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EU Taxonomy for Sustainable Activities: implications and prospects for the Agri-food industry

To what extent are European Agri-food companies complying with the Taxonomy?

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Abstract

In recent times, addressing climate change and the transition to a sustainable development model have become increasingly important. Companies aim to create value while considering relevant principles such as fair compensation for employees, respect for ethical and social values and environmental protection. Sustainable finance does incorporate such values, namely environmental, social and governance (ESG) principles into the decision-making processes of financial operators. It represents an important change designed to ensure that the financial system is used for the benefit of our collective well-being, and in doing so it represents a vital tool for addressing climate-related risks (F. Panetta, 2021).

At European level there has been a rapid evolution concerning the regulatory framework regarding sustainable finance. In this regard, one of the most relevant actions by the European Commission is the introduction through the EU Regulation 2020/852 of a *classification of economic activities* which aims at redirecting investments towards a greener and more sustainable economy.

Through this work we aim at presenting what the European Taxonomy for sustainable activities is and why it is so important for reaching certain objectives related to the prevention of climate change and why it can represent a crucial turning point for the real economy and the financial market. We will also see how this can be a complex and costly challenge, especially for SMEs (European Economic and Social Committee, 2021).

In particular, we are going to see how the agri-food industry is complying with the Taxonomy, how sustainable this sector is, and we'll see if certain companies are correctly reporting and disclosing to what extent their activities meet the criteria set out in the Taxonomy.

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I. Introduction

What the President of the European Central Bank, Christine Lagarde, said during a speech regarding the *contribution of finance to combating climate change* is that “everybody must take action, whatever their role, mission and position” (...) “We need to take action. Even a disorderly transition, where policies are enacted in a haphazard way or before green technologies are fully mature, is still less costly than sitting down and watching and there being no transition at all. The long-run benefits from acting early on climate are clear” (ECB, 2021).

Climate change is significantly and rapidly impacting the planet under many viewpoints, it is among the greatest threats of our generation and of generations to come, to public health, ecosystems, and the economy. In recent years the attention and interest of governments and countries have been redirected towards factors that trigger climate change and global warming, stimulating the widespread of a common consensus regarding the well-needed mitigation of risk factors related to climate change. In addition, climate change has profoundly shaped the modern view of finance. There is in fact a bidirectional relationship between the two: climate change affects finance and finance can affect climate change, namely the way in which financial funds are invested can influence climate change.

At European level there has been a rapid *evolution* of the legal framework regarding the implementation of a new strategy in terms of sustainable finance. Sustainable development and the protection and improvement of the quality of the environment are core values of the European Union and recognized by EU laws and treaties. By passing the Green Deal in 2019, the European Union set the course for more sustainable investments, for instance in renewable energy, biodiversity, or circular economy. The goal is to reach a climate-neutral economy in the EU by 2050, with a reduction of 55% already implemented in 2030.

In March 2018, the European Commission adopted the *Action Plan on Financing Sustainable Growth*. Among other actions, the Commission committed to: i) establishing a clear and detailed EU classification system, or taxonomy, for sustainable activities with the aim of creating a common language for all actors in the financial system; ii) establishing EU labels for green financial products. In June of the same year, the Commission decided to set up the *Technical Expert Group* (TEG), a group of 35 experts on sustainable finance, to be assisted in the implementation of the Action Plan. The TEG was also mandated to develop recommendations for technical screening criteria regarding economic activities that make substantive contribution to climate change mitigation or adaptation. The strategy of the Action Plan builds up onto 3 objectives: i) the reorientation of capital flows with a focus on sustainable investments; ii) integration of Environmental, Social and Governance (ESG) factors as components of risk management; and iii) promoting a long-term approach based on transparency for economic and financial activities.

One of the most urgent actions taken by the European Commission is the creation of a classification system of economic activities aimed at redirecting investments towards a

greener economy, namely the *EU Taxonomy*, which is at the core of this research. A shift of capital flows towards sustainable financial activities must be backed by a clear and common definition of what is in fact “sustainable” or “green”. The Taxonomy was introduced by Regulation (EU) 2020/852, adopted in June 2020 as part of the Action Plan, and it sets out the conditions and the standards that the economic activity has to meet in order to qualify as “environmentally sustainable” under EU law. Therefore, an EU Taxonomy is key to ensure consistency, providing the basis for further policy action in the area of sustainable finance, including standards and labels (Alessi et. al, 2019).

The aim of this research is to go through the EU Taxonomy for Sustainable Activities, analysing its objectives, pros and cons, benefits and limitations. Then, in the following sections we will go deeper into the European Agri-food sector and see to what extent the selected companies in that sector are complying with the EU Taxonomy and how much they are aligned with it. Further steps will be needed for the Taxonomy to be defined as complete but through some assumptions, we will analyse the compliance of these European agri-food companies with the objectives of the Taxonomy.

II. EU Regulatory Framework on Sustainable Finance: a status quo assessment

European Union law requires more and more that certain large companies disclose information on the way they operate and manage social and environmental challenges. In order to understand the potential benefits that EU legislation can bring to the financial market and to the growth of sustainable finance, it is necessary that we go through the main objectives and the timeline of such set of rules, whether they are already implemented or will be implemented in the future. For the rules to be efficient, coordination and harmonisation must be present in the system where they are implemented.

We first start talking about the *Corporate Sustainability Reporting Directive* (CSRD): in April 2021, the European Commission adopted a proposal of this Directive which would amend the existing Non-Financial Reporting Directive (NFRD). This proposal extends to enterprises which are based in the European Union that count more than 250 employees, (lowering the threshold with respect to the NFRD which foresees a limit of 500 employees) and to all companies listed on regulated markets (except listed micro-enterprises). It introduces more detailed reporting requirements: companies must report according to mandatory and common EU sustainability reporting standards. It also requires companies to digitally tag the reported information, so it is machine readable and feeds into the European single access point envisaged in the capital markets union action plan (European Commission, 2022). Moreover, the disclosed information will require audit under the limited assurance method. This Directive should come into effect starting from 2023.

Then, we need to briefly mention the *Taxonomy Regulation* (TR) before we analyse it at length in the following sections. This Regulation implies that enterprises that fall under the scope of NFRD (and later under CSRD) should disclose information regarding the alignment of their activities with the Taxonomy. We will see the difference between non-

financial corporations and financial corporations in terms of the type of information they need to disclose. In general, the implementation of such Regulation will be progressive between 2022 and 2024.

Finally, we cite Regulation 2019/2088 which is the *Sustainable Finance Disclosure Regulation* (SFDR), another fundamental pillar of the EU Sustainable Finance agenda as a core part of the Sustainable Finance Action Plan. It was introduced to improve transparency in the market for sustainable investment products, to prevent greenwashing and to increase transparency around sustainability claims made by financial market participants. The requirements of this regulation will be applied starting from July 2022.

Overall, the objective of these legislations, CSRD, TR, and SFDR is to increase the transparency in the market, meaning enlarging the quantity, the quality and the comparability of sustainability information related to companies, financial actors, and financial products.

Inside this framework we can highlight 3 main crucial points for the development of the sustainable finance market:

- 1) Utilising the Taxonomy as a way to finance the transition;
- 2) Establishing an equilibrium between the availability and the comparability of ESG data;
- 3) The importance of a higher efficiency and accessibility of the information on sustainable products and activities, as an advantage for investors and consumers.

III. Financing sustainable growth

In 2019 the European Commission stated that major private and public investments are needed to transform the EU economy: on the agenda of the Commission there are climate, environmental and social sustainability goals, including the Paris Agreement and the UN Sustainable Development Goals. Sustainable finance is an important component of the European Green Deal. This type of finance makes sustainability considerations part of financial decision-making. It is thus needed in order to implement the Commission's strategy towards achieving the social development goals, increasing the number of climate neutral, energy-resource efficient and circular projects.

The former EU Vice-President in charge of Financial Stability, Financial Services and Capital Markets Union, Valdis Dombrovskis, in 2019 affirmed that the EU budget, public money, would not be enough to contribute to climate action. In order to meet the targets of the Paris agreement, the EU proposed hard law to incentivise private capital to flow towards green projects. Finance has hence an important role and can make the difference. The EU has committed to 3 ambitious climate and energy targets:

- At least 40% cut in greenhouse gas emissions with respect to 1990 levels,
- At least 32% share of renewables in final energy consumption,
- At least 32.5% energy savings compared with the business-as-usual scenario.

To reach these goals, collective action must be taken. Transitioning to a climate-neutral economy requires global solutions. This provides benefits for *investors* since there will

be a greater choice of projects and green finance products to satisfy the fast-growing demand. And on the other hand, there will be benefits for *businesses* that will have new sources of funding through global capital markets and the financial sector worldwide.

The European Union has taken great steps and is continuing to act, in particular 3 pieces of legislation will incentivise and channel the investments coming from the private sector into green and sustainable development.

- 1) A unified EU Green classification system, the Taxonomy, that provides for a general framework that will allow for the progressive development of an EU-wide classification system for environmentally sustainable economic activities. This aims to provide guidance for policy makers, industry and investors on how best to support and invest in economic activities that contribute to achieving a climate neutral economy.
- 2) Sustainability-related disclosures: financial market participants will have to disclose to their clients the impact of sustainability on financial returns and the impact of their investment decision on sustainability.
- 3) Climate benchmarks and ESG disclosures: these benchmarks aim to orient the choice of investors who wish to adopt a climate-conscious investment strategy.

CHAPTER I: Overview of the EU Taxonomy - what it is and why we need it

In this section we present the European Taxonomy, the greatest step taken by the European Commission in its Action Plan on Financing Sustainable Growth (2018). In December 2019, the European Commission presented the Green New Deal, a great strategy that was launched in line with the Paris Agreement goals which aims to combat climate change and reach carbon neutrality by 2050. Sustainable finance is one of the of the main pillars of the EU Green Deal and requires the private sector and investors to divert their financing towards a green transition. To attain these goals, more precise rules were needed in order to re-orient investments and capital flows: the **EU Taxonomy**. It is a *green classification system* that translates the EU's climate and environmental objectives into criteria for specific activities for investment purposes (European Commission, 2020). The taxonomy is also a system that provides ways through which a company can calculate its sustainability turnover. As set out in the European Green Deal ([A European Green Deal | European Commission \(europa.eu\)](#)), the EU will face and pursue various economic reforms, including the decarbonization of the energy system, the transition to a circular economy, and the reverse of the alarming declines in ecosystems and biodiversity. Addressing the environmental challenges in the EU will require tremendous investments and innovations across sectors: in order to close these investment gaps, the financial sector has a key playing role in re-directing flows to support the transition towards a more sustainable economy. Such re-orientation requires a common understanding among all investors, financial institutions, and companies across the EU of what a “sustainable investment” is. As a result, a unified EU-wide classification system, the EU Taxonomy, for sustainable economic activities to guide green investments towards those activities that are essential to the achievement of the European Green Deal objectives (Platform on Sustainable Finance, 2022).

Previously, there was no clear definition of green, sustainable, or environmentally friendly economic activity. The Taxonomy Regulation creates a clear framework for the concept of sustainability, defining when a company or enterprise is operating sustainably or environmentally friendly. Compared to their competitors, these companies stand out positively and thus should benefit from higher investments. Thereby, the legislation aims to reward and promote environmentally friendly business practices and technologies (EU Taxonomy-Info, 2021). At the same time, this is expected to help companies shift investments towards more sustainable activities and to facilitate the transition to a sustainable economy.

The Taxonomy recognises as green, or “environmentally sustainable”, economic activities that make a *substantial contribution* to at least one of the EU's climate and environmental objectives, while at the same time not significantly harming any of these objectives and meeting minimum social safeguards.

The focus of the Taxonomy Regulation lays on the following six environmental objectives:

1. Climate change mitigation
2. Climate change adaptation
3. Sustainable use and protection of water and marine resources
4. Transition to a circular economy
5. Pollution prevention and control
6. Protection and restoration of biodiversity and ecosystems

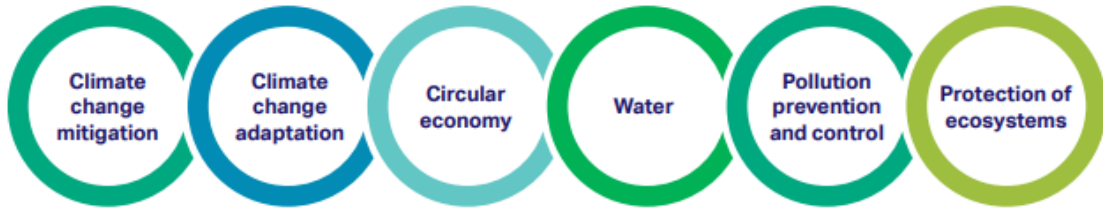


Figure 1 : EU environmental objectives covered by the Taxonomy

Source: wbcso.org, 2020

To be classified as an environmentally sustainable economic activity according to the EU Taxonomy, four conditions must be satisfied for the activity to be recognised as “**Taxonomy-aligned**” indeed:

- i) A company must comply with and substantially contribute with *at least one* of the environmental objectives.
- ii) Doing no significant harm to any other environmental objective. At the same time, the company must not violate the remaining ones: an activity aiming to mitigate climate but negatively affecting biodiversity cannot be classified as sustainable. In this regard, the European Commission is developing the technical screening criteria through Delegated Acts to define what it means to “make a substantial contribution” and “do no significant harm” with respect to the climate and environmental objectives.
- iii) Complying with minimum social safeguards
- iv) Complying with technical screening criteria, which are developed in Delegated Acts.



Source: Taxonomy - Final report of the Technical Expert Group on Sustainable Finance, 2020

The technical screening criteria for “substantial contribution” to one environmental objective ensure that the economic activity either has a substantial positive environmental impact or substantially reduces negative impacts on the environment, for example reduced levels of greenhouse gas emissions. For instance, making substantial contribution to *climate change mitigation* would mean to stay within levels of performance that are aligned with climate neutrality and that limit the increase in temperature to 1.5°C globally. For climate change adaptation instead, it would mean to implement solutions to substantially reduce the identified climate risks to a particular activity, i.e., droughts, storms, wildfires.

Instead, the technical screening criteria for “do not significant harm” (DNSH) ensure that the economic activity does not pose obstacles on the other environmental objectives from being reached, thus it doesn’t represent a negative impact for them. These sets of criteria are intended to ensure coherence between the objectives in the EU Taxonomy and guarantee that the progress towards one objective is not made at the expense of another.

It is a transparency tool that will introduce mandatory disclosure obligations on some enterprises and investors, requiring them to disclose their share of Taxonomy-aligned activities: this will allow for the comparison of companies and investment portfolios, and also guide market participants in their investment decisions.

Economic activities that meet the screening criteria outlined in the technical screening criteria outlined in the technical annex of the Taxonomy are considered strong investment options under the EU Green Deal, while those that do not meet the criteria, but who want to align with the Taxonomy, will need to illustrate how they plan to move toward alignment.

For activities that do not meet the screening criteria, the Technical Expert Group (TEG) recommends that companies disclose precise expenditure on improvements that promote alignment. These improvements can be counted as “Taxonomy-aligned” if they help the company meet the Taxonomy’s screening criteria within five years (“The new EU Taxonomy on sustainable activities”, wbcso.org, 2020).

The Taxonomy represents a guide for:

- **Enterprises**, that can use the Taxonomy to evaluate their own activities, define more sustainable corporate policies and publish more complete and comparable reports for their stakeholders. Companies, if they wish, can reliably use the EU Taxonomy to plan their climate and environmental transition and raise finance for this transition. As well as financial companies can use the Taxonomy to design credible financial products.
- **Investors**, that can integrate sustainable products in their investment decisions and understand the environmental impact of the activities they are investing in.
- **Public institutions**, that can use the Taxonomy to define or ameliorate their own transition policies.

Despite being a very helpful tool for these actors in the market, the EU Taxonomy is not a mandatory list of economic activities for investors to invest in, nor does it set mandatory requirements on environmental performance for companies or for financial products. Nevertheless, it is expected over time that the EU Taxonomy will be an enabler of change

and encourage the transition towards sustainability as for now it is considered to be one of the main pace setters in the redirection of capital flows (European Commission, 2021).

The Taxonomy recognises three different types of activities as “environmentally sustainable” and thus that do make a substantial contribution:

- i) the so-called *low carbon* activities, that either avoid or reduce emissions or even absorb GHG emissions through certain technologies. For such activities there are stable and long-term technical screening criteria to incentivize investments and ensure their development.
- ii) *transitional* activities, which are not yet complying with the objectives set for 2050 and for which there is no available low-carbon alternative but that could be become greener in the future. These activities are characterised by high levels of emissions (for instance, the production of steel, cement, and aluminium), but that on the same time do offer a great potential in reducing GHG emissions. A change in the investment trend towards green activities, as the one that is expected in the future, might force certain enterprises that carry on transitional activities to take a crucial decision: either get restructured or exit the market (Cerved, 2020).
- iii) *enabling* activities, which do limit the negative impacts on the environmental (e.g., railway transport) and do enable other activities to make a substantial contribution to the objectives (e.g., data-driven solutions for greenhouse gas reduction). This classification of activities represents a reference point for the sustainable finance market because it will indicate how sustainable an investment is.

Recent estimates and early testing of the climate taxonomy criteria show a *low overall Taxonomy alignment* in companies’ activities and investment portfolios: between 1% - 5%, with many companies and investment portfolios standing at zero (European Commission, 2021). We must reckon that taxonomy-aligned activities are limited for mainly two reasons: the first one is that, for an activity to be defined as aligned, it must make a substantial contribution to the cited environmental objectives, which are few if we consider the entire economy, therefore an activity that is defined as “transitional” is not green yet and cannot be counted as taxonomy-aligned. The second reason regards the technical screening criteria for “substantial contribution” and “do not significant harm” conditions, which are often quite strict.

On the other hand, though, the Taxonomy expands the “green investable universe” on many sectors, covering a vast range of economic activities (Alessi et al., 2021). In fact, the European Parliament and the Council have prioritised economic activities that can make the most relevant contribution to climate change mitigation and climate change adaptation. The first Delegated Act, adopted in June 2021, includes activities that are most relevant for reductions in greenhouse gas emissions and for improving climate resilience, thus it establishes technical screening criteria to determine whether an economic activity substantially contributes to climate change adaptation and mitigation. This comprises sectors with the highest contribution to CO₂ emissions (energy, manufacturing, transport, buildings), as well as activities that enable their transformation.

The EU Taxonomy criteria covers the economic activities of roughly 40% of listed companies domiciled in EU, that carry out their business in sectors which are responsible for almost 80% of direct greenhouse gas emissions in Europe (Eurostat, 2021). Through this coverage the Taxonomy can increase the potential that the transition gets supported by green financing, particularly for carbon-intensive sectors where change is urgently needed (European Commission, 2021). Not all economic activities are covered by the Taxonomy Regulation and its delegated acts, but this does not mean that the EU Taxonomy will be irrelevant to companies active in those sectors that are not covered.

At this point, it should be clear the reason *why* we need the EU Taxonomy. In the speech “The Contribution of Finance to Combating Climate Change” (2021), the President of the ECB underlined how crucially important the role of the financial sector is. In order to meet the EU’s climate and energy targets for 2030 and reach the objectives of the European Green Deal, it is vital that we direct investments towards sustainable projects and activities. In addition, the current pandemic has reinforced the need to redirect money towards sustainable projects to make the economy, together with businesses and societies more resilient against climate and environmental shocks. Thus, to achieve this, a common language, and a clear definition of what is “sustainable” is needed. And this is why the European Commission’s Action Plan on Financing Sustainable Growth called for the creation of a common classification for sustainable economic activities, the EU Taxonomy. By focusing on the activity level, the Taxonomy supports companies in their transition. It provides incentives to gradually increase their share of green economic activities to attract more investors or possibly new and different types of investors. In turn, investors will be able to easily identify financial products that do satisfy green criteria and the related standards and labels, avoiding the so-called “greenwashing”.

1.1 Implementation of the Taxonomy

As mentioned before, the six environmental objectives are the basis of the EU Taxonomy for a sustainability evaluation and are currently being formulated by the European Commission. The environmental objectives are expected to be published at different times and therefore they will also differ according to their mandatory application deadline. To this day, the *climate change mitigation* and *climate change adaptation* objectives are the ones that were already published by the EU in April 2021, with mandatory application date being January 2022, thus they are effective and in force. Concerning the other four objectives (Sustainable use and protection of water and marine resources, Circular economy, Pollution prevention and control, Protection of biodiversity), there is no publication available from the EU yet. Their mandatory application date is expected to be January 2023. The announcement of the environmental objectives and their application guidelines are an elementary part of the EU Taxonomy regulation.

When it comes to the use and the *implementation*, thus the concrete assessment of the sustainability of economic activities, the Taxonomy Regulation considers different circumstances and obligations for different economic actors. We’ll see that it will be mandatory for a large share of European companies who will have to disclose the Taxonomy-alignment or Taxonomy-eligibility of their products and activities. It is also

expected that the EU Taxonomy will be largely applied within and outside Europe (Ramboll, 2021). The alignment with the Taxonomy will create visibility and transparency for investors, enabling them to gain insights on what investments will truly make a positive environmental impact: disclosing alignment is thus a way for accessing finance.

As the taxonomy becomes the mainstream vocabulary in defining sustainability, companies will achieve an increased understanding of the sustainable impact of their activities and an indication of what improvements are to be made.

Thus, who is affected by the Taxonomy? Three groups can be defined:

1. Companies with **over 500 employees** that fall under the Non-Financial Reporting Directive (NFRD)
2. Financial market participants, including occupational pension providers, that offer and distribute financial products in the EU
3. Institutions from EU member states when setting public measures, standards or labels for green financial products or bonds.

Compliance timelines differ for each of the three groups that are in the scope to report on the EU Taxonomy.

The requirements for financial market participants and companies that do not offer financial products differ. Some companies/financial market participants may fall into both categories, depending on the size and economic activity. All companies concerned must disclose how and to what extent their economic activity considers or includes sustainability based on the Taxonomy Regulation.

Companies will be required to report the following:

- i) Proportion of total **turnover** derived from products or services associated with taxonomy-aligned activities.
- ii) Proportion of Capital Expenditures (**CapEx**) aligned with the EU Taxonomy,
- iii) Proportion of Operating Expenses (**OpEx**) related to assets or processes associated with taxonomy-aligned activities.

Disclosure should be part of non-financial reporting, probably in the annual report or an explicit sustainability report. Organisations are required to report according to the taxonomy to clearly indicate how and to what extent their activities are associated with taxonomy-aligned activities. In the initial phase, taxonomy alignment will only apply to the first two of the six objectives (climate change mitigation and climate change adaptation), with the four remaining objectives to be covered in subsequent years.

The EU Taxonomy regulation does not require companies to categorise relevant economic activities as “transitional” or “enabling”. However, the EU recommends doing so, as financial institutions are required to disclose these aspects in their portfolios. A company that does so makes itself more attractive to potential investors.

Companies that are required to report according to the EU Taxonomy are also required by the Non-Financial Reporting Directive (NFRD), among other things, to disclose

information that illustrates a company's development, position, performance, and impact on environmental issues. There are some mandatory disclosure rules defined in the Taxonomy Regulation. Alongside these companies can also use the EU Taxonomy *voluntarily*.

Regarding **mandatory use**, the EU Taxonomy sets mandatory requirements on disclosure with the aim of providing *transparency* on environmental performance. Large financial and non-financial companies that fall under the scope of the Non-Financial Reporting Directive (NFRD) will have to disclose to what extent the activities that they carry out meet the criteria set out in the EU Taxonomy. Companies will be able to disclose the extent to which they invest, in terms of capital expenditures, in either expanding or strengthening their activities which are already Taxonomy-aligned or to upgrade other activities to make them aligned (European Commission, 2021). Disclosing green expenditure and revenue will provide the market with information on companies whose activities comply with the EU Taxonomy criteria and companies that are taking steps to get there. Disclosures are *only mandatory for large companies* within the scope of the CSRD, but many small companies and businesses could find it useful to disclose the Taxonomy-alignment of their activities on a voluntary basis.

Concerning the **voluntarily use** instead, there are many possible voluntarily uses of the EU Taxonomy by market actors, which are not necessarily defined in policy instruments. For instance, companies can use the criteria set out in the EU Taxonomy as an input to their environmental and sustainability transition strategies and plans. Other voluntary disclosures can be listed even if they are not directly required by the EU Taxonomy: companies and project promoters can choose to meet the criteria of the EU Taxonomy with the aim of attracting investors interested in green opportunities. At the same time, investors can choose to use the EU Taxonomy criteria as a screening tool to identify sustainable investment opportunities with the aim of achieving a positive environmental impact.

On the other hand, what about companies *without* any Taxonomy-aligned activities? Not having Taxonomy aligned activities does not reveal the company's exact environmental performance. Other disclosures, such as the disclosure under the CSRD, will be informative regarding the company's environmental performance and the company's direction of travel on environmental matters. Thus, there is no obligation on companies to have activities aligned with the EU Taxonomy and there is no obligation on investors to invest in Taxonomy-aligned activities. In general, though, there is likely to be a higher interest in Taxonomy-aligned activities from investors who are seeking green investments (European Commission, 2021).

1.2 The process of assessing a company's eligibility and alignment

The goal of the EU Taxonomy is to direct finance towards sustainable investment, having a large impact on the financial sector. Its impact will be significant also on non-financial companies, that carry out several different business activities. As mentioned before, non-financial companies that fall under the scope of the Non-Financial Reporting Directive

(NFRD) will have to disclose their share of Taxonomy-eligibility and aligned activities. And the scope of reporting requirements is expected to massively expand when the Corporate Sustainability Reporting Directive (CSRD) reviews the NFRD, covering a larger number of companies. The process of assessing and reporting the Taxonomy alignment could be summed up into four steps.

1. Defining eligible activities, which means assessing which of the company's activities are covered in the Taxonomy and thus are **eligible for screening**.
2. Screening: after having identified the applicable technical screening criteria, the company should determine the data collection approach, through surveys for instance. This step gathers both technical and financial data.
3. Financial allocations: depending on whether a company is a non-financial or financial undertaking, different KPIs will apply. For non-financial undertakings, **total revenue, CAPEX and OPEX** should be considered according to the definition by the Taxonomy. And for each KPI, the company should calculate the proportion associated with eligible and aligned economic activities.
4. Reporting: this last step entails summarising input, process and output of the screening to create an assurance document, in accordance with the reporting requirements (NFRD and future CSRD). The final report should be in compliance with all the requirements for disclosure as outlined in the delegated act supplementing Art. 8 of the Taxonomy Regulation (Ramboll, 2021).

1.3 Limitations of the Taxonomy: scarcity of data and difficult comparison

Some experts have raised concerns about the Taxonomy regarding measurement, thresholds, scope and unintended consequences. Others have highlighted that local and national contexts should be considered, and that classification and thresholds must be dynamic. Categorizing may not support efforts to bring sustainability into the mainstream, but it may encourage laziness and disincentivize ambition. Because of this, there are concerns that the Taxonomy may not help investors understand how their holdings actually make a difference to the real economy transition (Caldecott B., 2020).

Data regarding the Taxonomy-alignment of economic activities is very useful for *enterprises*, as it could be a way to analyse their own business and understand where the company positions itself on the decarbonisation trajectory with respect to its competitors. It is also useful for *financial operators* that should disclose their alignment as being an organization, following article 8 of the Taxonomy Regulation.

Nevertheless, the efficiency of European legislation regarding transparency and disclosure highly depends on the **availability of data**, that should be in line with the timing of Taxonomy requirements implementation. At the same time, it is crucial that data is reliable and comparable: reporting and disclosure should be done according to common standards, with transparency being among the most important ones, in order to avoid the risk of greenwashing.

Another important thing to consider is the fact that the number of companies reporting information regarding sustainability will get larger and larger, expanding about fivefold

when CSRD will review NFRD (from 11,000 to 50,000 companies). We also need to consider several other companies, including SMEs, that could disclose on a voluntary basis. Nevertheless, the availability of such information is not immediate, it will take time to gather such sustainability data. The disclosure regarding financial products that invest in environmental objectives, as foreseen in articles 5 and 6 of the Taxonomy Regulation, will be mandatory starting from January 2022: at the same time, for financial products alignment disclosure, data regarding the alignment of enterprises is needed, following article 8 of the Taxonomy Regulation. But data related to enterprises will be available starting from 2023 for what concerns companies with more than 250 employees and from 2026 for listed SMEs.

1.4 The role of the Platform on Sustainable Finance

The Platform on Sustainable Finance is a permanent expert group of the European Commission that has been established under Article 20 of the Taxonomy Regulation to assist the Commission in developing its sustainable finance policies, notably the further development of the EU Taxonomy. The Platform is made up of world-leading sustainability and industry experts. According to the Taxonomy Regulation, the Commission has to consult the Platform on Sustainable Finance before adopting the delegated act on technical screening criteria. Since the entry into force of the Regulation, the Commission has adopted two delegated acts, plus a third that has been approved in principle, but not yet adopted.

The Platform plays a key role in developing the technical screening criteria, as it provides indispensable technical and scientific input to the Commission and allows for a reasoned discussion among experts. The Platform also advises the Commission on the usability of the technical screening criteria in terms of potential costs and benefits of their application. The numerous tasks of the Commission, together with the contribution of the Platform, can be grouped in four work-streams:

- i) further development of the EU Taxonomy framework and update of technical screening criteria,
- ii) review of the taxonomy Regulation,
- iii) observatory function: monitoring capital flows towards sustainable investments,
- iv) and sustainable finance policy development.

In principle, the Platform has unlimited duration, taking into account the different tasks provided for in the Taxonomy Regulation and the need to amend the technical screening criteria of the EU Taxonomy over time. After the first Delegated Act (June 2021) which established the technical screening criteria to determine whether an economic activity contributes or not to climate change mitigation and adaptation, the Second Delegated Act was adopted in July 2021. This Second Act supplements art. 8 of the Taxonomy Regulation and specifies the content, the method and the presentation through which information must be disclosed by both financial and non-financial undertakings (Giacomelli, A., 2021).

The third Delegated Act was approved in principle by the Commission in February 2022, but not yet formally adopted.

On March 30th, 2022, the Platform published the new recommendations on technical screening criteria regarding the four remaining environmental objectives of the Taxonomy, also enlarging the framework of the economic activities included and including their impact in the so-called **Taxonomy Compass**.

What will be of particular interest for the following parts of this research are the agri-food activities which are Animal production, Crop production, Fishing and most importantly Manufacturing of food products and beverages. We go through the Substantial Contribution criteria related to the conservation of biodiversity and ecosystems and the Do Not Significant Harm (DNSH) criteria. The objective will be to estimate to what extent the revenues of certain European agri-food companies will comply with the Taxonomy technical screening criteria, sustainability turnover, assuming that the recommendations of the Platform will be fully ratified by the Commission in the future.

CHAPTER II. Methodology

The development of the EU Taxonomy relies on extensive input from experts from across the economy and civil society. This is why the task of the Platform on Sustainable Finance is to advise the European Commission on further developments of the EU Taxonomy, improving its usability and exploring its expansion to social objectives, activities that significantly harm the environment or activities that are neutral towards the environment. The Commission created a tool, the Taxonomy Compass, with the aim to facilitate the use of the Taxonomy by allowing users to navigate easily through its contents, starting with the Delegated Act on the climate objectives. Users can check which activities are included in the EU Taxonomy (taxonomy-eligible activities), to which objectives they substantially contribute and what criteria they have to meet. The EU Taxonomy Compass will be updated to include future delegated acts specifying technical screening criteria for additional economic activities that contribute substantially to the climate objectives and the other environmental objectives of the Taxonomy Regulation.

The compass is organised as a matrix that displays the economic activities per environmental objective. The “climate change mitigation” and “climate change adaptation” cover broadly the same activities, nevertheless the two Annexes include roughly the same activities, but they may differ in scope, notably activities related to infrastructure for transport activities. Moreover, the descriptions of certain economic activities included in the Taxonomy Compass do not include a NACE code: the reason is the economic activity does not fall under a specific NACE code. In fact, NACE codes should only be understood as indicative and should not prevail over the specific definition of the activity in its description (European Commission, ec.europa.eu/sustainable-finance-taxonomy/, 2022).

The EU Taxonomy Compass was the starting point of this research. The compass includes only certain economic activities of certain sectors such as energy, transport, construction and real estate, water supply and waste management, and manufacturing sector. No space was given to agricultural, food processing activities yet.

In March 2022, the Platform on Sustainable Finance has published an Annex on the website of the European Commission in which it proposes *recommendations* for new Technical Screening Criteria related to new activities, which will be added to the Taxonomy Compass. In fact, more space was given to a bunch of other activities including agriculture, forestry and fishing, together with the manufacturing of food products and beverages. These recommendations are related to the Substantial Contribution criteria and Do Not Significant Harm criteria for each activity. Thus, taking into consideration the layout of the EU Taxonomy Compass, for the purpose of this research a new “matrix” was created considering the recommendations proposed by the Platform for the following activities:

- Animal production (NACE code A.01.4),
- Crop production (A.01.1, A.01.2),
- Fishing (A.03.11, A.03.12, 10.20, 84.24, 10.11)
- Manufacturing of food products and beverages (C.10, C.11)

These are the activities related to the agri-food sector which are also covered by the Annex of the Platform (March 2022). For each activity, substantial contribution criteria and DNSH criteria for each environmental objective were summed up, making the work of the Platform more easily readable and accessible. The Platform extensively described each activity, indicating the corresponding NACE codes where possible, explaining the scope of the activities selected and presenting its recommendations regarding substantial contribution and DNSH criteria for each activity. In addition, the rationale behind each recommendation and technical screening criteria is described.

This self-made compass was the starting point and what actually guided the analysis of the European agri-food enterprises and their sustainability reports, in order to assess what would be their level of eligibility or non-eligibility if the recommendations were to be confirmed by the European Commission and thus, enter into force in the future.

3 options – A, B, C – were given by the Platform for each activity concerning the substantial contribution to the protection and restoration of biodiversity and ecosystems: the economic activity should comply with at least one of those options. There are also *minimum sourcing and manufacturing requirements* that the activity should comply with, in particular production practices and manufacturing processes should comply with the minimum manufacturing requirements.

The following chapters will analyse the recommendations of the Platform, focusing on the activities that are related to the agri-food sector. Moving on, the recommendations will be used to assess what would be the level of Taxonomy-eligibility of certain European agri-food companies. The analysis is concentrated on a group of listed European enterprises which were picked according to the total turnover and global sales volume.

CHAPTER III. Platform on Sustainable Finance Recommendations – new technical screening criteria

In this chapter we will analyse the new recommendations issued by the Platform regarding the four remaining environmental objectives of the Taxonomy, in particular those covering the activities related to the Agri-Food sector, for instance: Animal production, Crop production, Fishing and Manufacturing of food products and beverages. We will mostly focus on the last activity, the manufacturing one, since many companies in the agri-food sector mentioned in their annual reports and sustainability reports that the inclusion of the “Manufacturing of food and beverages” activity in the Taxonomy would have been a crucial turning point for the Taxonomy-eligibility of their turnover.

We start by giving the definition of what “*substantial contribution*” to a certain environmental objective means, in particular we are concerned with the protection of the biodiversity and ecosystems. Article 15(1) of the Taxonomy Regulation establishes a framework for the definition of substantial contribution for the protection and contribution of biodiversity and ecosystems.

1. “*An economic activity shall qualify as contributing substantially to the protection and restoration of biodiversity and ecosystems where that activity contributes substantially to protecting, conserving, or restoring biodiversity or to achieving the good conditions of ecosystems, or to protecting ecosystems that are already in good conditions (...)*”.

The contribution to the preservation of biodiversity can happen through several channels such as nature and biodiversity conservation, sustainable land use and management, including adequate protection of soil biodiversity, sustainable agricultural practices, and sustainable forest management.

Considering the sector of interest for the purpose of this research, the majority of agricultural activities can contribute substantially to these objectives by reducing pressure on natural resource consumption or threats to biodiversity and ecosystems. Such activities include agricultural practices that support a greater variety of locally sourced crops and seeds, the cultivation of mixed crops and intercrops like legumes to regenerate the soil or the creation of wider field margins (NABU, BCG 2020). However, activities that are somehow less harmful to biodiversity but not fully biodiversity-friendly must not be defined as “substantially contributing” activities to the protection of biodiversity and ecosystems. Economic activities that maintain or re-establish land for wild species can enhance the preservation or restoration of biodiversity directly. Yet continued agriculture can also be a pre-condition to the protection of certain habitats like grasslands. Not all these activities contribute automatically to the preservation of biodiversity and ecosystems in a significant manner. That is why the criteria must assure that these economic activities have a positive impact on ecosystems and biodiversity in a *measurable way*.

Whereas criteria for substantial contribution must ensure that economic activities significantly enhance the protection and restoration of biodiversity and ecosystems, ***Do Not Significant Harm (DNSH) criteria*** ensure that economic activities are not detrimental nor harmful to the good condition and resilience of ecosystems or the

conservation status of habitats and species. The DNSH criteria represent red lines for compliance with the Taxonomy. In this case, the focus lies on economic activities that contribute substantially to one of the other five environmental objectives. They must not harm the objective of biodiversity protection and restoration. For economic activities in the agricultural sector, DNSH criteria have been developed in the Technical Annex of the Taxonomy Report (TEG 2020b). In general, the set of criteria aimed at protecting the soil, especially over winter, and prevent erosion into water courses. What activities should *not* do instead is resulting in a decrease of species and habitats of conservation importance, and not contravene existing management plans or conservation objectives. Moreover, activities should not lead to the fragmentation of high-nature land, forests, and other areas of high-biodiversity value.

In the following paragraphs we will go through the recommendations published by the Platform on Sustainable Finance on sustainable contribution and DNSH criteria related to the remaining four environmental objectives of the Taxonomy regarding the activities related to the agricultural sector.

3.1 Animal production

The activities included in the “animal production” category are under NACE code 1.4 and include dairy cattle (1.41), other cattle and buffaloes (1.42), horses and other equines (1.43), camels and camelids (1.44), sheep and goats (1.45), pigs (1.46), poultry (1.47) and mixed farming (1.50). The criteria developed by the Platform cover the raising, thus the farming and breeding of all animals, except aquatic animals.

Substantial Contribution criteria: three ways have been identified in which the activity of animal production can make a substantial contribution to the protection and restoration of biodiversity and ecosystems.

- The holding maintains or improves biodiversity via *extensive grazing* in habitats where grazing is beneficial for biodiversity (option A), or
- The holding is *farming rare breeds* (option B), or again
- The holding ensures a sustainable farm-gate nitrogen balance (option C). This latter option is currently under development.

The activity of the holding would need to satisfy only *one* of these options to be deemed to be making a substantial contribution to biodiversity and ecosystems, although of course it may satisfy more than one option. On top of the options just presented, the holding should meet criteria relating to: habitat loss or conversion, high biodiversity landscape features, grazing regime, no direct harm to wildlife, and supplementary feed. The activity should be carried out in a way that the pressures are halted or reduced in the sense of negative impacts but also allowing recovery of biodiversity and ecosystems. The activity should create or enhance locally adapted high-biodiversity landscape features or high biodiversity value areas.

The agricultural holding should keep a yearly record of its performance, including information on the deployment of management practices to meet the criteria. Where assessment is required under the Non-Financial Reporting Directive (NFRD) or Corporate Sustainability Reporting Directive (CSRD) undertakings, verification is

undertaken at the time of the first disclosure or compliance with the criteria and every three years thereafter.

Figure 2: Conditions under which the activity “animal production” is compliant



Source: Platform on Sustainable Finance: technical working group (2022)

Do Not Significant Harm criteria: we present the DNSH criteria for each environmental objective of the taxonomy.

- 1) Climate Change mitigation: permanent grassland is maintained, wetland and peatland are appropriately protected, arable stubble is not burnt, except where an exemption has been granted for plant health reasons, continuously forested areas are not converted, and no use of peat.
- 2) Climate change adaptation: criteria is set out in the Appendix A of Annex I to the Commission Delegated Regulation.
- 3) Sustainable use and protection of water and marine resources: if the activity involves water abstraction, a permit must be granted by the authority. No livestock direct access to any natural watercourse is permitted unless it can be beneficial for threatened species or to control invasive vegetation. No physical modification of water bodies is allowed (straitening of rivers, lining ditches, removal of riparian vegetation etc.).
- 4) Transition to a circular economy: activities should use residues and by-products and take other measures to minimize primary raw material use per unit of output, including energy.
- 5) Pollution prevention and control: farm holdings falling under Annex I on Industrial Emissions Directive ([EUR-Lex - 32010L0075 - EN - EUR-Lex \(europa.eu\)](#)), specifically for intensive rearing of poultry or pigs, shall operate in accordance with the emission levels set out in the best available techniques (BAT). Regarding the use of Active Pharmaceutical Ingredients (API), they should be registered both for therapeutic and sub-therapeutic uses. APIs that have confirmed low impact on the environment (water bodies and wildlife) should be prioritised. In general, a pharmaceutical and antimicrobial management plan should include a reduction of the total use of API quantity to at least 25% in ten years. Any API where the risk for the environment has been confirmed should be

substituted for an available equivalent that has significantly lower impact. In particular, the non-steroidal anti-inflammatory Diclofenac must not be used.

3.1.1 Impacts of the activity on B&E and rationale of the criteria

Agriculture is one of the largest contributors to biodiversity loss and its impact increases with the consumption of growing populations. More specifically, animal production impacts on biodiversity and ecosystems through land conversion, crop, soil, nutrient, water, waste and energy management practices inherent in the feed, manure and housing systems. The most significant impacts can come from *grazing intensification* which can lead to loss of protective ground cover, reduced water and nutrient capture efficiency, soil erosion, all leading to loss of species richness and fauna populations (Alkemadea et al., 2013). Moreover, other impacts come from the *emissions of pollutants* into soil, air and water courses and bodies, including nutrient depositions from fertilisers and the release of pesticides, pharmaceutical and hormones into water and soil. Also, significant demand for *additional land* for crop production, to supply animal feed, puts further pressure on ecosystems.¹

Conversely, animal production can contribute to the improving of biodiversity and ecosystems by creating or enhancing locally adapted high-biodiversity landscape features or areas, connecting biomes and providing habitats for flora and fauna (Peyraud, J., and MacLeod, M., 2020).

The options laid down in the Technical Screening Criteria section for substantial contribution, particularly to the protection and restoration of biodiversity and ecosystems, represent a significant contribution if the activity is carried out in a way that the pressures are halted or significantly reduced, also allowing for the subsequent recovery of B&Es, and the activity is actively creating or enhancing locally adapted high biodiversity landscape features or areas. The introduction of sustainable criteria on agriculture can also contribute to the strengthening of food security in developing countries, as well as the strengthening of soil and plant carbon sinks globally.

Option A of substantial contribution criteria is about improving biodiversity through extensive grazing in landscapes, where grazing is beneficial for biodiversity. Grazing systems involves domestic livestock consuming vegetation outdoors in order to convert vegetation into animal products such as milk, meat, wool etc. Permanent grassland provides a wide range of useful ecosystem services such as hosting crop auxiliaries and pollinators, contributing to animal nutrition, soil conservation (erosion, water purification) and climate regulation (carbon sequestration). In some areas and circumstances, appropriate grazing can i) maintain and improve biodiversity values of semi-natural habitats, ii) prevent the degradation of natural grasslands, iii) prevent negative impacts on adjacent ecosystems.

Option B is related to the farming of rare breeds: about 17% of the world's 8700 animal breeds are classified as being at risk of extinction and 58% are of unknown risk status.

The Platform suggested that farming of rare breeds makes a substantial contribution to biodiversity by promoting domestic animal genetic resources diversity and/or safeguarding threatened domestic biodiversity. This kind of farming is notably suited for

¹ <https://ourworldindata.org/global-land-for-agriculture>

lower input farming systems and is considered best animals for conservation grazing purposes. Rare breeds are part of biodiversity themselves. Increased genetic diversity may also enhance the capacity of ecosystem to adapt to pest and disease outbreaks risks (Havard et al., 2018).

Option C instead, which is still in development process, is about ensuring a sustainable farm-gate nitrogen balance. Excessive nitrogen losses caused by agricultural production have significant negative effects on biodiversity and ecosystems. The process of eutrophication is caused by excess of nutrients, nitrogen and phosphorus, can result in an increasing presence of weeds and algae, reduced oxygen levels and subsequent biodiversity loss.² Nitrogen excess can be particularly problematic to species and communities that are adapted to low nutrient levels or are poorly buffered against acidification. In addition, the exceedance of critical loads for nutrient nitrogen is linked to reduced plant species richness in a broad range of European ecosystems (Ashmore et al., 2011, *Nitrogen deposition as a threat to European Terrestrial Biodiversity*). For the EU Commission the reduction of nutrients losses is one of the major goals of the EU Biodiversity Strategy to 2030: it aims to reduce nutrient losses by at least 50%, while reducing the use of fertilisers by at least 20% by 2030.

3.2 Crop production

This activity concerns the growing of crops in open fields. At the time of the publication of the Platform (March 2022), the criteria do not cover growing of crops in greenhouses or other indoor settings. The economic activities in this category are classified under NACE codes 1.1 (Growing of non-perennial crops) and 1.2 (Growing of perennial crops).

Non-perennial crops include: cereals (except rice), leguminous crops and oil seeds (1.11), rice (1.12), vegetables and melons, roots and tubers (1.13), sugar cane (1.14), tobacco (1.15), fibre crops (1.16), other non-perennial crops (1.19), spices, aromatic, drug and pharmaceutical crops (1.28).

Perennial crops instead include: grapes (1.21), tropical and subtropical fruits (1.22), citrus fruits (1.23), pome fruits and stone fruits (1.24), other tree and bush fruits and nuts (1.25), oleaginous fruits (1.26), beverage crops (1.27), spices, aromatic drug and pharmaceutical crops (1.28), other perennial crops (1.29) and mixed farming (1.50), which was covered also in the “animal production”.

Substantial contribution criteria: three ways have been identified by the Platform through which the activity of crop production can make a substantial contribution to the protection and restoration of biodiversity and ecosystems.

- The agricultural holding incorporates large areas that are under high-biodiversity landscape features or are otherwise biodiversity rich (option A) for at least 20% - 30% of its area. The maximum continuous area lacking biodiversity rich farmland must not be more than 3 hectares.
- The holding abstains from the use of synthetic plant protection products and copper that harm biodiversity and ecosystems (option B). Thus, the holding is

² <https://www.eea.europa.eu/airs/2018/natural-capital/agricultural-land-nitrogen-balance>

either certified as “organic” under the EU-organic standard on production and labelling or it only uses organics-compatible plant protection products.

- The holding ensures a sustainable farm gate nitrogen balance (option C).

The activity would need to satisfy at least only *one* of these options, deemed to be making a substantial contribution to biodiversity and ecosystems.

In addition, the holding should meet certain criteria that relate both to option A and option B, namely criteria relating to habitat loss or conversion, high biodiversity landscape features, soil management, no direct harm to wildlife, diversified crop rotation.

Figure 3: Conditions under which the activity “crop production” is compliant



Do not significant harm criteria:

- 1) Climate change mitigation: permanent grass is maintained, wetland and peatland are appropriately protected, arable stubble is not burnt, except where an exemption has been granted for plant health reasons., continuously forested areas, namely land spanning more than one hectare with trees, are not converted, no use of peat or peat containing product or material.
- 2) Climate change adaptation: DNSH criteria are set out in Appendix A of Annex 1 of the Commission Delegated Regulation.
- 3) Sustainable use and protection of water and marine resources: permit for water abstraction granted by the relevant authority for the activity. When using irrigation system: i) input water source comes from the same river basin, ii) sources as rainwater harvesting systems meets requirements for water reuse in agriculture irrigation, iii) input water is metered and registered, iv) irrigation system is highly efficient at farm level. No modification of water bodies is allowed (straitening of rivers, lining ditches, removal of riparian vegetation).
- 4) Transition to a circular economy: non-natural waste materials generated in the course of growing of crops, including used protected cultivation films, unused agrochemicals or fertilisers, packaging or net wraps are collected by certified waste management operator and recycled or disposed. Natural (organic) material must not be burned without energy recovery nor left to rot.

- 5) Pollution prevention and control: the DNSH criteria for this environmental objective are limited to not permitting increased usage of PPPs by volume. The amount of livestock manure applied to the holding each year does not exceed 170 kg per hectare or different amounts. In addition, the use of plant protection products should follow best practice to avoid increases in adverse pressures and avoid substantial harm or continually reduce it to “acceptable/not harmful” level to environmental and human health. Only plant protection products that are authorized under the EU Pesticides database are used. Full compliance with national level PPP regulations is observed. Farm records are kept on annual usage quantity of PPs in total, per category of PPP, per specific product, and per crop type. No increases in quantities of PPPs used is allowed (either in total, or per crop type per unit area). A reputable on-farm pesticide risk assessment tool is used to inform choices of PPPs that help minimise ecological harm.

3.2.1 Impacts of the activity on B&E and rationale of the criteria

In this phase, the Platform chose to give priority to production in open fields because this represents the greater portion of agricultural production and biodiversity impacts, thus production in greenhouses and other indoor settings is not included in the scope. Crop production can *impact* biodiversity and ecosystems in several ways. For instance, the most significant impacts caused by crop production include:

- Release of nutrients and chemical pesticides, pharmaceuticals and hazardous chemicals, that can cause eutrophication and soil acidification (Austnes et al., 2016).
- Clearing or fragmentation of natural or semi-natural vegetation due to land take for crop production, reducing habitats and biome connectivity (Millenium Ecosystem Assessment, 2005). In the European Union, fragmentation represents the bigger impact as there is little new land take for agriculture. Land take remains a significant impact, on a global scale.
- No further drainage of moist farm areas such as flushes, water meadows and springs.
- Loss and degradation of permanent grassland due to land intensification, water abstraction for irrigation which causes pressures on ecosystems in water scarce regions, and the decline of genetic diversity in crops, accelerating biodiversity loss.
- Loss of insect biomass and diversity negatively affecting crop pollination (Losey and Vaughan, 2006).
- Soil degradation and erosion causing loss of soil biodiversity.

For the activity to make a substantial contribution to biodiversity and ecosystems, pressures from chemicals are halted or significantly reduced, leading to an overall reduction of negative impacts. Or instead, the activity is actively creating or enhancing high-biodiversity landscape features or areas within the farm holding.

Option A of substantial contribution criteria is about large areas that are biodiversity rich. The inclusion of such criteria related to the creation or enhancement of high-biodiversity landscape features is deemed important as agriculture covers 39.1% of land area in the

EU (Eurostat, 2018). Thus, this sector has an important role in ensuring the achievement of the challenging goals of the EU Biodiversity Strategy by 2030. There is an urgent need to establish at least 10% of agricultural area in the EU under high-diversity landscape features to provide space for wild animals, plants, pollinators and natural pest regulators. Mixed farming can reduce the expansion of pressures of agriculture into non-cultivated/used land, if accompanied by productivity improvement on existing agricultural lands.

Option B addresses the widespread use of chemical plant protection products and copper that poses a major problem for biodiversity and ecosystems. The option provides farm holdings with the choice to limit the use of synthetic plant protection products by either complying with EU standards for organic farming or proving that their production is carried out without the above-mentioned products. Regarding the copper, the maximum application rate of plant production products containing copper compounds is limited to 28 kg per hectare of copper over a period of 7 years.

In the next phase of criteria development, the Platform recommends that priority consideration should be given to: i) farming in greenhouses and other indoor environments, ii) traditional farming and conservation varieties that are important for genetic diversity and iii) nitrogen and phosphorus should be in line with sustainable farm-gate balance.

3.3 Fishing

The criteria that are going to be presented cover the activity of fishing on a commercial basis in ocean, coastal or inland waters. The activities included in this category are marine fishing (3.11), freshwater fishing (3.12), rental of pleasure boats, where rental is for fishing (10.20), fishing practiced for sport or recreation and related services (84.24), processing of fish, crustaceans and molluscs on factory ships or in factories ashore.

Substantial contribution criteria: for the activity to be compliant with sustainable contribution criteria for the protection and restoration of biodiversity and ecosystems there are several norms that need to be all satisfied.

- The harvest level should not be overfished or undergoing overfishing. Fisheries which carry on commercial catch fishing should comply with established catch limits, such as Maximum Sustainable Yield (MSY), fishing mortality, and consistent levels of fish bycatch with MSY level.
- Not operating in a fishery where targeted species are threatened or endangered.
- For recreational and sport fishing instead, “catch and release” should be practiced where near complete survival rate can be proved.
- Avoid by-catch: it means minimizing and eliminating unwanted catches when the species is not primarily target or commercialised. Specific attention should be given to endangered, threatened and protected species. In particular, the threshold mortality rate from incidental catches of marine mammals should be close to non-existent with mandatory measures reducing mortality.
- No take zones: it allows biodiversity to recover and encourage a spill over effect for the benefit of all including the fishers itself. Fisheries should establish and

maintain a 10% no take zone, prioritising sensitive habitats and ecosystem connectivity.

- No wildlife persecution: in some areas fishers kill species perceived as competitors for fish or causing damage to nets. Thus, no killing, injury or harassment of competitor species, such as seals, dolphins, sharks, seabirds, is allowed.
- No harm to marine or freshwater habitats: habitats should be left undisturbed including seabeds and vulnerable marine ecosystems.
- Minimise litter: abandoned, lost or otherwise discarded fishing gear represents a significant amount of global marine waste, with serious environmental and socioeconomic impacts as it continues to catch fish and other animals for a long period of time impacting fish populations and habitats, and can also release microplastics (Kim et al., 2016).
- No discards or high grading: unwanted catches and discards constitute a substantial waste and negatively affect the sustainable exploitation of marine biological resources and marine ecosystems and the financial viability of fisheries.

Do not significant harm criteria:

- 1) Climate change mitigation: vessels with freezing/refrigeration facilities on board should phase out of CFCs, which are gases, such as carbon, hydrogen, chlorine and fluorine, used in refrigerants and aerosol propellants that are harmful to the ozone layer in the earth's atmosphere. When processing on board, compliance with the F-gas Regulation (EU) n. 517/2014 should be guaranteed: for instance, banning the use of fluorinated GHGs including hydrofluorocarbons (HFCs).
- 2) Climate change adaptation: the do not significant harm criteria for this objective are set out in Appendix A of Annex I to the Commission Delegated Act ([resource.html \(europa.eu\)](#)).
- 3) Sustainable use and protection of water and marine resources: the criteria is set out in Appendix B of Annex I to the Commission Delegated Regulation ([resource.html \(europa.eu\)](#)), supplementing art. 12 of the Regulation EU 2020/852 of the European Parliament and of the Council on the establishment of a framework to facilitate sustainable investment.
- 4) Transition to a circular economy: N/A
- 5) Pollution prevention and control: fishing vessels with low GHG emissions (electric, fuel-efficient and/or using renewable fuels) is required (Suuronen et al., 2012).

3.3.1. Impacts of the activity on B&E and rationale of the criteria

The pressures on biodiversity and ecosystems from freshwater fishing are very similar to those for marine fishing, thus both of these commercial fishing activities are covered by these criteria. Also, recreational and sport fishing can contribute to those same pressures, but it doesn't imply that they put as much pressure on B&E as commercial catch fishing does. Fishing activities in general include "searching for fish, shooting, setting, towing, hauling of a fishing gear, taking catch on board, ..., caging, fattening and landing of fish and fishery products" as per the Common Fisheries Policy. In essence, the rule-of-thumb

on boundaries for “fishing” is what happens at sea, on water, or more technically by the fishing vessel.

Aquaculture (marine and freshwater) should be addressed in the Taxonomy due to the significant negative environmental impacts of some aquaculture activities and positive impacts of some other aquaculture activities (for instance, mussel farming) as well as huge scope for innovation and improvement. However, the issues in aquaculture are significantly different to those in fishing, thus aquaculture is not covered by those criteria. The Platform however strongly recommends that aquaculture is prioritised in the next round.

Fishing is an activity that involves extraction: it can be performed in such a way that it has minimal impact through the use of fishing gear and fishing behaviour that avoid targeting threatened species, avoid by-catch and avoid damage to habitats. This kind of “low impact fishing” reduces the pressures on biodiversity and ecosystems. Extraction volumes (catches) should be in line with the maximum sustainable yield (MSY) rates in order to leave sufficient biomass levels of each stock to provide sustainable food for human consumption, and food for predators (fish-eating seabirds, marine mammals etc.).

Thus, with these “ecosystem boundaries” in mind, a fishing activity is making a substantial contribution to the protection and restoration of ecosystems when is “low impact” and when is accrued out within the limits set at ecosystem level to enable the recovery and restoration of fish stocks, other marine species and their habitats.

3.4 Manufacturing of Food Products and Beverages

The last activity related to the agri-food sector for which the Sustainable Finance Platform has provided recommendations is the manufacturing of food products and beverages. The activity is divided in production of food products and production of beverages. The economic activities in the category of “manufacture of food products” are associated with NACE code C10. The activities excluded from the entire scope are the manufacture of prepared animal feeds (C10.9) and processing and preserving of fish, crustaceans and molluscs (C10.2).

The activity for manufacture of beverages are associated to NACE code C11 in accordance with the statistical classification of economic activities established by Regulation No. 1893/2006.

Substantial contribution criteria: for the contribution to the protection and restoration of biodiversity & ecosystems, three options have been identified. The economic activity shall comply with one of the following options to be considered as compliant.

- **Option A:** selection of ingredients for which primary production practices improve biodiversity. The food product or beverage should consist for at least 95% by weight of ingredients sourced in a way that their *production practices improve biodiversity and ecosystem health*. For plant-based ingredients, the related production practices are classified under the statistical classification of economic activities as “Growing of non-perennial crops” (A1.1), “Growing of perennial crops” (A1.2) and “Mixed farming” A1.50 and thus, should comply with

the corresponding EU Taxonomy criteria for substantial contribution to biodiversity. For animal-based ingredients, the production practices are included in “Animal production” (A1.4), “Mixed farming” (A1.50), “Marine fishing” (A3.11) and “Freshwater fishing” (A3.12), and should as well follow the EU Taxonomy criteria for substantial contribution to B&E.

- **Option B:** selection of protein-rich ingredients that reduce pressure on biodiversity by substituting protein-rich ingredients that have high negative impact on biodiversity. The manufactured food product or beverage consists for at least 20% by weight of protein-rich ingredients, and at least 97% by weight of its protein-rich ingredients should either i) be mentioned in the following table, or ii) the ingredient’s combined direct and indirect use is on average below 10m² per 100g of product protein.
- **Option C:** selection of ingredients that contribute to conservation and genetic diversity. At least 50% of the ingredients by weight are from plants and/or animals: i) if animal-based, the ingredient is sourced from production practices that are classified in the classification of economic activities and comply with the following set of EU Taxonomy criteria: “Farming a rare breed that contributes to critical, endangered, or vulnerable species erosion which is the relevant criterion from “substantial contribution to the protection and restoration of biodiversity & ecosystems for “Animal production”; ii) if plant-based, the ingredient should comply at least with one of the following: the plant variety is a “conservation variety, it is part of an organic heterogeneous material or organic variety suitable for organic production.

In general, any ingredient should not create the threat of invasive species (animals or plants).

The minimum sourcing and manufacturing requirements apply to any activity, under any option of the criteria. In fact, the food product or beverage should consist entirely of ingredients sourced in a way that their *production practices* and the *manufacturing process* comply with the minimum sourcing and manufacturing requirements mentioned in the following table:

Table 1: Minimum Sourcing Requirements for the “manufacturing of food and beverages” activity

Minimum sourcing requirements
<i>Habitat loss and conversion:</i> the production of ingredients must not lead to the conversion or fragmentation of high-nature-value land, forests, or other lands of high-biodiversity value. The activity must not either lead to the draining, infilling, or other physical damage to wetlands and aquatic habitats as defined under the Ramsar Convention on Wetlands.
<i>Pollution:</i> the use of Active Pharmaceutical Ingredients (API) must be registered, both for therapeutic and sub-therapeutic uses. In the next 10 years, the total use of APIs will reduce to at least 25% and low environmental impact APIs will be prioritised.
<i>Water:</i> the activity must comply with the water abstraction licenses according to local laws. It must not alter water bodies nor create new drainage.

Do not significant harm criteria:

- 1) Climate change mitigation: if the activity uses on-site generation of heat or cool or co-generation including power, the direct GHG emissions of that activity are lower than 270 gCO₂e/kWh. For the climate change mitigation objective, *transparency* on greenhouse gases emitted during the food/beverage manufacturing processes is required: emissions should be expressed in kgCO₂eq per kilogram of food/beverage product.

The food product or beverage should consist for at least 95% by weight of ingredients such that for each of these ingredients the combined direct and indirect lifecycle greenhouse gas emissions are on average **10kgCO₂eq per kg of ingredient**. This can be verified using the values provided in the following table.

Table 2: Combined direct and indirect GHG emissions per kilogram of food product

Ingredient	Average GHG emissions per kg of food product (kgCO ₂ eq/kg)
Beef (beef herd)	99.5
Dark Chocolate	46.7
Lamb and Mutton	39.7
Beef (dairy herd)	33.3
Coffee	28.5
Prawns (farmed)	26.9
Cheese	23.9
Fish (farmed)	13.6
Pig meat	12.3
Poultry meat	9.9
Eggs	4.7
Rice	4.5
Groundnuts	3.2
Cane sugar	3.2
Tofu (soybeans)	3.2
Milk	3.2
Insects	2.6
Oatmeal	2.5
Tomatoes	2.1
Beet sugar	1.8
Other pulses	1.8
Wine	1.8
Maize	1.7
Wheat and Rye	1.6
Berries and Grapes	1.5
Peas	1.0
Soy milk	1.0

Bananas	0.9
Other vegetables	0.5
Onions & Leeks	0.5
Potatoes	0.5
Apples	0.4
Nuts	0.4
Root vegetables	0.4
Citrus fruit	0.4

Source: Poore, J. & Nemecek, T. (2018) – Our World in Data

In addition, the production activities that yield the food or beverage products should comply with the following: a) maintenance of permanent grassland, b) wetlands are appropriately protected, c) arable stubble is not burnt, d) minimum land management is guaranteed, and e) the activity does not involve the degradation of land with high carbon stock. Areas should also be continuously forested: this requirement applies to all perennial crop production, whether for biofuels, bioliquids or biomass, or for food and feed uses.

- 2) Climate change adaptation criteria are set out in Appendix A of Annex I of the Commission Delegated Regulation (https://eur-lex.europa.eu/resource.html?uri=cellar:d84ec73c-c773-11eb-a925-01aa75ed71a1.0021.02/DOC_2&format=PDF)
- 3) Sustainable use and protection of water and marine resources: the waste discharge from the food processing stage must be within certain unit parameters where applicable.
- 4) Transition to a circular economy: the economic activity is pushing a reduction of food/beverage loss and waste. This objective can be achieved by complying with all the following criteria: a) 2030 reduction targets for loss and waste related to the processing steps of food and beverage need to be set and made public; then b) at least 3 of the following criteria are implemented:

Monitoring, measuring and reporting on loss and waste quantities related to food/drink through third-party certification such as ISO, EMAS etc.
Integration of food/beverage loss and waste
Development of sales of co-products and/or creation products that utilise such co-products by transforming them into new ingredients
Improvement of date marking practices and consumer understanding of date marking
Provision of on-label and/or online information to consumers about better food management

- 5) Pollution prevention and control: emissions should be at least within the emission levels associated with the best available techniques (BAT) ranges. In addition, the primary packaging materials should comply with the relevant rules regarding materials and articles intended to come into contact with food (Regulation EC N. 1935/2004).

The manufacturing of food and beverages requires choices that can directly affect primary production, including growing of non-perennial and perennial crops, animal production and marine fishing. It can have an impact both on the way farming is happening and on what type of ingredients gets produced. Thus, these activities can have a substantial contribution to biodiversity.

3.4.1. Impacts of the activity on B&E and rationale of the criteria

The Platform suggested the aforementioned three criteria which focus on the ingredient selection by the food and beverage manufacturer: “selecting the right ingredients is a key driver for substantial contribution to biodiversity”. For instance, dietary changes can lead to environmental benefits on a great scale, that producers are not able to achieve on their own. Diets that exclude animal products reduce food’s land use by 76%, equivalent to 3.1 billion hectares. Drastic decreasing pressures would be seen in the food’s GHG emissions (49% reduction), acidification (50%), eutrophication (49%) and freshwater withdrawals (19%) with respect to 2010 as a reference year (J. Poore, T. Nemecek, 2018). This suggests that future dietary changes will become the principal driver for land use change (Alexander et al., 2015). The EU Farm to Fork Strategy (2020) affirmed that moving to a more plant-based diet with less red and processed meat and with more fruits and vegetables will reduce not only risks related to life threatening diseases, but also the environmental impact of the food system.

Concerning the impact of the manufacturing of food products on biodiversity and ecosystems, one of the biggest issues is the exploitation of land. We need to consider many factors that are exacerbating land-related problems for climate and biodiversity protection such as diets heavy in animal products in industrialized countries and the growing middle classes in emerging economies. In the view of the German Advisory Council on Global Change (2021) an urgent transformation of the global food system and world-wide dietary habits is needed, corresponding to a shift towards lower levels of meat consumption. Biodiversity is being degraded and lost to a considerable extent; it is estimated that 70% of the world’s deforestation is caused by land-use in order to grow animal feed.

As it is pointed out by Schmidt and Stoll-Kleemann (2017), a *shift in diets* to reduce high levels of meat consumption, which are common in developed countries’ lifestyles, is a key leverage point for tackling biodiversity loss and climate change. Animal husbandry is estimated to cause 30% of current biodiversity loss and 14.5% of greenhouse gases ([Reducing meat consumption in developed and transition countries to counter climate change and biodiversity loss: a review of influence factors | SpringerLink](#), 2017).

Thus, a reduction of meat consumption and as a consequence a lower demand of meat and animal-based foods in the market could free up significant amounts of land, enabling the world to feed the global growing population (World Resources Institute, <https://www.wri.org/research/shifting-diets-sustainable-food-future>).

Williams et. al (2021) affirmed that habitat loss driven by agricultural expansion is the greatest threat to terrestrial beings. And if there is not going to be a shift in agricultural trends in the near future, pressures on biodiversity will increase substantially.

CHAPTER IV. Delving into the European Agri-food sector – to what extent is it sustainable?

“*Eating is inescapably an agricultural act, and how we eat determines, to a considerable extent, how the world is used*” – Wendell Berry.

Agriculture has always been at the mercy of unpredictable weather, but a rapidly changing climate is making agriculture an even more vulnerable sector. The overall impact of climate change on agriculture is expected to be *negative*, reducing food supply and raising food prices, but what about the impact of agricultural activities on climate change? In this chapter, we delve into the agri-food system contributions to climate change, and to what extent agri-food activities can make a substantial contribution to the EU Taxonomy objectives.

It is widely known that agri-food activities, including the production of food, the transportation, and the storage of wasted food in landfills, produce greenhouse gas emissions that contribute to climate change. Of these sources of emissions, *livestock production* is the largest: meat from ruminant animals, such as cattle and goats, are particularly emissions intensive.

What people eat generally matters more for climate change than how far food travels: between farms and plates, most related greenhouse gas emissions are from producing food, in particular beef and dairy. Research says that if American citizens followed plant-based diets even one day per week, they could cut more greenhouse gas emissions than by following entirely local diets (Weber and Matthews, 2008). Kim et al. (2015) in their research assumed a scenario where societies in 2050 have transitioned away from coal and natural gas to wind, solar and other renewable energy sources, and public policy together with infrastructure investments have made public transit, walking, and cycling the most accessible and popular way of transportation. Air travel is assumed to be used only as last resort. Even assuming a best-case scenario like the one just presented, if global trends in meat and dairy intake continue, the chances of staying below the 2°C threshold will be extremely scarce.³

Thus, there is a stream of literature that highlights how agriculture contributes to climate change through greenhouse gases emissions that trap heat in the atmosphere. In particular, agricultural sector generates *direct* greenhouse gas emissions through: i) nitrous oxide emissions from soils, ii) applications of fertilizers, iii) dejections from grazing animals, iv) methane production by ruminant animals, and indirect greenhouse gas emissions due to land-use changes (Agovino, 2018).

Dudley and Alexander (2017) explained in their review called “*Agriculture and biodiversity*” that agriculture represents the largest contributor to biodiversity loss, with an increasing number of impacts due to changes in consumption patterns and the growth of the global population. Agriculture heavily impacts biodiversity by converting natural habitats to intensely managed systems and by releasing pollutants, including greenhouse gases. More specifically, agricultural activities represent a major source of pollutants and land use change, whereas the livestock production systems dominate the environmental

³ Kim B., Neff R., Santo R., Vigorito J. *The Importance of Reducing Animal Product Consumption and Wasted Food in Mitigating Catastrophic Climate Change*. John Hopkins Center for a Liveable Future;

consequences, such as terrestrial biodiversity loss, soil acidification, air pollution (ammonia and nitrogen oxides emissions), global warming and water pollution.⁴

Environmental impacts are compared across several metrics: land use (m²), greenhouse gas emissions (tonnes of CO₂-equivalents), eutrophying emissions (grams of PO₄-equivalents) freshwater withdrawals (liters), and scarcity-weighted water (liters) (Platform on Sustainable Finance, 2022).

On the other hand, following the increasing social pressure and the European Union's high emissions reduction targets, activities related to agriculture could also *contribute* to Taxonomy objectives by reducing greenhouse gas emissions and by sequestering carbon while maintaining food production.

Considering the objectives of the EU Taxonomy, the activities related to the agri-food world are not eligible at the moment for the first two already-published objectives criteria (Climate change Mitigation and Climate change Adaptation) in the Delegated Act.

The sectors currently covered are energy, selected production activities, transport, and buildings. Instead, the “manufacturing of food products and beverages” is not yet covered by the climate delegated acts. Many agri-food companies report that they believe their share of eligible activities and related key performance indicators will increase as the four remaining environmental objectives are added to the Delegated Regulations and additional activities are included in the criteria for all environmental objectives.

In this regard, on March 30th, 2022, the Platform on Sustainable Finance published the report regarding the recommendations of the technical screening criteria for the four remaining objectives of the EU Taxonomy. The European Commission will be the competent body in charge of analysing such recommendations and translate them into criteria upon which the sustainability of an investment is evaluated.

This is an important step because it helps determining the perimeter of activities that will make a “Substantial contribution” to the objectives and which ones will meet the “Do not significant harm” criteria.

Thus, at the moment it is not possible to assess *the eligibility of the agri-food sector activities*. What it is possible to do instead is find out which agriculture activities could be important and/or harmful with respect to the EU Taxonomy and make a rough estimate of their eligibility in the future, assuming, for the purpose of this research, that the European Commission will fully ratify the recommendations published by the Platform.

The previous chapter was devoted to the analysis and summary of the work the Platform has done regarding the recommendations, concentrating on the 4 most relevant activities that characterize the agri-food sector: *Animal production, Crop production, Fishing and Manufacture of food products and beverages*. In this chapter we will consider a group of European agri-food companies that have the obligation to disclose their Taxonomy eligibility, either because they are listed or because they have more than 500 employees and are based in the European Union.

We will particularly focus on two relevant objectives related to agriculture, for instance being *biodiversity and ecosystem preservation* and *water preservation*.

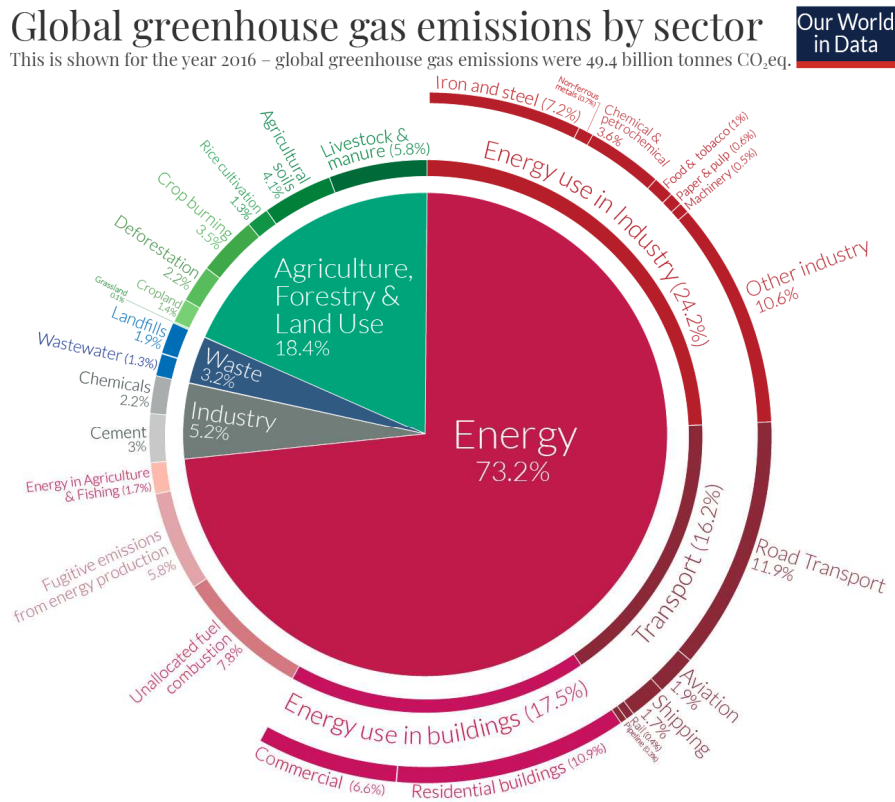
⁴ A. Leip, G. Billen, J. Garnier, B. Grizzetti, L. Lassaletta, S. Reis, D. Simpson, M. A Sutton, W. De Vries, F. Weiss, 2015: “Impacts of European livestock production: nitrogen, sulphur, phosphorus and greenhouse gas emissions, land-use”

4.1 Agriculture and climate change

Agriculture both contributes to climate change and is affected by climate change: they are characterized by a complex cause-effect relationship. The European Environment Agency stated that the European Union needed to reduce its greenhouse-gas emissions from agriculture and adapt its food-production system to cope with climate change (“Agriculture and climate change – Living in a Changing Climate”, 2015). The agricultural sector generates significant quantities of gas emissions that affect climate. Farming in particular releases significant amounts of methane and nitrous oxide, which are two powerful greenhouse gases. Methane is produced especially by livestock; it can also escape from stored manure and organic waste in landfills. Nitrous oxide emissions are an indirect product of organic and mineral nitrogen fertilisers. Faced with growing global demand and competition for resources, the EU’s food production and consumption need to be seen in a broader context, linking agriculture, energy, and food security.

In 2012, agriculture accounted for 10% of EU’s total greenhouse gas emissions; today emissions from agricultural production currently account for 11% of global greenhouse gas emissions and have risen since 2000 (World Resource Institute, 2019). If we add forestry and land use as variables, together with agriculture they account for 18.4% of greenhouse gas emissions (Our World in Data, 2020). The food system as a whole, including refrigeration, food processing, packaging, and transport, accounts for around one-quarter of greenhouse gas emissions (Ritchie H., 2019).

Figure 4: Global greenhouse gas emissions by sector (2016)



OurWorldinData.org – Research and data to make progress against the world’s largest problems.
 Source: Climate Watch, the World Resources Institute (2020). Licensed under CC-BY by the author Hannah Ritchie (2020).

Between 2001 and 2011, global emissions from crop and livestock production grew by 14%: this was driven by increased global food demand and changes in food-consumption patterns. Given the importance of food in our lives, a further reduction of greenhouse gas emissions from agriculture remains quite challenging. A better integration of innovative techniques into production methods, such as more efficient use of fertilisers and greater efficiency in meat and dairy production can help. In addition, as pointed out by the Platform on Sustainable Finance (2022), changes on the consumption side can help to further lower greenhouse-gas emissions linked to food. In general, meat and dairy products have the highest global footprint of carbon, raw materials, and water per kilogramme of any food. In terms of greenhouse-gas emissions, livestock and feed production each generate more than 3 billion tonnes of CO₂ equivalent (European Environment Agency, 2021). Post-farm transport and processing account for only a tiny fraction of the emissions linked to food.

In line with projected growth and changes in dietary habits favouring higher meat consumption, the global demand for food is expected to grow by up to 70% in the future decades. Agriculture is already one of the economic sectors with the largest environmental impact and will be subject to additional pressures as a sector in the coming years. The European Union is one of the world's largest food producers, especially of cereals, wine, sugar beet and olive oil. Any reduction in key staples is likely to jeopardise food security in the EU and in the world and increase global food prices.

Whether in Europe or the rest of the world, meeting the growing demand for food by using more land would have serious impacts on the environment and the climate. Land, especially fertile agricultural land, is a limited resource in Europe and across the world. Converting forest areas into agricultural land is not a solution as this process is a source of greenhouse-gas emissions. Deforestation also puts biodiversity at risk, undermining nature's ability to cope with climate change impacts.

On the other hand, it must be mentioned that farmers can play a crucial role in maintaining and managing Europe's biodiversity. Therefore, policy measures that address the highly complex problem of food and the environment should consider agriculture's impacts on the environment and its socio-economic importance for many communities (European Environment Agency, 2021).

4.2 Main Contributors to Food Production Emissions

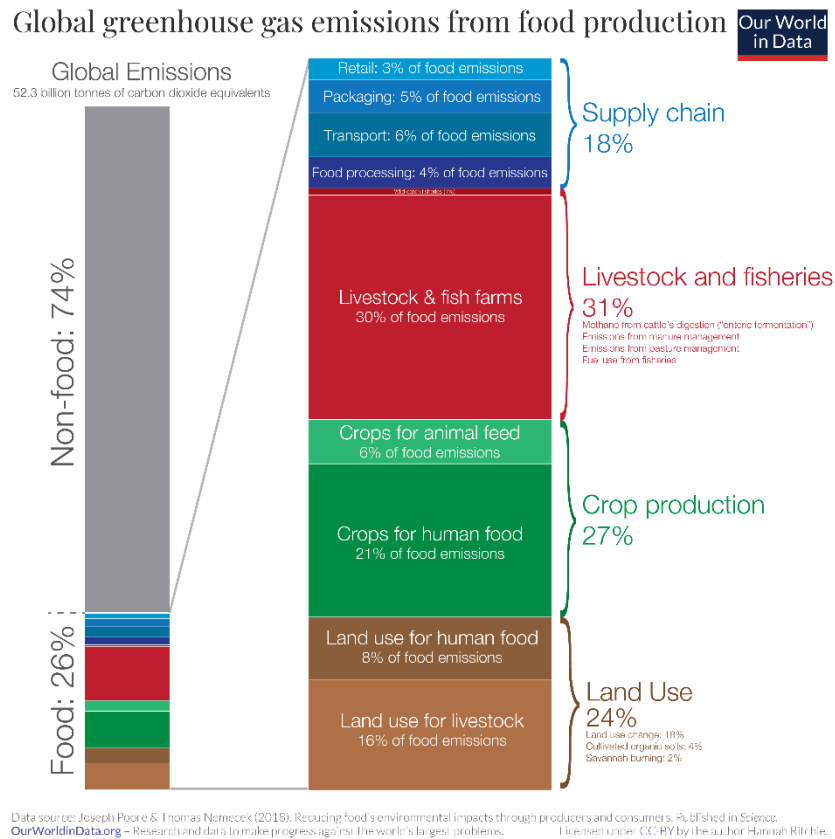
Food production is responsible for one-quarter of the world's greenhouse gas emissions (Ritchie H., 2019). When it comes to climate change, the focus tends to be on “clean energy solutions” such as renewable or nuclear energy, energy efficiency improvements, or transition to low-carbon economy because in fact, energy accounts for the majority of greenhouse gas emissions – 76% (IPCC, 2014: Climate Change 2014 – Synthesis Report, R.K. Pachauri and L.A. Meyer). Nonetheless the global food system, including production, post-farm processing and distribution, is also a big contributor to emissions: it is a problem for which there is not a viable technological solution yet.

Food is responsible for approximately 26% of global greenhouse gas emissions. In particular, we can breakdown the emissions per category considered.

- **Livestock and fisheries** account for 31% of food emissions: there are several ways in which animals raised for meat, dairy, eggs and seafood production contribute to emissions. This percentage of emissions relates to on-farm production emissions only, it does not include land use change or supply chain emissions from the production of crops for animal feed: these numbers are included separately in other categories.
- **Crop production** accounts for 27% of food emissions, of which 21% comes from crop production destined to direct human consumption, and the remaining 6% comes from the production of animal feed. These emissions come from agricultural production from elements such as the release of *nitrous oxide* coming from the application of fertilizers, *methane* emissions from rice production and *carbon dioxide* from agricultural machinery.
- **Land use** accounts for 24% of food emissions. Agricultural expansion results in the conversion of forests, grasslands and other carbon “sinks” into cropland or pasture resulting in carbon dioxide emissions.
- **Supply chain** accounts for 18% of food emissions: food processing, transport, packaging and retail require energy and resource inputs. Differently from the common belief, transport emissions are often a very small percentage of food's total emissions. Preventing food waste would have a great impact on reducing emissions: food waste emissions are quite large – 3.3 billion tonnes of CO₂eq ends up as wastage either from supply chain losses or consumers.

Reducing emissions from food production will be one of the greatest challenges in the future decades. For now, the ways in which we can decarbonize agriculture are less clear. Possible solutions could be changes to diets, food waste reduction, improvements in agricultural efficiency, and technologies that make low-carbon alternatives viable.

Figure 5: How much of GHGs come from food



Source: Our World in Data, <https://ourworldindata.org/food-ghg-emissions>, 2019

4.3 Taxonomy in Practice: European Agri-Food Companies

The Taxonomy Regulation has introduced a disclosure requirement for companies already required to provide a non-financial statement under the Non-Financial Reporting Directive (Directive 2014/95/EU, amending Directive 2013/34/EU). NFRD covers large public-interest companies with more than 500 employees, including listed companies, banks and insurance companies. All companies subject to this requirement will include a description of how - and to what extent - their activities are associated with Taxonomy-aligned activities. For non-financial companies, the disclosure must include:

- The proportion of turnover aligned with the Taxonomy,
- Capex, and if relevant, Opex aligned with the Taxonomy.

Turnover gives a clear picture of where a company currently is relative to the Taxonomy. It allows investors to report the percentage of their fund invested in Taxonomy-aligned activities. **Capex** instead gives investors an indication of a company's direction of travel: capital expenditures can give an indication of a company's strategy for improving environmental performance and resilience. It is a key variable for assessing the credibility of a company's strategy, and it helps investors decide whether they agree with their strategic approach. Companies that disclose their capex investments in economic

activities as part of a plan to be Taxonomy-aligned provide highly valuable information for constructing green portfolios, and for analysing companies’ transition plans and/or environmental sustainability performance and strategies (EU Technical Expert Group on Sustainable Finance, 2020).

This disclosure should be made part of the non-financial statement, which should be added in annual reporting or in a *dedicated sustainability report*. Large financial and non-financial companies that fall under the scope of the NFRD have the obligation to disclose to what extent their activities meet the criteria set out in the EU Taxonomy. There are many possible voluntary uses of the EU Taxonomy by market participants: some companies can use the criteria of the EU Taxonomy as an input to their environmental and sustainability transition strategies and plans.

In this chapter we’ll focus on some of the biggest and most influential food companies in the European Union, going through their mission, production system and final products. In particular, the focus will be on their sustainability reports and on how they report their goals and achievements regarding the sustainability path. Finally, we’ll see to what extent they are aligned with the recommendations proposed by the Platform on Sustainable Finance.

The leading agri-food company in Europe in terms of agri-food sales in 2020-2021 is **Nestlé** with 78.8 billion euros of revenues, which equals approximately four times the global sales of **Lactalis** who made 21 billion euros in sales in the last fiscal year (statista.org, 2022).

Figure 6: Leading agri-food companies in Europe ranked by global sales



Source: [statista.org/statistics](https://www.statista.org/statistics)

4.3.1 DANONE

Danone S.A. is a French multinational food-products corporation based in Paris, originally founded in Barcelona, Spain. The company is listed on Euronext Paris where it is a component of the CAC 40 stock market index. Danone reports that it has become a world leader in four businesses: essential dairy and plant-based products, early life nutrition, medical nutrition and waters.

- A) Essential Dairy and Plant-based products: these are two “distinct but complementary pillars”. Danone started in 1919 with the creation of the first *yogurt*; fresh dairy products are Danone’s original business. The plant-based products and beverages came with the acquisition of WhiteWave in 2017. Through this acquisition Danone seeks to develop and promote the plant-based category around the world, being able to satisfy the growing demand for “natural, nutritious and environmentally friendly products”. This world business unit accounts for the majority of sales (54%).
- B) Waters: Danone is one of the world’s leading bottled water companies, putting its commitment to help spread the word about healthy hydration in action. Sales from the waters business unit amount to 16%.
- C) Specialized nutrition: it represents a segment of science-based nutritional solutions designed to positively impact health through food for people. The segment is divided into Early Life nutrition (ELN), which aims to provide optimal nutritional solutions for infants and young children, and Advanced Medical Nutrition (AMN) which focuses on providing innovative solutions in paediatric nutrition as well as adult nutrition. Sales coming from the specialized nutrition unit consist of 30%.

The company has reached 24.3 billion euros worth sales. Danone company already reported the numbers related to the Taxonomy, in particular **Capex** and **Opex**, the former being a company’s long-term expenses such as physical assets, equipment, machinery and vehicles, while the latter being a company’s day-to-day expenses, namely rent, property taxes, cost of goods sold and utilities.

Danone reported that less than 3% of operating expenditures are in line with the Taxonomy Regulation, instead 23.7% of capital expenditures are aligned with the Taxonomy. For what concerns sales, the company affirms to be non-eligible.

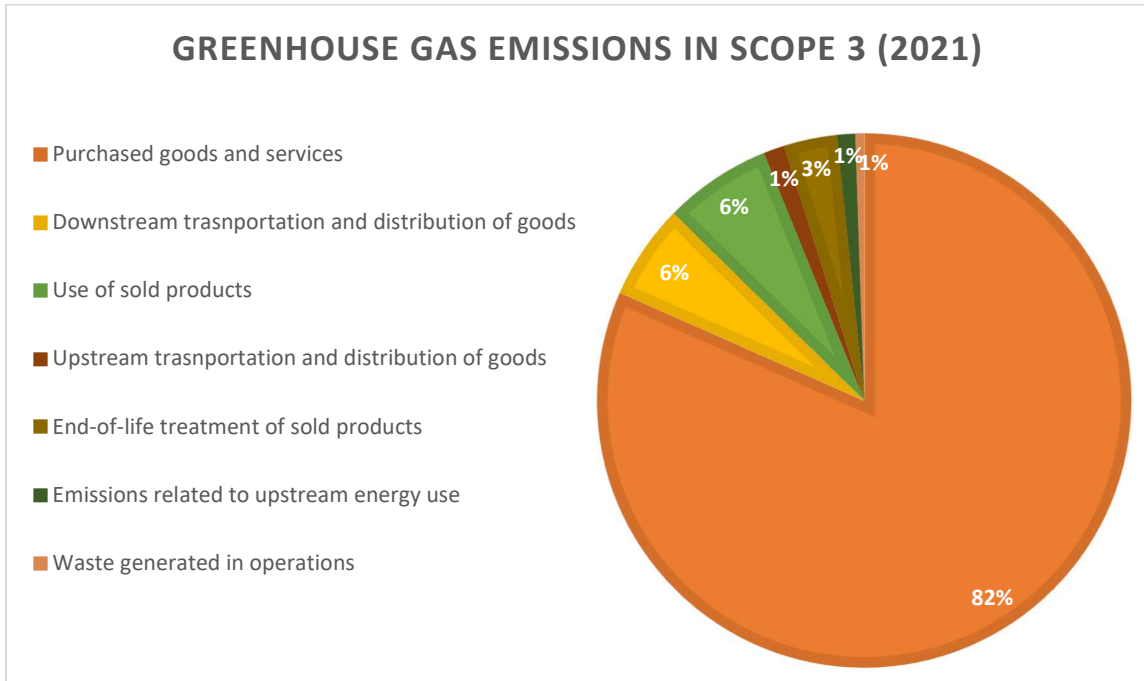
In their sustainability report, Danone states its CO2 emissions, broken down into scope 1, 2 and 3.

For scope 3 GHG emissions, the majority of kilotons of CO2 comes from the “purchased goods and services”, namely the purchase of *milk, dairy ingredients and other raw materials*, producing 19,371 kilotons of CO2 (2021), reaching a lower amount of emissions with respect to 2020 where the company produced 19,921 kilotons of CO2. Purchased goods can be also *finished goods* or products that are useful for the *packaging*.

Danie also reports the emissions coming from agriculture:

- Milk produces the majority of greenhouse gases (61% of the emissions coming from agriculture activity, under the purchase of goods and services activity).
- Dairy ingredients come second, with 25% of total agriculture emissions.
- Other raw materials account for 13.9% of the emissions.

Here's a pie chart showing the breakdown of greenhouse gas emissions in scope 3.



The total emissions under scope 3 equal to 23,733 ktons CO₂, reaching an intensity reduction of the full scope of 24.5% with respect to 2015.

The sustainability report Danone focuses on three topics which are also within the scope of recommendations of the Platform on Sustainable Finance: *animal welfare* and agricultural practices, *circular economy* and *water management*. The activity that summarizes the core businesses of Danone is “manufacturing of food products and beverages”. The company reports that the totality of lamb and beef have access to pasture; their eggs are cage-free and eggs ingredients volumes are sourced worldwide. No further details are given regarding the pressures on biodiversity of their activities, nor the steps taken by the company in their production practices aiming to improve biodiversity: in order to be contributing substantially to the protection and/or restoration of biodiversity, Danone should either select ingredients for which primary production improve biodiversity, or select protein-rich agricultural ingredients that reduce pressure on biodiversity, which would mean that either the ingredient has a low land-use value or the ingredients’ direct and indirect land use is below 10m² per 100g of product protein. To this day, there is no such detailed reporting by the company regarding this matter. Nevertheless, the EU Farm to Fork Strategy suggests that a key area of EU research will be “increasing the availability and source of alternative proteins such as plant, microbial, marine and insect-based proteins and meat substitutes”. One of the main businesses of Danone is in fact the Plant-based products business. The company owns several plant-based dairy brands that produce oat, almond and soy milk, as well as coconut oil-based

cheeses and spreads. Danone's chief explained that plant-based dairy will be the focus of the company's growth because it is going to be the driving force behind its sales target for the sector. The company announced its plan to double the sales related to the plant-based segment to \$5.4 billion by 2025. The co-CEO shared that "With Silk, Alpro, So Delicious and Follow Your Heart, we have the leadership positions for continued scale and acceleration" (Sally Ho, 2021).

Regarding the *circular economy objective*, the plastic used by Danone in 2021 is equal to 750,994 tons, with a total weight of packaging of 1,468,263 tons, registering a slight increase with respect to 2020. The percentage of total packaging being reusable, recyclable or compostable is equal to 84%, with an increase of 3% with respect to 2020. The target for 2025 is to reach 100% of recyclability in their packaging. Regarding this matter the Recommendation by the Platform suggests that the reduction of food waste and loss should be of 50% by 2030 compared to 2016 baseline or more recent if there is no availability of recent data. Instead, concerning plastic the reusability accounts for 74% in 2021, increasing of 7% with respect to 2020. Furthermore, the Platform suggests that activities use residues and by-products in order to reduce primary raw material use per unit of output, including energy. In particular, the primary packaging materials should comply with Regulation (EC) No 1935/2004 on materials and articles intended to come into contact with food.

Danone also tackles the *industrial waste* topic: it reports 364 kilotons industrial waste in 2021 – the number does not include food waste from water sites. The industrial waste recovered amounts to 91.9%. Industrial food waste is another important point covered in the recommendations of the Platform under the circular economy objective. The Platform suggests that in order for the activity to "do no significant harm", it should report food/drink loss and waste quantities, integrate prevention consideration throughout the supply chain and develop co-products or create products that utilise such co-products. Danone has generated a total quantity of food waste equal to 249 thousands of tons. The food waste that has been recovered is equal to 227 thousand of tons and the proportion of recovered food waste is equal to 89.4%.

Finally, the *management of water* is part of the sustainability report of Danone. The Platform on Sustainable Finance recommends that there should be a permit for water abstraction granted by an authority, and there should not be any modification of water bodies. In addition, wastewater discharge from food processing must be within the Best Available Techniques defined per unit parameters, where applicable. In 2021 Danone has withdrawn river water for an amount equal to 2,822 thousand of m³, municipal water for 22,475 thousand of m³ and well water withdrawn from the surrounding area for 42,452 thousand of m³.

The majority of water consumption is related to production processes (38,559 thousand of m³), followed by the usage of water destined to finished products and water co-products (29,009 thousand of m³). The company reports the total reduction of water intensity since 2000 which amounts to 50% reduction. Regarding wastewater, Danone has reported an amount of 5.06 thousand of tons regarding the final discharge of Chemical Oxygen Demand. 74% of the company's production sites are compliant with Clean Water

Standards (CWS) discharging wastewater directly to nature. 73% is the percentage reported which regards the m³ of clean wastewater returned to nature.

All in all, the sustainability report of Danone (2021) tackles important areas which are also covered by the recommendations of the Platform: protection and restoration of biodiversity through animal welfare objectives, circular economy, pollution control and water sources management. The reported data could be more exhaustive and detailed but since the Taxonomy is still developing and a quite recent measure, there is still some more work to do from the companies' side. What is lacking completely is information on pollution prevention, the impacts of the business activities on biodiversity and the steps taken, if any, in climate change adaptation and mitigation.

4.3.2 NESTLÉ

Nestlé is a Swiss multinational food and drink processing conglomerate corporation. Its headquarters are situated in Vevey, Vaud, Switzerland. Since 2014, it is the largest publicly held food company in the world measured by revenue and other metrics. Nestlé products include baby food, medical food, bottled water, coffee and tea, dairy products, frozen food, and snacks. The company has 447 factories, operates in 189 countries and employs 339,000 people (2015).

It defines itself as the “good food, good life” company, reporting that they are taking steps to advance regenerative food systems at scale. Nestlé embarked on a journey toward regeneration; to help protect, renew and restore the environment, improve the livelihoods of farmers and enhance the resilience of communities and consumers. The company's *Net Zero Roadmap* shows that nearly two-thirds of their greenhouse gas emissions come from agricultural activities which also contribute to an accelerated loss of biodiversity, habitats and ecosystems; and addressing these emissions in one of Nestlé's focus areas. They are taking action through the concept of *regenerative agriculture*: an initiative which can potentially help address climate change and support communities and natural resources. It is an approach to farming that aims to improve soil health and soil fertility, as well as protecting water resources and biodiversity with the objective to capture increased levels of carbon in soils and plant biomass. Benjamin Ware, the head of Climate Delivery and Sustainable Sourcing of the company, declared that turning the climate roadmap into practice enables the company to decouple greenhouse gas emissions from company growth.

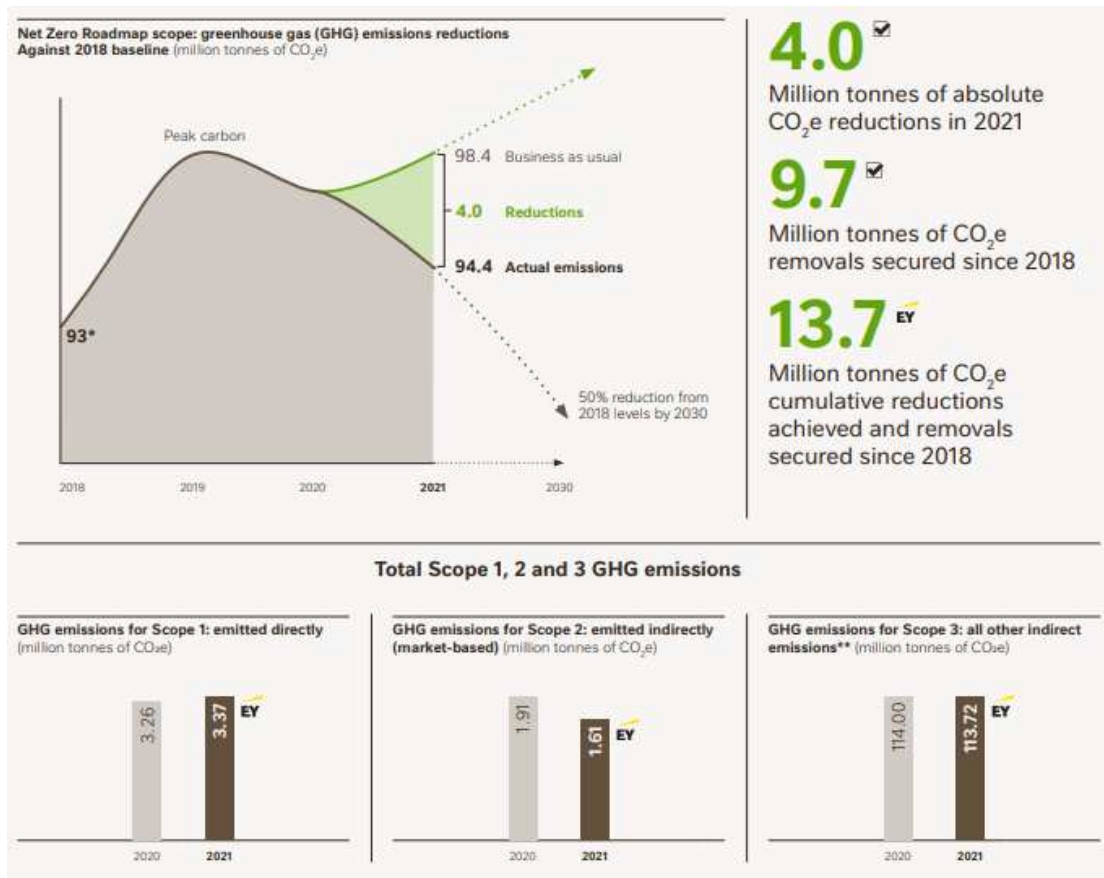
By 2025, Nestlé affirms that 20% of their key ingredients will be sourced through regenerative agricultural methods; and by 2030 the target would be reaching 50%.

In 2021, Nestlé has achieved a reduction of 4 million tonnes of greenhouse gas emissions since 2018. In addition, the company initiated an additional 9.7 million tonnes CO₂ of removals in 2021. The company also reports that they are 97.2% deforestation-free in their primary meat, palm oil, pulp and paper, soy and sugar supply chains.

The company has also decreased the water use in their factories of about 2.3 million m³. Concerning the circular economy goals, Nestlé has used plastic packaging (74-9%) that

was designed for recycling; in addition, it has reached an 8.1% virgin plastic reduction with respect to 2018 baseline.

Figure 7: Nestlé’s Net Zero Roadmap performance



Source: Nestlé Sustainability Report, 2021

The company has achieved 4 million tonnes of GHG emissions reductions (CO₂e) through their climate program. The year-end (2021) emissions of 94.4 million tonnes were still higher than in 2018, stated as the baseline emissions in the Net Zero Roadmap, but the performance of Nestlé is demonstrating a downward trajectory.

In 2021, the company has increased the percentage of renewable electricity sourced to 63.7% (2020: 50.5%), in line with their commitment to source 100% renewable electricity across their sites globally by 2025.

Scope 3 emissions include consumer use of sold products, and purchased services, leased assets, capital goods, and investments. As a result, the total reported Scope 3 emissions are higher than the actual emissions reported for 2021 against the net zero baseline. Most of Scope 3 emissions reductions are the result of interventions in the livestock and dairy supply chains.

Within the focus areas of Nestlé there is **climate**: the company aims to achieve net zero greenhouse gas emissions no later than 2050. By 2025 the company will reduce the emissions by 20% with respect to 2018 levels. By 2030, the reduction is expected to be of 50% from 2018 levels. The ultimate goal is to reach net zero by 2050. Thus, there is a

sort of transparency regarding the greenhouse gases emitted during the food/beverage manufacturing process for the final product, even though it is not expressed yet in kgCO₂eq per kilogram of the final food/beverage product, in order for the activity to be in line with the recommendations for the DNSH on climate change mitigation objective.

Nature and biodiversity is another focus area in the sustainability report of the company: Nestlé tries to bring intrinsic benefits for nature and biodiversity through activities such as 100% deforestation-free primary supply chains by the end of 2022 for meat, palm oil, paper and pulp, soy and sugar; and end-2025 for coffee and cocoa. In September 2021, the company has announced the intention to advance regenerative food systems at scale, supporting the development of food systems that protect, renew and restore the environment. They plan to plant 200 million trees by 2030 to help restore critical ecosystems. And with their “Forest Positive” strategy they aim to help the conservation and restoration of forests and ecosystems, improve soil nutrient cycles as well as climate change resilience. There is no disclosure on the selection of ingredients for which primary production practices improve biodiversity, nor reports if they are trying to substitute protein-rich ingredients that have a high negative impact on biodiversity. Nothing is reported regarding the selection of ingredients that contribute to conservation and genetic diversity.

Water is another area towards which Nestlé is taking action. “Nestlé Waters”, their bottled-water business, aims to regenerate local water cycles through the implementation of more than 100 projects by 2025. The company aims to reduce chemical farm inputs and optimize organic fertilization, biological pest control and irrigation techniques. In order for the activity of Nestlé to be compliant with the recommendations there should be compliance with water abstraction licences and no alteration of water bodies.

The company aims to integrate **livestock** and optimize grazing in farming systems when feasible, and this would be in line with one the substantial contribution criteria to Biodiversity and Ecosystems proposed by the Platform. The regenerative agriculture project is taking efforts to turn **dairy** into a net zero industry: this would have a great impact in decreasing emissions, since the dairy industry is one of the major contributors to the total greenhouse gas emissions over the life cycle of milk and other dairy products. Nestlé proposes to use *silvopasture*, where trees are introduced into areas used for livestock grazing, alongside mixed farming of livestock and crops.

Finally, **packaging and circularity**: by 2025, 100% of their packaging will be recyclable or reusable, reducing in the meantime the use of virgin plastics by one third. No disclosure is given regarding the reduction targets of food loss and waste: the recommendations propose a reduction target of at 50% compared to a 2016 baseline by 2030. Thus, there is alignment regarding the circular economy objective.

The most important thing that Nestlé has worked on during 2021 is the development of net zero dairy farms. In 2018, most of their GHG emissions were Scope 3 and came from sourcing ingredients. Dairy is the single biggest source of these emissions, so tackling them can have a major impact on the efforts of the company to reach net zero (Robert Erhard, Global Head of Dairy, Corporate Sustainable Agriculture Development, 2021).

All in all, the company is reporting the action and the objectives that intends to pursue to become net zero by 2025. There is an adequate transparency regarding GHG emissions emitted during the manufacturing process of products, especially for dairy products. Nevertheless, considering the recommendations proposed by the Platform for the activities related to the manufacturing of food and beverages, no disclosure is given regarding the pressures on biodiversity nor any improvements on production practices to reduce this pressure. In addition, no information was given regarding food loss and waste and the ways to prevent it. Further steps should be taken in sustainability disclosure in order to be aligned with the Taxonomy objectives.

4.3.3 AB INBEV

Anheuser-Busch InBev, commonly known as AB InBev, is a Belgian multinational drink and brewing company based in Leuven, Belgium. The company has approximately 630 beer brands in 150 countries (2020, AB InBev Annual Report). It was formed through InBev, a merger between Interbrew from Belgium and AmBev from Brazil, acquiring Anheuser-Busch from the United States; today it is the world's largest brewer and is considered one of the largest fast-moving consumer goods companies in the world. Anheuser-Busch InBev SA is a publicly listed company, with its primary listing on the Euronext Brussels. The company's brand portfolio includes highly popular beer and soft-drink brands. The company classified its brands as Global Brands, International Brands, and Local Champions. Global brands include Corona, Stella Artois; international brands are Beck's, Leffe and Hoegaarden. The company has the ambition to achieve net zero across their value chain by 2040 and has announced their first carbon-neutral breweries in China (Wuhan), Brazil (Ponta Grossa), as well as their first carbon-neutral malthouse in Brazil (Passo Fundo).

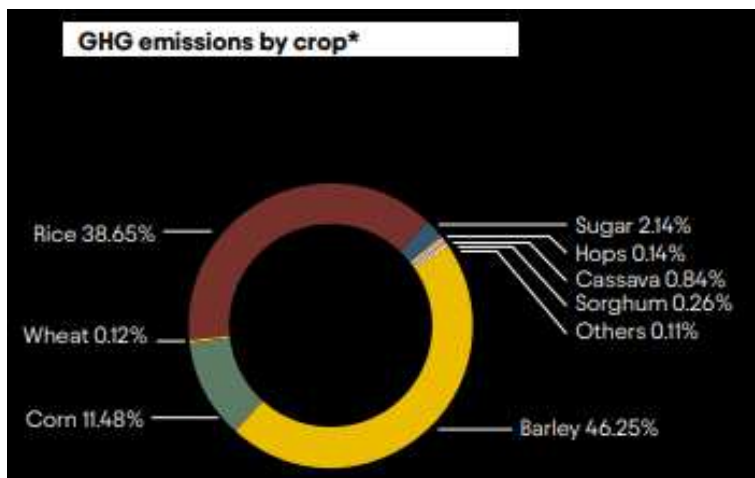
Their reporting takes into consideration key non-financial indicators and guidance from frameworks such as the Task Force on Climate-related Financial Disclosure (TCFD). Their last report has expanded to include a section with more comprehensive ESG index and reporting frameworks, such as the EU Taxonomy itself. AB InBev contribution is estimated to be 27% of the total global economic contribution of the beer industry (Oxford Economics, 2021).

The company reports that their business is one that is closely tied to the natural environment: agricultural crops and water are the key ingredients. In addition, raw materials are required for packaging, energy and fuel instead are needed to brew, transport and cool the beers.

Concerning the *climate mitigation and adaptation objectives*, the company reports the 2021 outcomes related to GHG emissions under Scope 1, 2 and 3. By 2025, the company is committed to reduce carbon emissions by 25% across their value chain, while 100% of purchased electricity will be from renewable sources. The company reports that there has been a reduction of 28.63% in scope 1 and 2 GHG emissions with respect to 2017 baseline. In addition, a total reduction of 13.58% in Scopes 1, 2 and 3 GHG emissions has been achieved in 2021 with respect to 2017 levels.

Nevertheless, AB InBev states that absolute emissions have increased as purchases and distribution reactivated amidst economic recovery from the pandemic. However, their Scope 1, 2 and 3 emissions per hectolitre decreased in 2021 reaching 51.2 kgCO₂e/hl in comparison to 53 kgCO₂e/hl in 2020. The main drivers of this increase are said to be packaging emissions (38.1% of GHG emissions) and product cooling (20.2%). Agriculture represents 12.5% of their value chain emissions, it is part of scope 3 within their value chain and is included in the category “purchased goods and services”. Brewing operation instead contribute to 12.3% of GHG emissions. Regarding agriculture, the company also reports the emissions breakdown by crop. Barley has the largest impact on emissions (46.25%), followed by rice (38.65%).

Figure 8: AB InBev GHG emissions by crop



Source: AB InBev Sustainability Report, 2021.

Thus, the company is transparent regarding the provenience of emissions, but it does not report yet the greenhouse gases related to the final product, for instance being not totally in line with the climate change mitigation recommendations. In their sustainability report, there is a dedicated part to the EU Taxonomy. The company stated that their core economic activities related to the production and selling of beer are not covered by the Climate Delegated Act, and as a consequence these activities are not considered Taxonomy-eligible, meaning that the eligible turnover for 2021 is zero. The company underlines that when the specific economic activity “manufacturing of food products and beverages” is added to the future Delegated Regulations, they expect their KIPs for Taxonomy-eligible turnover to increase. The scope of the company is to reach net zero by 2040.

The company has identified Taxonomy-eligible CapEx and OpEx in the following types of activities:

- 1) Electricity generation from renewable resources,
- 2) Production/co-generation of heat/cool and power from renewable resources,
- 3) Construction, extension and renewal of water/wastewater facilities,
- 4) Installation, maintenance and repair of equipment, devices and technologies improving energy efficiency,
- 5) Leasing of low/zero-emission vehicles.

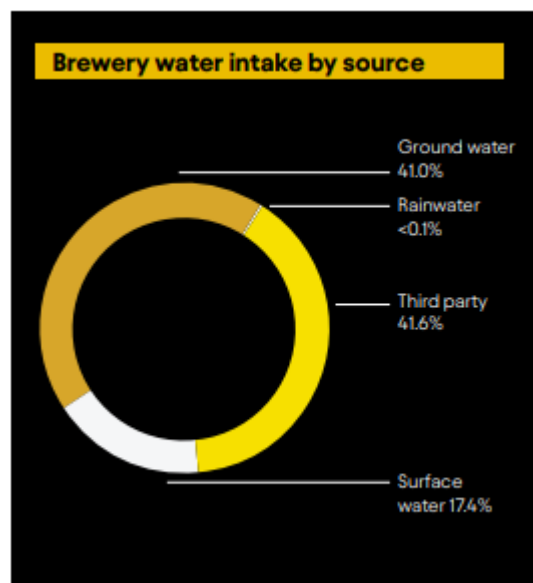
Since these activities are not tied directly to the core revenue-generating activities, our current Taxonomy-eligible CapEx and OpEx ratios are by year-end 2021 approximately 1% and 2% respectively. The company also underlines that “non-eligibility” under the EU Taxonomy Regulation refers to the fact that the activities at present remain outside of the scope of the economic activities for which technical screening criteria have been developed under the Delegated Regulations.

The key areas of action which would be in line with the Recommendations proposed by the Platform, are:

- smart agriculture,
- water stewardship in order to improve water availability and quality,
- circular packaging with the goal to have 100% of products to be made from majority recycled content,
- finally, climate action, with the purpose of having 100% of purchased electricity coming from renewable sources by 2025. In addition, another goal is to have 25% reduction in CO2 emissions across the value chain.

Regarding *water stewardship*, water is said to be more than just an ingredient for AbInbev, and they are focused on being a part of the solution to the growing water challenges across their communities and supply chain. Water scarcity or poor water quality may increase production costs and capacity constraints or impact their license to operate.

Figure 9: ABINBEV Brewery Water intake by source (2021)



Source: ABINBEV, 2021 Environmental, Social and Governance Report

The company intends to continue implementing tailored solutions across all their sites facing water stress and measuring their impact on water quality and availability. They also plan to continue identify and test innovative solutions to improve the internal water use efficiency.

Another focus area of relevance is the transition to *circular economy* objective, which is covered by the company in their sustainability report under the “circular packaging”

section. Improving the materials used can help deliver long-term financial benefits and provide the business with long-term packaging supply security while also eliminating waste. AB InBev reports that packaging is accountable for almost 38.1% of their GHG emissions. To achieve their goal of 100% of their products made from recycled content by 2025, they are aiming to reduce packaging and the need for virgin materials where possible, increasing recycled content, identifying opportunities to recycle materials and promoting the recovery and reuse of packaging in its original form. In 2021, the company discloses that 36.4% of their products volume was made in returnable packaging. In 2021, 74.5% of their products were in either returnables (kegs and returnable glass bottles) or made from majority recycled content (cans portfolio with more than 50% recycled content).

Another focus area is *waste management*, which still falls into the recommendations related to the transition to circular economy objective. For the company is crucial to try to manage their waste responsibly, since it operates in nearly 50 countries. In 2021, new programs were implemented to increase recycling rates and reduce waste: the company has recycled 99.29% of the waste generated in their beverage production processes. 14% of their total beverage facilities are recycling 100% of generated waste, considered zero waste generation. Instead, 69% of their beverage facilities are reaching more than 99% recycling rates. Looking forward, all facilities plan to continue pursuing 100% recycling rates in their operations to achieve zero waste globally.

Finally, regarding the *biodiversity* objective, the company defines itself attentive on this matter since they depend on high-quality agricultural crops and water from healthy ecosystems. They aim to protect and restore biodiversity through their work on agriculture and watersheds. The company plans to seek out ways to embed biodiversity initiatives into their programs and will continue to engage with partners and industry groups to drive greater collective action on biodiversity.

It is relevant to clarify that turnover, CapEx and OpEx currently considered non-eligible under the EU Taxonomy Regulation should not be interpreted as an indication of their performance in pursuing or having attained our sustainability objectives.

AB InBev expects these KPIs to increase as the four remaining environmental objectives are added to the Delegated Regulations and additional activities are included in the criteria for all environmental objectives. The company continues to explore ways to reduce the emissions through their commercial strategy and invest in the decarbonization of their operations and value chain as part of their 2025 Climate Action Goal and their ambition to achieve net zero by 2040. They will continue to assess their Taxonomy-eligible and aligned activities considering the evolving legal framework of the EU Taxonomy Regulation and to further integrate the requirements of the EU Taxonomy framework in our business model and reporting policies and procedures.

4.3.4 SIPEF

SIPEF (Société Internationale de Plantations et de Finance) is a Belgian agribusiness group, listed on Euronext Brussels, headquartered in Schoten, Belgium. It was incorporated in 1919 with the principal aim of promoting and managing plantation companies in tropical areas. It is devoted to certified sustainable production of tropical agricultural commodities, primarily palm oil, such as fresh fruit bunches, crude palm oil, palm kernels, crude palm kernel oil, flowers and foliage. It is also involved in the production of certified sustainable bananas, rubber and tea. Palm products are the primary business which accounts for 92% of the Group's total revenue. Banana production is the second largest activity, making up 5% of total revenue and followed by rubber representing 2% of total revenues. These labour-intensive activities are carried on in Indonesia, Papua New Guinea and Ivory Coast and employ more than 21 thousand people. In all its activities the company continually strives to achieve a balance between taking care of the environment and social welfare, and development at an economic level. Since the Group operates in remote areas, a sustainable approach is necessary for social development and economic growth.

The sustainability report focuses on the environmental, social and governance performance of the Group, including SIPEF's sustainability commitments, progress and next steps. The scope of the report includes all the operational and management activities within the Group: oil palm, bananas, tea and rubber operations in all subsidiaries (Indonesia, Papua New Guinea and Ivory Coast), thus excluding horticultural activities as these account for less than 1% of the Group's revenue.

The company includes in their report non-financial information required by the EU Non-Financial Reporting Directive, which was transposed into Belgian national law in 2017. In accordance with the requirements of the European Commission's Taxonomy Regulation, SIPEF has assessed the taxonomy-eligibility of its economic activities for the reporting period of 2021, regarding the two objectives of "Climate change mitigation" and "Climate change adaptation" (SIPEF Sustainability Report, 2021). The company recognizes that climate change is causing severe impacts worldwide, with serious risks for the food and agriculture sectors. The agricultural sector itself is also a contributor to climate change. Agriculture, forestry and land use account for around 18% of global greenhouse gas (GHG) emissions (Ritchie, H. and Roser, M., 2022, *Emissions by Sector*, Our World in Data). It is challenging to reduce emissions from agriculture, but there is significant mitigation potential. SIPEF is committed to implementing best agricultural practices that will increase its yields and minimise its environmental impact. The Group is also investing in research and innovative solutions to reduce emissions in palm oil production, such as capturing methane from the wastewater ponds, the efficient use of fertilizers, strengthening the potential for optimising land use.

The core business of the Group would correspond to the "crop production" activity which is classified under A.01.1 and A.01.2 NACE codes, in particular "growing of perennial crops". The company is taking steps in the calculation of SIPEF's carbon footprint at group level, which was completed in 2021, according to ISO 14064 methodology which is aligned with widely used industry standards and enables SIPEF

to calculate its annual net GHG emissions for the full scope of its operations; this is also important for *climate change mitigation and adaptation objectives*. The total net emissions of the Group for 2021 were calculated at 628,355 tCO₂e, covering the production of 384,178 tonnes of crude palm oil, 3,826 tonnes of rubber, 2,664 tonnes of tea and 32,200 tonnes of bananas in 2021. 98% of total group net emissions (2021) are scope 1 emissions and come from the Group's owned or controlled sources; and the remaining 2% are scope 2 emissions, the indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the company. Scope 3 emissions are going to be included in calculations, but further data validation and verification will be necessary.

Palm oil is the largest contributor to carbon footprint of the Group (96%), due to large scale operations. The greatest contribution per country is from Indonesia, due to larger hectareage and scale of the Group's operations in the region. The ISO 14064 carbon calculation methodology takes into account both carbon emissions, which release GHGs into the atmosphere, and carbon sinks, which contribute to the sequestration of atmospheric carbon. The crops grown by SIPEF (palm, banana, tea and rubber) act as carbon sinks.

One of the focus areas of SIPEF is *biodiversity and conservation*: biodiversity is declining at a critical rate. The main drivers of biodiversity loss are land use change, nutrient loading and pollution, overexploitation of natural resources. In addition, the growth of the population and the sector's continually expanding footprint place sensitive and important natural areas such as forests at risk of conversion. The Platform suggests that in order for the activity to be substantially contributing to the protection and restoration of biodiversity, the area of the agricultural holding incorporates high-biodiversity landscape features or are otherwise biodiversity rich. The activity abstains from the use of synthetic plant protection products that harm biodiversity and ecosystems or the activity ensures a sustainable farm gate nitrogen balance. One of the three options proposed by the Platform should be satisfied in order for the activity to be in line with substantial contribution criteria. SIPEF is committed to:

- Protection and restoration of areas identified for conservation within SIPEF's concessions
- Biodiversity monitoring and no hunting policy
- Supporting landscape and biodiversity programmes and initiatives.

All conservation areas under SIPEF's management control are clearly delineated, actively protected and continuously monitored. Regarding biodiversity monitoring, the regular presence of certain mammals such as tigers, leopard cats, tapirs and monkeys, is a good indicator of ecological viability, integrity and connectivity within the landscape, suggesting that agricultural areas where crop activities are held are in fact biodiversity rich. In fact, biodiversity monitoring has identified an extremely rich range of megafauna in the areas.

The Group's best management practices focus on sustainable land preparation and management: whenever possible, SIPEF also engages in regenerative and circular practices, which are focused on making use of by-products and waste from its production

and processing activities, and on implementing nature-based solutions. Other best management practices include minimising the use of agrichemicals, preserving soil fertility and health, using fewer resources to produce higher volumes of product and minimising waste and pollution.

Regarding the *pollution prevention and control* objective, the Platform suggest that the use of plant protection products should follow best practice to avoid increases in adverse pressures and avoid substantial harm or continually reduce it to “acceptable/not harmful” level to environmental and human health. This translates into using plant protection products that are authorized under the EU Pesticides database. There should not be an increase in quantities of PPPs used, either in total or per crop type per unit area, compared to an annual baseline average. If PPPs are deployed, data should be recorded explaining the choice of PPPs, the dose (quantity and area applied to) and the reason why PPPs are deployed instead of other measures such as IPM.

SIPEF reports that pest management is crucial for protecting crops and maximising yields, and the Group engages in Integrated Pest Management (IPM) for both its oil palm and banana production. This approach integrates a broad set of techniques and methods to control pests and diseases: identification of pests and monitoring their prevalence, knowledge of pest biology, life cycles, and stages of pest damage. The Group discloses that pesticides are used as a last resort when other methods are not able to prevent outbreaks of pests and diseases above the economic threshold. All active ingredients in use are reviewed annually for safety and efficacy. Pesticides that are categorised as World Health Organisation (WHO) Class 1A or 1B are not used unless in exceptional circumstances, as validated by a due diligence process, or when authorised by government authorities for pest outbreaks. SIPEF also focuses on avoiding the development of resistance to pesticides: the various active ingredients used are changed regularly, so that low concentrations of pesticides can continue to have maximum effect.

Another area that is tackled in the sustainability report of SIPEF is *water management*, which is also one of the six environmental objectives of the Taxonomy. The Platform recommends that in order for the activity to be compliant with DNSH criteria, a permit for water abstraction, where required, should be granted by the relevant authority for the activity. In addition, any rainwater harvesting system, namely on-site rainwater collection for the use of irrigation and/or drinking of livestock, must be authorised as well by the relevant authority, specifying conditions to avoid significant impact on water bodies. SIPEF’s approach focuses on preserving the availability and quality of water resources for the surrounding communities and environment, as well as for its own business. It implements best management practices (BMPs) such as reusing water as much as possible to keep water consumption at a minimum, to optimise water use in all of its operations. Since 2017, SIPEF has invested in improving water usage across palm oil operations.

Bananas remain the Group’s most water-intensive product, due to the use of irrigation: almost 70% of the irrigation water used at the banana plantation in Ivory Coast is stored in dams during the rainy season, then reused and pumped during the dry season a few months later. The remaining amount comes from rivers alongside the farms. Water for banana packing stations is supplied from wells, due to health and food safety

requirements. The water used is recycled after the packing process by using decantation tanks, then stored in the dams for irrigation in the future.

In their sustainability report, SIPEF includes a dedicated area to the EU Taxonomy and consolidated disclosures pursuant to Art. 8 of the Taxonomy Regulation. As a non-financial parent undertaking, SIPEF has assessed the taxonomy-eligibility of its economic activities for the reporting period 2021. The Group presents the proportion of the company's turnover, capital expenditures (Capex) and operating expenditures (Opex) associated with Taxonomy eligible economic activities related to the first 2 environmental objectives, climate change mitigation and climate change adaptation. The company has focused on economic activities defined as the provision of goods and services on a market, that can thus generate revenues. As an agro-industrial group, SIPEF defines the growing of oil palm, palm kernels, palm kernel oil, rubber and tea as the core of its business activities. It was concluded that these activities are not yet covered by the Climate Delegated Act and as such are Taxonomy non-eligible.

The SIPEF Group discloses this information on a voluntary basis as it believes that this information is helpful for users of its consolidated non-financial statement to gain a better understanding of its business activities and strategy. Despite SIPEF's core activities are not currently covered by the Climate Delegated Act, and not Taxonomy-eligible, the Group remains committed to reducing greenhouse gas emissions linked with its business activities, and to managing the risks and impacts associated with climate change.

To this date, SIPEF's turnover is non-eligible since its economic activities are not covered by the Climate Delegated Act. In addition, Capex and Opex related to these activities are also to be considered Taxonomy non-eligible.

Figure 10: SIPEF's Taxonomy eligible and non-eligible economic activities in total turnover, Capex and Opex

	TOTAL (KUSD)	PROPORTION OF TAXONOMY-ELIGIBLE ECONOMIC ACTIVITIES (%)	PROPORTION OF TAXONOMY-NON-ELIGIBLE ECONOMIC ACTIVITIES (%)
Turnover	416 053	0%	100%
Capital expenditure (Capex)	68 692	0%	100%
Operating expenditure (Opex)	33 391	0%	100%

Source: SIPEF's Sustainability Report, 2021

As the SIPEF Group has not identified Taxonomy-eligible activities, the Group does not record Capex/Opex related to assets or processes that are associated with Taxonomy-eligible economic activities in the numerator of the Capex KPI and the Opex.

4.3.5 KERRY GROUP PLC

Kerry Group PLC is a public food company headquartered in Tralee, Ireland. It is quoted on the Dublin ISEQ and London stock exchanges. The Group employs over 26,000 people in its manufacturing, sales and technical centres worldwide. Kerry supplies over 18,000 foods, food ingredients and flavour products to customers in more than 140 countries worldwide. The Group is divided into several business areas: ingredients and flavours, consumer foods and agribusiness. In 2021, in particular, the Group has supported customers with market leading sustainable solutions across a range of end use markets. Kerry has invested 297 million euro in research, development and application to ensure the company remains at the forefront of sustainable nutrition, as well as continuing to further the leading capabilities in proactive health, food protection and preservation through portfolio development. Consumers are increasingly mindful of the link between diet, health and the environment: they seek out products and brands that have a positive impact on their health and the world around them. The Group supported customers with market leading sustainable solutions across a range of end use markets.

- *Vegan slice*: Kerry has developed a vegan alternative to cheese with taste and functionality, supporting the plant-based product launch in 2021.
- *Waste to taste*: in a circular approach to resource use, they have taken a traditional by-product from fruit processing and upcycled this to create a flavour for a leading beverage producer.
- *Plant protein*: their plant protein portfolio was key in enabling a challenger brand to bring their low carbon meat alternative to market and support their on-pack claims around nutrition and CO2.

For the “better for the planet” goal, Kerry is building on their achievements to date to address the key environmental impact areas across their business and value chains.

As it is widely known, the current model of food production results in substantial environmental impacts, contributing more than a quarter of global emissions, using over 70% of freshwater withdrawals and driving further deforestation and biodiversity loss. Food and packaging waste is having an impact on the environment as plastic finds its way into waterways and oceans, impacting on water quality and marine life.

In 2021, the Intergovernmental Panel on Climate Change (IPCC) warned that scientists are observing changes in the earth’s climate in every region and across the whole climate system. The Group continues to develop and deploy their decarbonisation approach for the operational emissions. The target date for the achievement of 100% renewable electricity across sites is brought forward to 2022. Progress has been made in the use of electricity, with 65% of electricity needs being classified as renewable. Steps ahead have been registered also on emissions reduction in the year, with achievements of a 39% absolute reduction in comparison to their base year 2017. In 2021, Kerry has emitted a total of 160 kgCO2e/tonne carbon, almost halving the carbon intensity with respect to the levels of 2017 baseline. The Group has also carried out a comprehensive review of their Scope 3 emissions to improve the accuracy of their footprint and support more targeted approach to supplier engagement.

The company also tackles **food loss and waste** which is among the recommendations proposed by the Platform for DNSH criteria regarding the transition to circular economy objective. Recommendations propose to reduce food and beverage loss by a minimum of 50% in comparison to the company's baseline year by 2030. The Group reports to be focused on a more circular approach that recovers resources for re-use within their business, or as an input to another system or products. Bakery represents the highest volume category of food waste globally and in 2021, Kerry and its new acquisition extended the shelf life of 34.5 billion loaves of bread by an average of 50%. Kerry is committed to 50% reduction across their operations by 2030. In 2021, the company has continued to make progress against this goal with a 19% reduction with respect to 2017 baseline. The Group was successful in diverting 94% of their total waste volumes towards other productive uses.

Kerry also tackles **plastic waste**, promoting a more circular approach to plastics and has committed to making all their plastic packaging reusable, recyclable or compostable by 2025. In 2021, 57% of the plastic packaging used across their business was in line with the 2025 criteria target.

Protecting **water resources** is another focus area of Kerry Group: across their operations they are targeting a 15% reduction in water intensity by 2025. Through 2021, the performance on water recorded a 4% reduction in water efficiency in comparison to 2017 base year. The Group tracks and monitors compliance with relevant water standards on an ongoing basis: they are making efforts to ensure they protect local water sources, since water discharges from their production sites can have an impact on local water quality. To be in line with Platform's recommendations, there should not be any modification in water bodies in order for the activity to comply with DNSH criteria.

The protection of **biodiversity** is seen as an increasingly material topic for businesses. Kerry has potential to impact on biodiversity directly through its operations and indirectly through the raw materials they source. They report that the majority of impacts comes from their supply chain. They are working towards the preservation of the tropical forests and the rich biodiversity they contain, aiming to eliminate deforestation across targeted supply chains that are the leading drivers of forest loss including cocoa, coffee, soybean, palm oil and paper. The Group is committed to eliminating deforestation which is the leading driver of forest loss. No disclosure is given on pesticide use or synthetic plant protection, nor on the selection of the ingredients that contribute to the conservation of biodiversity.

The Group plans to progress their *carbon foot-printing at product level*, which is one of the things required by the recommendations of the platform for the climate change mitigation and adaptation objectives. The aim is support customers in better understanding their own value chain emissions and provide the Group further insight into the contribution of their portfolio to lower impact consumer products.

Kerry Group presents the targets and progress achieved for each raw material in their supply chains.

Figure 11: Kerry Group targets and progress for each raw material

Category	Our Interim Targets	Our Progress
Coffee Ingredients	100% of our direct volumes will be deforestation and conversion free by year end 2025, as evidenced through verified sourcing and/or using an approved third-party certification scheme.	Across these categories certification will play an important role and is likely to be complemented by independent and/or remote verification programmes. Already today, we are proud to be the exclusive extraction partner of Café Femenino, an advocacy program and ethical sourcing model committed to ending the cycle of poverty affecting women coffee farmers across the world.
Cocoa Ingredients		
Dairy Ingredients	Maintain 100% certification of our liquid milk volumes in Ireland. Across dairy ingredient purchases, 80% of our volume will be with processors at SDP (Sustainable Dairy Partnership) Stage 3 or higher by the end of 2025.	All volumes sourced directly from farmers in South West Ireland are certified under the Sustainable Dairy Assurance Scheme as part of Origin Green. With the launch of the SDP we are engaging with industry partners on the rollout of requirements for our dairy ingredient suppliers.
Egg	By 2025, 100% of our volumes will be cage-free and/or free range in Europe and Australia with increasing volumes in other regions.	We continue to make progress across our targeted regions and in 2021, 57% of our volumes in Europe met with the requirements outlined for this category.
Herbs & Spices	25% of our leading category volumes will be third party verified and/or certified by 2025.	Aligned with our commitments under the Sustainable Spices Initiative (SSI) 100% of our targeted volumes for Parsley and 50% of our targeted volumes for black pepper, met our responsible sourcing criteria in 2021.
Palm Oil	100% of our direct volumes will be deforestation and conversion free by 2025, as evidenced through verified sourcing and/or using an approved third-party certification scheme.	In 2021, 43% of our palm oil volumes were certified under a physical RSPO certification system and we provided ongoing support for smallholder programmes in Malaysia.
Paper Packaging	100% of pulp-based volumes will be deforestation and conversion free by 2025, as evidenced through third party verification and/or certification.	More than 90% of our paper-based packaging was subject to FSC, PEFC, SFI certification and/or was from recycled material in 2021.
Soy Ingredients	100% of our direct volumes are deforestation and conversion free by 2025, as evidenced through verified sourcing and/or using an approved third-party certification scheme.	We are increasing the traceability of our sourcing locations and expect to publish guidance for suppliers via a dedicated Soy Policy early in 2022.
Vanilla	100% of our volumes to have third party verification / certification in place by 2030.	We source our vanilla beans through the Tsara Kalitao programme in Madagascar, helping to support more sustainable development in the participating regions. <i>For more on this work see kerry.com.</i>
Meat	This category has been removed following the sale of our Consumer Foods' Meats and Meals business, which represented approximately 90% of our meat purchases.	

Source: Kerry Group Sustainability Review, 2021

The Group complies with regulations on non-financial reporting and provides information on required topics. In addition, non-financial risks are evaluated as part of the broader enterprise risk management framework.

As part of the efforts taken by the European Union to increase environmental transparency and support more sustainable investment, the Group has outlined information on the extent to which the activities are eligible under the taxonomy.

Kerry's core business involves the manufacture of food and beverage products which is not currently listed as eligible activities. While the manufacture of food and beverage products were deemed non-eligible, the Group has undertaken a deeper review of their turnover with cross functional support. Despite carrying out also some ancillary activities, the turnover of Kerry was assessed to be non-eligible in 2021. Regarding the operational expenditures, the Group has reviewed all operating costs versus the taxonomy requirements. They determined that as the majority of the operating costs they had are related to their turnover, they too were deemed to be non-eligible with the exception of maintenance and repairs. Regarding capital expenditures, the assessment is based on investments in eligible economic activities listed within the regulation. This includes projects involving construction of new buildings to enhance the manufacturing footprint, building renovations to improve existing manufacturing facilities and the installation,

maintenance and repair of energy efficiency equipment. The amount of capital expenditure additions deemed eligible was 24% in 2021.

4.3.6 TÖNNIES HOLDING ApS

The Tönnies Group is a German family business in the meat industry that operates internationally. Its core business is meat processing of pork and beef, in particular Tönnies is the market leader for pork. Founded in 1971, it is headquartered in Rheda-Wiedenbruck in East Westphalia, Germany. It is divided into eight business segments: pork, sausages and beef, convenience, ingredients, logistics, as well as international and central services. The company has approximately 16,500 employees. It has registered 7.5 billion euros annual revenue in 2019 and 6.3 billion euros in 2021.

It is the biggest company in the meat processing industry in the European Union, with core business activities concerning slaughter, butchering, processing and refining of pigs, sows and cattle. The group says that it stands for enjoyable and healthy nutrition with meat.

There is no separate sustainability report published by the company. Nevertheless, the company has established some goals and objectives regarding the environment and the responsibility towards sustainability. The company has pointed out nine core sustainability issues: animal protection during slaughter, animal welfare in animal husbandry, food safety, resource consumption, working conditions, meat and healthy food, handling of antibiotics, housing management and the climate protection in animal husbandry.

Tönnies reports that 3.79% of all greenhouse emissions in Germany come from agriculture as a result of producing meat, milk, butter, eggs and cheese. The group has posed the goal of improving the climate footprint of meat production, for “climate-friendly” animal husbandry and meat production.

The core business activity of the Group in “animal production”, classified under the A.01.4 NACE code. Three ways have been identified by the Platform in which the activity of animal production can make a substantial contribution to the protection and restoration of biodiversity, and it would need to satisfy only one of them in order to be substantially contributing to Biodiversity and ecosystems:

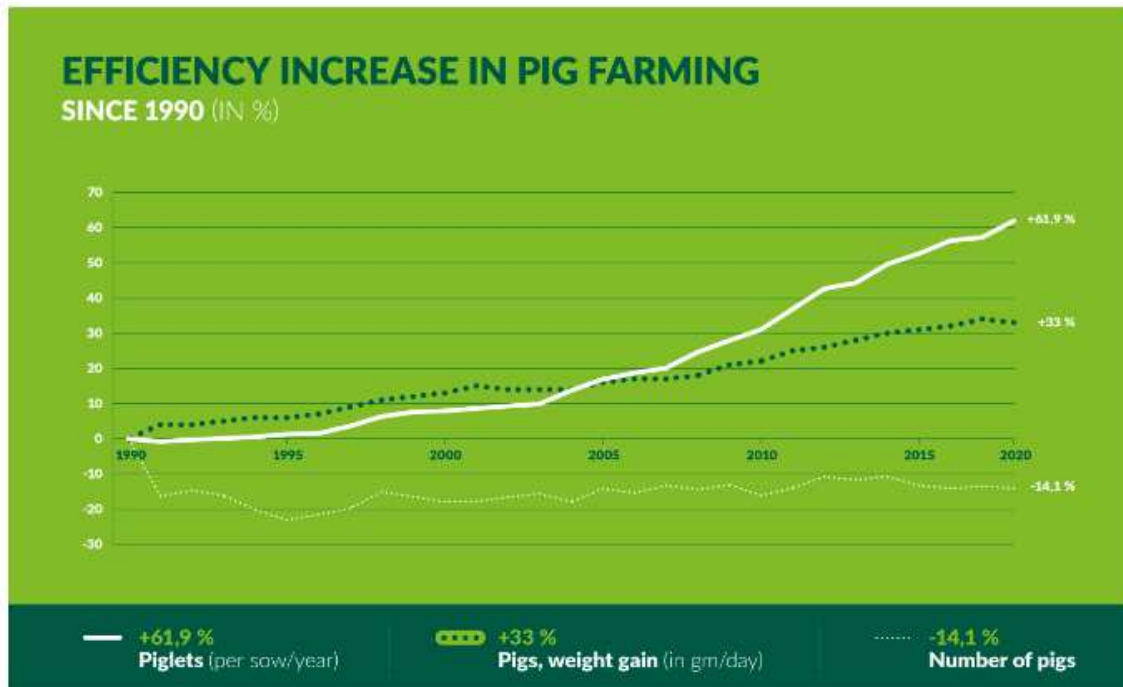
- The activity maintains or improves biodiversity via extensive grazing in habitats where grazing is beneficial for biodiversity.
- Farming of rare breeds
- The activity ensures a sustainable far-gate nitrogen balance.

Animal husbandry and feed production generate the most emissions that have implications for the climate. This includes methane emissions from animal husbandry, spreading manure, and nitrous oxide emissions from soil used in agriculture.

Since 1990, German agriculture as a whole has already reduced its greenhouse gas emissions by more than 20%, whilst increasing production quantity. Germany is one of the most important meat producers in the world. It is where the highest animal welfare

and consumer standards are applicable, together with provisions for climate protection. Tönnies ensures that it has already achieved a climate footprint in the manufacture of meat products that sets worldwide standards.

Figure 12: Data on pork production and climate in Germany (1990-2020)



Source: toennies.de, Destatis and Thüren Institution 2019

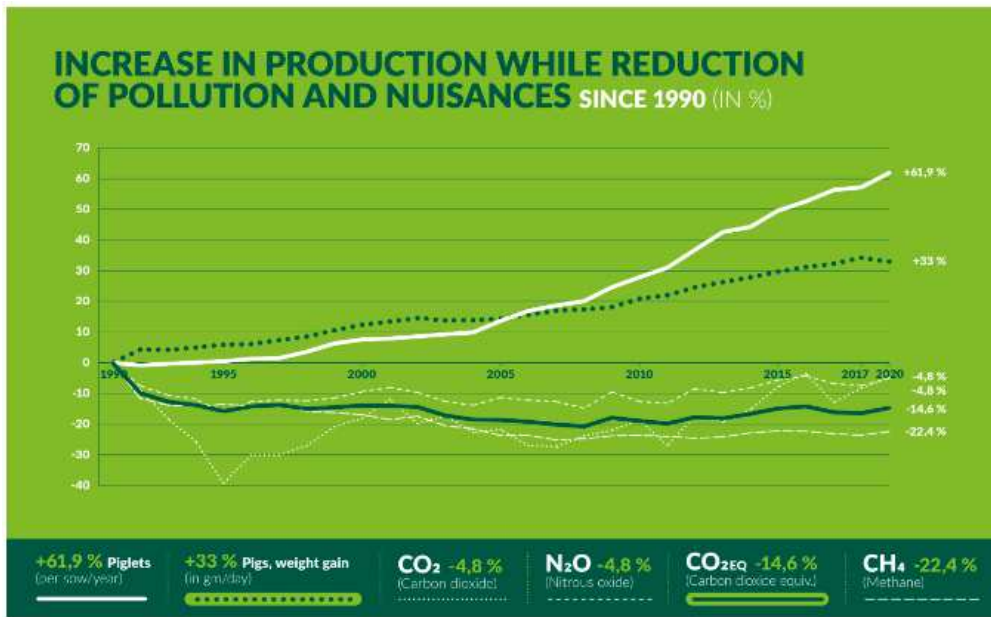
Piglets per sow and per year trend has increased steadily from 2007 reaching 61.9%. Also, the weight of pigs has increased of 33% (2020) but in general the number of pigs is said to have decreased, thus reaching a greater efficiency in pig farming.

In 1990, 270kg of animal feed would have been required to fatten a slaughter pig weighing 12kg, whereas today a slaughtered fattening pig would require approximately 6% less feed. The main reason for this is the improvement in husbandry and health monitoring, with a better use of available nutrients. This improvement in efficiency has enabled a reduction in CO2 emissions of 12-14%. Scientists also claim that less feed would mean reduced resource usage in meat production and also less manure production.

The group says it has been working on reducing the associated emissions in a pragmatic, targeted way and in cooperation with agricultural producers, science and research as well as authorities and associations. The responsibility starts with the reduction of the Group’s own emissions at production sites, while also supporting agricultural partners in improving their climate footprint. The focus of the Group is on implementing climate protection goals in animal husbandry.

The following figure shows the emissions related to pig farming and how they changed through the years (1990-2020). The Group reports that greenhouse gases have decreased since 1990, while the production of meat has increased. For instance, emissions of carbon dioxide had decreased of 4.8%, nitrous dioxide of 4.8%, carbon dioxide of 16.4% and methane of about 22.4%.

Figure 13: Increased pig production, reduction of pollution (1990-2020)



Source: toennies.de, Destatis and Thüren Institution 2019

Tönnies reports that has intensified their efforts to enable climate-neutral livestock farming in the past three years. The action taken involves:

- *implementing good agricultural practice,*
- *improve the robustness of breeding animals, breeding, and feed conversion of the animals.* Tönnies reports that in the beef sector they slaughter and process the majority of cattle from systems primarily used for milk production. These are dairy cows: a cow can only produce milk if it calves once each year. They support breeding and farming measures for sustainable cattle farming.
- *sustainable feed concepts* (through protein-reduced multi-phase feeding), improved feed quality. Soy is replaced by the addition of supplementary and mineral feeds (essential/free amino acids), thus reducing N emissions in the manure from livestock. The effects are reduction in nutrient inputs into the nutrient cycle, reduction in nutrient outputs into the groundwater and more efficient utilisation of available nutrients.
- *improve manure management* (through the reduction of mineral fertilisers and better use of organic fertilisers), the Group is working on climate-friendly open stall concepts. These combine the social aspect, and the animal welfare measures.
- *And more research* to identify previously unused potentials.

Germany is one of the most important meat producers in the world with regard to meeting the demand for meat and protein. The highest animal welfare and consumer standards are applicable, together with provisions for climate protection. The group says it has started reducing their emissions. They are also working on improving the climate footprint of agriculture. In addition, technical knowledge, qualified experts and a well-developed infrastructure also have a positive effect on agriculture and the provision of raw materials and enable good yields and products. Germany is a favoured region due to its climate and also its very good trade infrastructure. They also want to implement hygiene standards

that are as high as possible in order to minimise germ contamination on the meat and enable a long shelf life.

The main goal is to further reduce emissions from animal husbandry. The aim is to implement technology available on the market more widely in cooperation with partners. Tönnies is committed to the integration of resource-saving processes in programmes for sustainably produced meat. The expectation is that in addition to issues of animal welfare, elements of resource protection can also be given reasonable consideration.

The Group, as one of the leading companies in the meat industry, declares itself aware of how important it is to protect natural resources and save energy. They report that they use resources such as water and energy to best preserve them for future generations and to guarantee protection for the environment, people and animals, focusing on the constant reduction of resources consumed.

For the *carbon footprint for a single product* such as the schnitzel, which equals to 3.5 kgCO₂ per kg of product, the company has tracked the path: from raw material preparation to the end consumer, their analysis shows that the slaughter and butchering only contributes to approximately 2% of the total carbon footprint; finishing is approximately 10% of the carbon footprint and the manufacturer of the fattening feed is approximately 55%. During 2021, the company has managed to save 15,000 tonnes of CO₂ at the Rheda-Wiedenbrück plant.

Regarding the management of water and water protection, the plants of the company are secured so that no pollution of water or land occurs. The water used can be divided in wastewater, surface water and roof drainage water.

All in all, the company does not report anything related to the European Taxonomy. The company does not focus much on water management and water resources, not circular economy goals, not even on biodiversity protection and restoration.

4.3.7 LACTALIS

Lactalis is a French multinational dairy products corporation, owned by the Besnier family and based in Laval, Mayenne, France. The company's former name was Besnier SA. Lactalis is the largest dairy products group in the world and is the second largest food products group in France, behind Danone. The key products of the company are cheese, butter and milk. In 2021, Lactalis has reached 22 billion euros in revenues, the majority of which (55%) comes from Europe; produced 22 billion liters of milk collected worldwide and registered a 4.2% growth in sales. The Group counts 270 production sites located in 52 countries with 85,500 employees. The majority of revenues come from the cheese category (36%), followed by milk (21%), chilled dairy (15%), butter and creams (13%).

The core activities of Lactalis would be defined under the “manufacturing of food products and beverages”, classified under C10 and C11 NACE codes. The company says it is committed to working to reduce its impact on the environment and the climate throughout the value chain, working on water management, waste treatment or resource use. The ambition of the group is to achieve Carbon Net Zero by 2050.

The commitments to reach Dairy Net Zero involve

- a reduction of at least 25% of scope 1 and scope 2 emissions by 2025, with respect to 2019 base year,
- A reduction of at least 50% of scope 1 and scope 2 emissions by 2033,
- And by 2050, the achievement of carbon net zero.

To contribute to a low-carbon future, the company is addressing its own operations and has determined the impact on the entire value chain. Milk which is also the main raw material of the company is a major source of indirect GHG emissions. As a dairy company, more than 80% of GHG emissions occur outside direct operations, both before and after the value chain. The company aims to speed up the reduction of indirect emissions, namely scope 3 emissions, in relation to farmer and supplier activities.

At the end of 2020, Lactalis has switched to natural gas, which emits less CO₂, allowing the group to reduce their carbon footprint by 80% at the site level and by more than 50% at the national level by 2021.

In Sweden instead, Lactalis has committed to stop using fossil fuel vehicles by 2025 anticipating the national Swedish objectives by 5 years, converting to clean energy using Hydrogenated Vegetable Oil which is a 100% renewable fuel, made from wood waste. Greenhouse gas emissions are 90% lower than diesel.

Regarding upstream farming, cow's methane emissions are responsible for 58% of the carbon footprint of a dairy farm, and Lactalis is searching solutions to reduce these emissions. Studies have shown that these emissions can be reduced by 30% with the Bovaer feed additive. Starting from spring 2022, the objective of Group will be to measure the impact of this additive combined with the feeding pattern of dairy cows.

Environmental performance is one of the objectives at Lactalis. The largest part of the carbon footprint arises from the drying process, which requires a great deal of energy to

evaporate the water. In 2021, Lactalis has generated 305,178 eqCO₂ GHG emissions falling under scope 1 and scope 2, excluding fugitive and mobile emissions. To meet the challenges ahead, the company is consolidating the certification process by implementing the ISO 14001 international environment standard, meanwhile implementing industrial initiatives to reduce emissions under scope 1 and scope 2. This translates into improving energy efficiency, switching to renewable energies and monitoring innovation to seize new opportunities.

Preserving water resources is another objective of the company. Water is omnipresent in the company's activities, from the start where it is used for watering livestock to the end when it enters a water treatment plant. Transforming milk and its by-products into ingredients means water consumption is a critical issue for Lactalis ingredients, with milk processing accounting for 30% of their water footprint. A large part of the water footprint results from its use at the processing stage. Water that is released into nature flows back into the fields where cows graze and into the human environment. The company has undertaken an extensive renovation programme for wastewater treatment plans.

Heading towards *circularity* is another section tackled in the annual report of the company. Special care is taken in the selection of packaging materials to make sure that they are produced sustainably, respecting recycling schemes. The company wants to develop the use of recycled materials in their packaging, aiming to ensure proper recyclability of their packaging wherever sold. The commitments include having at least 30% of recycled material in the packaging at consolidated Group level. By 2025, Lactalis aims for 100% recyclable packaging by design; in 2019 it was achieved 83% of recyclable packaging. Other commitments are promoting a better circularity for their packaging, improving the recyclability of packaging solutions and reducing unnecessary packaging.

Stabilizing climate, sheltering *biodiversity* and livelihoods is a focus area for Lactalis. Regarding this matter, the Group recognizes the vital role of forests in maintaining water and soil cycles, carbon sinks, biodiversity and livelihoods for local communities. As the world's third milk collector, Lactalis pays close attention to all animals in their supply chain, particularly for the 5 million animals that provide the company the milk that they process, such as cows, buffaloes, ewes, and goats. The company recognizes the strong correlation between animals' welfare and milk quality.

In general, with the available data disclosed by the company and considering the recommendations proposed by the Platform for the "manufacturing of food products and beverage" activity, Lactalis core activities cannot be considered Taxonomy eligible. Further action should be taken on biodiversity protection, GHG emission disclosure, and the other environmental objectives of the Taxonomy.

4.3.8 FRIESLANDCAMPINA

Royal FrieslandCampina N.V. is a Dutch multinational dairy cooperative which is based in Amersfoort, Netherlands. It is the world's largest dairy co-operative and one of the top 5 dairy companies in the world with annual revenue of 11.14 billion euros (2020). FrieslandCampina has branch offices in 33 countries and employs a total of 21,927 people, selling its products in more than 100 countries. Royal FrieslandCampina is organized as a cooperative, with roots going back to 1871 and has grown through mergers and takeovers. Their product range consists of milk, infant food, dairy drinks, yoghurts, desserts, cheese, butter, cream, milk powder and ingredients from dairy. To them sustainability means having a positive impact on farmers, societies and the planet, following 6 priorities:

- Better nutrition, with the objective to comply with Global Nutritional Standards Next Level and to expand access to nutrition for lower income groups throughout the world.
- Better living for farmers,
- Better climate, carbon-neutral future, their aim is to be carbon-neutral by no later than 2050. By 2030 they aim to reduce emissions by 40% CO₂ equivalent for transport and production facilities; and by 33% at member dairy farms, with respect to 2015 level.
- Better nature: FrieslandCampina aims to have a net positive biodiversity impact at member dairy farms within the cooperative.
- Better packaging, 100% circular, by 2025 their aim is to have 100% of their packaging recyclable and/or reusable.
- Better sourcing, 100% responsible, by 2025 they aim that 95% of selected raw materials to be traceable back to source.

They also aim to produce climate neutral dairy by 2050. A roadmap has been prepared with potential measures at farms with respect to green energy, manure processing and livestock feed. Specific objectives to be achieved have been prepared for each year. In 2021, CO₂ equivalent emissions at member dairy farms declined by 12.5% and by 28% for production facilities and transport, in comparison to 2015. their route towards a climate-neutral chain consists of a permanent reduction of greenhouse gas emissions and preventing the avoidable emission of all greenhouse gases over the longer term. In the future, FrieslandCampina says that it will no longer use fossil fuels and will be instead increasing the focus on carbon sequestration.

In 2021, FrieslandCampina emissions from production facilities and transport decreased by 7% to 691 kilotons CO₂ equivalent (in 2020, 743 kilotons). Emissions by member dairy farmers decreased by 3.8% to 12,063 kilotons CO₂ equivalent (in 2020, 12,540 kilotons). The use of green electricity rose to 100% worldwide.

Regarding climate objectives, FrieslandCampina endorses the targets of the Paris Agreement. In this context, the Dutch dairy sector has agreed to make a significant contribution to reducing greenhouse gases, such as carbon dioxide (CO₂), methane (CH₄), and nitrogen oxide (N₂O). It is working to reduce emissions for member dairy farms of

about 33% in comparison to 2015 base year; the objective is to emit no more than 9Mt by 2030. In addition, they aim to reduce emissions by 40% CO₂ equivalent for transport and production facilities. In 2022, they will be expanding their objectives for 2030 to include a reduction in emissions from the products and raw materials they produce or acquire, as a means of lowering emissions throughout the entire value chain.

FrieslandCampina is also preparing for Corporate Sustainability Reporting Directive (CSRD), which requires all large companies to include elaborate ESG information in their management reporting, starting from 2023. As known, the reporting should include sustainability targets, the risks and opportunities flowing from the ESG factors, the business model's resilience in this area and the company's strategy, for instance for combatting climate change in the short, medium and long term.

FrieslandCampina produces an integrated annual report in which it discloses the strategy, policy, objectives and performance relating to sustainability. Transparency about efforts and progress relating to sustainability is currently voluntary, nevertheless the cooperative is already improving its annual reporting on environment, society and management. Certainly, further information should be disclosed in order to be taxonomy aligned.

CHAPTER V. Results and Conclusions

When it comes to tackling climate change, the focus tends to be on clean energy solutions, such as the deployment of renewable or nuclear energy, improvements in energy efficiency, or transition to low-carbon transport. Indeed, energy in any form, electricity, heat, transport or industrial processes, account for the majority of greenhouse gas emissions (76%) (IPCC, 2014: Climate Change 2014: Synthesis Report). This is also the sector of activities that the Platform on Sustainable Finance focused on when proposing substantial contribution criteria and DNSH criteria. Renewable energy, electricity generation, production and cogeneration of heat, and manufacturing of chemicals were the main activities on which the European Commission focused on to build the so called “Taxonomy Compass”: a visual representation of the contents of the EU Taxonomy, starting with the Delegated Act on the climate objectives.

But the global food system, which encompasses production, and post-farm process such as processing, and distribution is one of the main contributors to emissions (Poore, J., & Nemecek, T. (2018), *Reducing food’s environmental impacts through producers and consumers*). The emissions of Europe’s 20 biggest meat and dairy corporations, including Nestlé, Danone, Tönnies, FrieslandCampina and more, outstrip countries such as the Netherlands and Denmark, yet very few companies have committed to reduce their overall emissions from livestock. This means that these meat and dairy companies produce almost one-third (131%) more greenhouse gas emissions than the Netherlands, which is the 6th largest economy in Europe, and five times as much as Denmark (492%) (Institute for Agriculture & Trade Policy, 2021). The combined emissions of these companies equal nearly all of Eni’s emissions, the Italian giant oil company, and are equivalent to 60% of the emissions of French fossil fuel corporation, Total.

Shefali Sharma, the European director at the Institute for Agriculture and Trade Policy (IATP) affirmed: “The climate footprint of Europe’s big meat and dairy companies rival the fossil fuel giants, yet they continue to operate with impunity.” He also makes strong considerations admitting that “the handful of companies that have climate plans rely on accounting tricks, greenwash and dubious offsets to distract from the fundamental changes needed to cut emissions, while offloading many of the costs and risks onto farmers in their supply chains”.

Companies such as Danone plant to offset their emissions through practices that impermanently lock carbon in the soil. Carbon is quickly released when the soil is disturbed or due to floods, drought and fire. Many companies including Nestlé plan to offset part of their emissions by converting animal manure into so-called “biogas”. Thus, these are the plans that some companies are implementing to offset emissions.

On the other hand, many companies claim to reduce emissions through “regenerative farming practices”, which purport to create healthier soils. But in reality, companies invest relatively little in these practices and offload the bulk of the cost and risk onto farmers. Danone’s funding for regenerative agriculture amounts to just one day of its annual sales turnover, while Nestlé’s was equivalent to 1.8% of its 2018 sales revenue (IATP, 2021).

In general, there is also an issue of under-reporting: only few companies report emissions from their entire supply chain even though livestock production accounts for 90% of their emissions. The majority of companies provide no emissions data including the German company Tönnies.

Regarding the targets instead, only Nestlé and FrieslandCampina commit to an overall reduction in livestock emissions, yet even the pacesetter Nestlé only aims for a 4% cut by 2030. Other companies aim to reduce the emissions produced per kilo of meat or litre of milk, allowing them to expand production and their overall climate footprint. Some other companies instead do not have any targets.

The Institute for Agriculture & Trade Policy (2021) reports that animal farming is responsible for 17% of Europe's emissions and rose by 6% between 2007 and 2018. In particular, ten countries including Germany, Spain, France, Poland, Italy, Netherlands, Denmark, Ireland, Belgium and the U.K., produce the majority of Europe's meat and dairy, and a steady increase in meat and dairy production and emissions. Feed is also a key source of emissions from livestock farming, in part because its production is linked to deforestation.

The European director of IATP, Shefali Sharma, adds that the Commission should “stop financing industrial agriculture and support the transition to sustainable agroecological farming practices based on less and better meat”, putting in place rules to regenerate rural economies and provide decent work in the food sector. A shift in how companies report agricultural greenhouse gas emissions should happen in the near future and companies should think about their mitigation to better reflect the distinct roles of different greenhouse gases. Policymakers, stakeholders, and society at large should also be reminded that the role of agriculture in climate mitigation is a much broader topic than climate science alone, including considerations of economic and technical feasibility, preferences for food supply and land-use (Lynch, Cain, Frame and Pierrehumbert, 2021).

Food system CO₂ emissions can be harder to quantify, due to the distinct processes through which they are generated and difficulty in applying uniform accounting methods or sectoral boundaries.

The rationale behind the recommendations of the Platform regarding the manufacturing of food products or crop and animal production is the explanation for which the role of agriculture and the food-processing industry is crucial in climate mitigation and for the other environmental objectives. For the climate change mitigation objective, GHG emissions are included to avoid unintended consequence of optimising for only one variable (land use) and thus incentivising practices that would be significantly harmful to climate change mitigation efforts, such as highly intensive production methods. High GHG emissions could mitigate the improvements gained in biodiversity thanks to the limitations for land use. Also food losses and waste are responsible for significant resource and environmental pressures, with an estimated 20% of the total food produced being lost or wasted in the EU (CEAP 2020), of which around one fifth is generated at the food processing step.

In order to create transparency across the supply chain, the Platform requires transparency, which can be a start for further improvement across the supply chain.

As underlined through this research, the Taxonomy provides uniform criteria for companies and investors to determine whether an economic activity is “environmentally sustainable”. Being a classification system, it can help investors identify what is, or is not, sustainable. The Technical Screening Criteria in particular are uniform criteria which will be used to determine whether economic activities “contribute substantially” to each environmental objective, and therefore can be considered sustainable. The draft of technical screening criteria recognises that the agriculture sector plays a central role in climate change, sustainable development and food security and notes the opportunities for significant climate change mitigation in this area. The agriculture sector can “act as both a source and a sink for greenhouse gas emissions”. As such, it recognises that to achieve net negative emissions in every instance of agricultural activity may not be possible. The Institute for Agriculture & Trade Policy reported the food and agriculture companies are among the largest emitters of Scope 3 emissions. However, few of these companies report those emissions voluntarily, and none in audited financial statements that investors can compare. Nevertheless, these companies often claim they are reducing their emissions intensity while declaring nothing about the increase in their absolute emissions. The latest report from the Intergovernmental Panel on Climate Change (IPCC) makes clear that climate change is already disrupting food systems across the globe and that significant investments in adaptation strategies are needed urgently.

Sustainable investments in the agri-food sector are keen to underline the need to pay attention to two factors: the commitment of several nations and of companies itself to sustainable agriculture and greater efficiency in the global system of food supply. In Italy, sustainable investments in the agri-food sector are constantly growing. Studies show that it is becoming advantageous to invest in technologies that improve the quality and the sustainability of crops, solutions for competitiveness and innovations for traceability of products. There is in fact a strong pressure on the agricultural sector to innovate and adapt to reality (Aleph Finance Group, 2021). Thanks to the Taxonomy, the volume of sustainability-oriented investment in the food and agriculture sector is likely to increase because of the design and scientific evidence base of the EU Taxonomy. An upward trend has been registered in sustainable agriculture investment, which has grown 32.5% annually since 2013 (Green Finance Platform, 2021). Finance can be used to increase resilience and reduce emissions intensity in the sector.

This is why companies, and especially agri-food companies, should take in consideration the recommendations proposed by the Platform and take the EU Taxonomy as a crucial starting point towards sustainability. To this day, there is a problem of *under reporting* and thus a consequent lack of data. Agri-food companies should make more efforts to comply with criteria of the European Commission, in order to be more transparent and clearer also in the eyes of investors and stakeholders. More investments will be needed for the transition and to reach net zero by 2050, which is also the main objective of many companies. And in general, there should be concrete support for the activities of the agricultural sector, in order for the sector to participate in climate change mitigation. No more incentives or shortcuts should be given to agri-food business as they are counterproductive to the climate emergency in which we find ourselves (Arriola, 2021).

Appendix: Taxonomy Compass with Platform's recommendations

NAME OF THE ACTIVITY	CODE OF THE PLATFORM	NACE CODE	ACTIVITIES INCLUDED	SUBSTANTIAL CONTRIBUTION TO B&E
Animal production	1.1	A.01.4	Raising (farming) of all animals. Dairy cattle (1.41), other cattle and buffaloes (1.42), horses and other equines (1.43), camels and camelids (1.44), sheep and goats (1.45), swine/pigs (1.46), poultry (1.47), mixed farming (1.50)	<p>A) Maintain or improve biodiversity via extensive grazing in habitats where grazing is beneficial for biodiversity.</p> <p>B) Farming rare breeds.</p> <p>C) Ensure a sustainable farm-gate nitrogen balance.</p> <p>The activity is carried out in a way that the pressures are halted or reduced in the sense of negative impacts but also allowing recovery of B&E. The activity is creating or enhancing locally adapted high-biodiversity landscape features or high biodiversity value areas.</p>

DNSH CRITERIA CC Mitigation	CC Adaptation	Sustainable use and protection of WATER and marine resources	Transition to CIRCULAR ECONOMY	POLLUTION prevention and control
1) CC Mitigation: permanent grassland is maintained, wetland protected, continuously forested areas.	2) DNSH are set out in the appendix A of Annex I to the Commission Delegated Act	3) DNSH set out in Appendix B of Annex 1 of Commission Delegated act. If activity involves water abstraction, permit of water abstraction must be granted by the authority. No livestock direct access to any natural watercourse (unless it can be beneficial for threatened species or to control of invasive vegetation). No physical modification of water bodies (straitening of rivers, lining ditches, removal of riparian vegetation)	4) Activities should use residues and by-products + minimize primary raw material use per unit of output, including energy.	5) DNSH set out in Appendix C + supplementary material on industrial emissions directive, for intensive rearing of emission levels set out in best available techniques (BAT) (API) must be registered for therapeutic and sub-therapeutic impact on the environment (water bodies and wildlife), 10 years. the non-steroidal anti-inflammatory Diclofenac

NAME OF THE ACTIVITY	CODE OF THE PLATFORM	NACE CODE	ACTIVITIES INCLUDED	SUBSTANTIAL CONTRIBUTION TO B&E
Crop production	1.2	A.01.1 and A.01.2	<p>Growing of non-perennial crops (1.1): cereals (except rice), leguminous crops and oil seeds, rice (1.12), vegetables and melons, roots and tubers (1.13), sugar cane (1.14), tobacco (1.15), fibre crops (1.16), other non-perennial crops (1.19), spices, aromatic, drug and pharmaceutical crops (1.28).</p> <p>Growing of perennial crops (1.2): grapes (1.21), tropical and subtropical fruits (1.22), citrus fruits (1.23), pome fruits and stone fruits (1.24), other tree and bush stone fruits (1.25), oleaginous fruits (1.26), beverage crops (1.27), spices, aromatic, drug and pharmaceutical crops (1.28), other perennial crops (1.29), mixed farming (1.50).</p>	<p>1) The agricultural holding incorporate large areas that are under high-biodiversity landscape features or are otherwise biodiversity rich.</p> <p>2) Abstains from the use of synthetic plant protection products and copper that harm biodiversity and ecosystems.</p> <p>3) Ensures a sustainable farm gate nitrogen balance. The activity would need to satisfy at least only <i>one</i> of these options, deemed to be making a SC to B&E. AND the holding meets the criteria relating to: habitat loss or conversion, high biodiversity landscape features, soil management, no direct harm to wildlife, diversified crop rotation.</p>

DNSH CRITERIA CC Mitigation	CC Adaptation	Sustainable use and protection of WATER and marine resources	Transition to CIRCULAR ECONOMY	POLLUTION prevention and control
<p>1) Permanent grassland maintained, wetland protected, arable stubble is not burnt, continuously forested areas, no use of peat.</p>	<p>2) DNSH are set out in the appendix A of Annex I to the Commission Delegated Act</p>	<p>3) Permit for water abstraction granted by authority. When using irrigation system: 1) input water source comes from the same river basin, 2) sources as rainwater harvesting systems meets requirements for water reuse in agriculture irrigation. Highly efficient irrigation system. No modification to water bodies.</p>	<p>4) Non-natural waste materials generated in the course of growing of crops, including used protected cultivation films, unused agrochemicals or fertilisers, packaging or net wraps are collected, by certified waste management operator and recycled or disposed.</p>	<p>5) Amount of livestock manure applied to the holding each year, including by any animals themselves, does not exceed 170 kg N per hectare. The use of plant protection products follows best practice to avoid increases in adverse pressures and avoid substantial harm or continually reduce it to "acceptable/not harmful" level to environmental and human health. Only plant protection products that are authorized under the EU pesticides database are used. Farm records are kept on annual usage quantity of PPPs in total per category of PPP, per specific product, and per crop type. No increases in quantities of PPPs used. A reputable on-farm pesticide risk assessment tool is used to inform choices of PPPs that help minimise ecological harm. The DNSH criteria on Pollution and Control are limited to not permitting increased usage of PPPs by volume.</p>

NAME OF THE ACTIVITY	CODE OF THE PLATFORM	NACE CODE	ACTIVITIES INCLUDED	SUBSTANTIAL CONTRIBUTION TO B&E
Fishing	1.3	3.11, 3.12,10.20, 84.24,10.11	Marine fishing, freshwater fishing, rental of pleasure boats (where rental is for fishing), fishing practiced for sport or recreation and related services, processing of fish, crustaceans and molluscs on factory ships	Not overfished or undergoing overfishing (established catch limits). Not operating in a fishery where targeted species are threatened or endangered. Avoid by-catch (specific attention should be given o endangered, threatened and protected species). Release bycatch when species have known survival possibility. No take zones (or so-called fishing restricted areas), prioritising sensitive habitats and ecosystem connectivity. No wildlife persecution. No harm to marine or freshwater habitats. Minimise litter.

DNSH CRITERIA CC Mitigation	CC Adaptation	Sustainable use and protection of WATER and marine resources	Transition to CIRCULAR ECONOMY	POLLUTION prevention and control
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1) DNSH criteria to mitigation for freight shipping.	2) DNSH are set out in the appendix A of Annex I to the Commission Delegated Act	3) DNSH set out in Appendix B of Annex 1 of Commission Delegated act.	4) N/A	5) Fishing vessels with low GHS-emissions (electric, fuel-efficient and/or using renewable fuels) is required).
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NAME OF THE ACTIVITY	CODE OF THE PLATFORM	NACE CODE	ACTIVITIES INCLUDED	SUBSTANTIAL CONTRIBUTION TO B&E
Manufacture of food products and beverages	2.5	C.10 (manufacture of animal feed + processing and preserving of fish is excluded form option Band C) and C.11	The manufacture of prepared animal feeds classified under NACE code C10.9 is excluded from the entire scope. Processing and preserving of fish, crustaceans and molluscs under NACE code C10.2 is excluded from the scope for option B and C.	<p>A. Selection of ingredients (95% of the weight) for which <i>production practices improve biodiversity</i></p> <p>B. Selection of protein-rich ingredients that <i>reduce pressure on biodiversity</i> by substituting protein-rich ingredients that have high negative impact on biodiversity (97% by weight of its protein rich ingredients must be mentioned in Table 1 and land use should be below 10m² per 100g of product protein)</p> <p>C. Ingredients that contribute to <i>conservation and genetic diversity</i> (50% of ingredients by weight are from plants and/or animals: conservation variety if plants, farming of rare breed if animal). The ingredient does NOT create a threat of invasive species (animals or plants).</p>

DNSH CRITERIA CC Mitigation	CC Adaptation	Sustainable use and protection of WATER and marine resources	Transition to CIRCULAR ECONOMY	POLLUTION prevention and control
<p>1) CC Mitigation: direct GHG emissions of that activity are LOWER than 270 gCO₂e/kWh. Transparency on GHG emissions emitted during food/beverage manufacturing for the final product (expressed in kgCO₂eq per kg of product). For each of the ingredients of the food product, the combined direct and indirect lifestyle GHG emissions are on average 10kgCO₂eq per kg of ingredient. Permanent grassland is maintained, protected wetlands and peatlands, activity does not involve the degradation of land with high carbon stock. Continuously forested areas (it applies to all perennial crop production for biofuels, bioliquids, biomass for food or feed uses).</p>	<p>2) DNSH are set out in the appendix A of Annex I to the Commission Delegated Act</p>	<p>3) Wastewater discharge from the food processing stage must be within the BAT defined per unit parameters, where applicable.</p>	<p>4) Reduction of food/beverage loss and waste: 2030 reduction target of min 50% compared to 2016 baseline or more recent. ISO, EMAS certification for measuring food/drink loss and waste. Loss and waste prevention + planning/forecasting of raw materials buying. Improvement of date marking practices and consumer understanding of it and relevant food info. provision of on-label or online info to consumers about better food management.</p>	<p>5) Emissions are at least within the emission levels associated with the best available techniques ranges. Primary packaging materials comply with Reg. 1935/2004 on materials and articles intended to come into contact with food.</p>

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