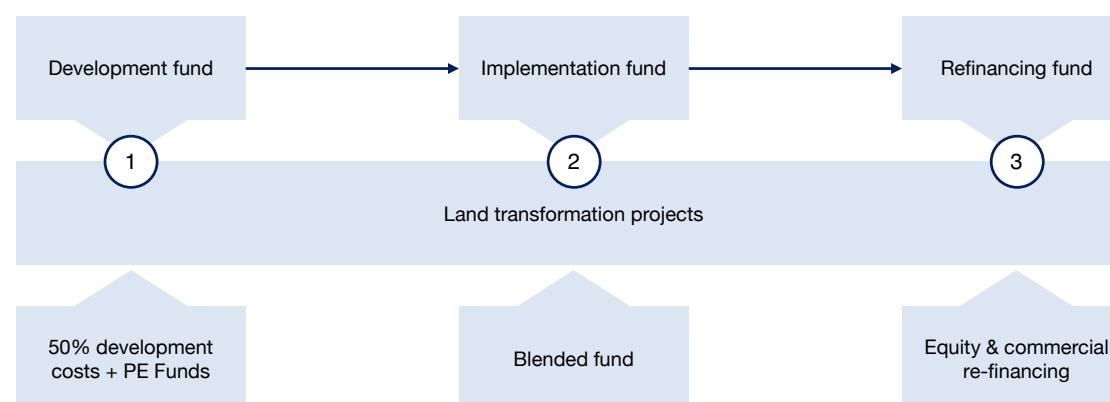
A fund that can support the development of regenerative agriculture landscape projects linked to EU Green Deal targets

Existing examples outside of the EU

This structure is based on Climate Investor One's project finance facility. This is suitable for large-scale projects, such as rehabilitation of a large area that may generate commercial returns in the future. The investments must generate financial returns.

See: <https://www.convergence.finance/resource/c98944c2-2391-43e2-bf3d-80611b0b4d4c/view>

Proposed adaptation for the EU



1. A Development Fund is established, funded by public sector contributions, which would finance part of the initial development costs for the private sector projects. This “grant funding” would be converted to equity for successful projects in the Implementation Fund. The Implementation Fund would buy the stake in the project from the Development Fund, thus recycling the capital in this first stage.
2. Implementation Fund would take the next step of the project development by providing part of the investment costs. It may be capitalized using a blended finance approach – e.g., with a first loss tranche provided by donors to absorb potential losses, a second subordinated layer taken up by investors with larger risk appetites, and a third layer of senior debt.
3. A Refinancing Fund would backstop access to capital for projects that achieve commercial operations.

Box 5: EU carbon farming pre-compliance fund

Idea in brief

A fund that can support the development of emergent carbon farming initiatives across the EU

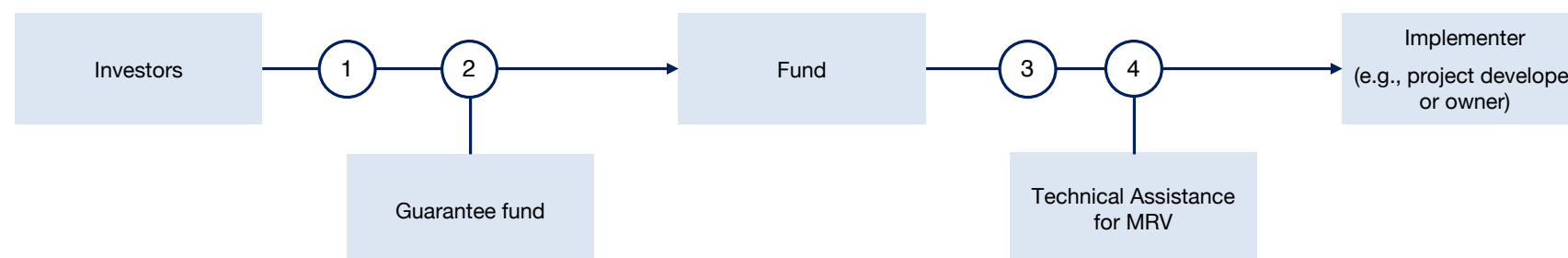
Existing examples outside of the EU

No similar structures exist, though there may be learnings from the IFC Forest Carbon Bond.

See:

https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new/investor+relations/i-r-products/forest_bond

Proposed adaptation for the EU



1. Investors would invest in a European fund: Investors could include financial investors as well as those seeking to offset specific risks (e.g., carbon offsetting).
2. Such investors could be repaid in the form of a low fixed return that is backed by public sector guarantees, and / or a carbon credit (or other environmental benefit unit) generated as part of the program. Note that such a credit would not be transferable into EU ETS allowances but could be used for European inseting claims and potentially be considered as eligible post-2030. A European carbon farming pre-compliance fund is established to support the emerging Eco Schemes under the new CAP. It could focus on high-priority landscapes or on specific Member States.
3. The Fund would invest in projects (e.g., pre-financing carbon farming projects). Such contractual arrangements and learning would be beneficial post 2030. This could enable up-scaling of Carbon Farming schemes in the next phase of the CAP as a test phase.
4. Technical Assistance would be provided for methodology development and Monitoring, Reporting and Verification (MRV), leveraging EU data sets and technical expertise to build capacity in preparation for EU carbon markets in and between Member States.

Annex 3. References & endnotes

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- ⁴ European Environment Agency (09.08.2022) *What is harming Europe's nature?* From: <https://www.eea.europa.eu/signals/signals-2021/articles/what-is-harming-europe2019s-nature>
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- ⁷ Notably in Portugal, Spain, Italy, Greece, Cyprus, Bulgaria and Romania. See European Commission Press Corner Questions and answers (17.11.2021) *Questions and Answers on the EU Soil Strategy* From: https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_5917
- ⁸ European Commission Research and Innovation (no date) *EU Mission: A Soil Deal for Europe*, from: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe/soil-health-and-food_en
- ⁹ European Commission Climate Action (no date) *EU Climate Law*, from : https://ec.europa.eu/clima/eu-action/european-green-deal/european-climate-law_en
- ¹⁰ European Commission 2030 (no date) *Climate Target Plan 2030*, from: https://ec.europa.eu/clima/eu-action/european-green-deal/2030-climate-target-plan_en
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- ¹² European Environment Agency (04.09.2019), *Climate change adaptation in the agriculture sector in Europe*. EEA Report No 4/2019. From: <https://www.eea.europa.eu/publications/cc-adaptation-agriculture>
- ¹³ Leip A, Bocchi S. (2017) *Contribution of rice production to Greenhouse Gas Emissions in Europe*. In Conference Proceedings: S. Bocchi, A. Ferrero, A. Porro, editors. Proceedings of the 4th Temperate Rice Conference. Novara (Italy): SIRFI; 2007. P. 32-33. JRC37770. Available from: <https://publications.jrc.ec.europa.eu/repository/handle/JRC37770>
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- ¹⁶ On definitions, see, e.g., Newton, P. et al (2020), *What Is Regenerative Agriculture? A Review of Scholar and Practitioner Definitions Based on Processes and Outcomes*. *Frontiers in Sustainable Food Systems*. Available online at: <https://www.frontiersin.org/articles/10.3389/fsufs.2020.577723/full> or Grant, S. (2017). *Organizing alternative food futures in the peripheries of the industrial food system*. *J. Sustain Educ.* 14, 1-14. Available online at: http://www.susted.com/wordpress/content/organizing-alternative-food-futures-in-the-peripheries-of-the-industrial-food-system_2017_05/
- ¹⁷ See e.g. World Farmers Organisation at COP 26 in Glasgow (from: https://www.wfo-oma.org/wfo_news/wfo-at-cop26-glasgow/), or individual farmers in Europe for example Ridgedale Farm (<https://www.ridgedalepermaculture.com>), Gut & Bösel (<https://www.gutundboesel.org>), or "La ferme biologique du Bec Hellouin" (<https://www.fermedubec.com/english/>)
- ¹⁸ See e.g. Nestlé, Danone, Unilever, or Kering.
- ¹⁹ See e.g. Ellen MacArthur Foundation, the Global Alliance for the Future of Food or the Rockefeller Foundation.
- ²⁰ See e.g. EIT Food, FAO or UNDP.
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