



Research

# Undisclosed transgressions? Lacking acknowledgements of large agrifood firms on their impacts on the planetary boundaries

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**ABSTRACT.** Agriculture significantly contributes to the transgression of several planetary boundaries. This content analysis of the sustainability statements from the world's largest agrifood companies reveals that they largely overlook their most relevant negative environmental impacts. For example, biogeochemical flows, the most transgressed planetary boundary with agriculture as the largest contributor, receives minimal corporate attention. Climate change is the only boundary for which we identified numeric disclosures of negative impacts. We highlight that overlooking these significant environmental impacts (1) impedes the idea that market discipline can address such urgent topics, and (2) allows companies to shape the sector's transition by presenting a narrative of sustainable agriculture that downplays its actual harm, thereby diverting focus from the deeper changes needed to reduce these impacts. Our results underscore the need for a “planetary materiality” approach, ensuring corporate reporting reflects scientifically assessed environmental impacts.

**Key Words:** *agrifood; corporate sustainability; ESG; planetary boundaries; sustainability transition*

## INTRODUCTION

First outlined by Rockström et al. (2009), the planetary boundaries (PBs) describe the safe operating space for human activity, while their transgression risks leaving the stability of the Holocene. The latest update on this framework from Richardson et al. (2023) encompasses nine PBs: climate change, biosphere integrity, novel entities, land system change, freshwater change, biogeochemical flows, ocean acidification, atmospheric aerosol loading, and stratospheric ozone depletion. According to the authors, the first six PBs out of this list have been transgressed (Richardson et al. 2023). Agriculture is the main contributor to the transgression of the PBs biosphere integrity, biogeochemical flows, land system change, and freshwater change, and a significant contributor to climate change (Campbell et al. 2017). Gerten et al. (2020) assess that half of current global food production depends on PB transgressions. The intensification of agricultural practices, including increased use of agrochemicals, has led to widespread biodiversity loss, habitat fragmentation, and the decline of pollinator populations, undermining biosphere integrity (Dudley and Alexander 2017, Sánchez-Bayo and Wyckhuys 2019, Cabernard et al. 2024). Excessive fertilizer use and intensive livestock production drive nitrogen and phosphorus pollution, disrupting biogeochemical cycles and contributing to eutrophication in freshwater and marine ecosystems (Galloway et al. 2008, Liu et al. 2010, Carpenter and Bennett 2011, Penuelas et al. 2023). Roughly half of the world's habitable land is used for agriculture (Ellis et al. 2010), with further large-scale land conversion accelerating deforestation (Winkler et al. 2021) and soil degradation (Borrelli et al. 2017), undermining land-system stability. Agriculture is also responsible for high levels of freshwater extraction (Ritchie and Roser 2018), depleting water resources and reducing availability for other ecosystems and human uses (Ingrao et al. 2023). Additionally, greenhouse gas (GHG) emissions from agricultural activities, including methane from livestock, nitrous oxide from fertilized soils, and soil organic carbon losses (O'Mara 2011, Crippa et al. 2021) contribute to climate change with estimates ranging between 26% (Poore and Nemecek 2018) and 34% (Crippa et al. 2021) of global

anthropogenic emissions. Given the pressing need to secure future food supplies, it is imperative that the agrifood sector adopts more sustainable production methods (El Bilali 2020), especially as its negative environmental impacts are projected to increase by 50–90% by 2050 without serious mitigation efforts (Springmann et al. 2018).

The agrifood sector is highly consolidated, with the top 10 food and beverage companies accounting for approximately 40% of the total sales among the world's 100 largest companies in the sector (Clapp 2022). There is broad consensus that these multinational companies are powerful actors in global food supply chains, which are dominated by post-farmgate actors (Yi et al. 2021). As such, they play a critical role in the transition of the agrifood sector's production-consumption systems. Not only do powerful firms develop products and business models that can drive transition, but they also “engage in broader institutional work as they shape societal discourses and problem framing, lobby for specific policies and regulations, develop industry standards, legitimize new technologies, or shape collective expectations” (Köhler et al. 2019:11).

A relevant field in which such institutional work plays out is the corporate disclosure of environmental, social and governance (ESG) information. ESG reporting not only communicates corporations' ostensible sustainable behavior to a wide range of stakeholders and demonstrates efforts to mitigate their environmental (and social) impacts, but it also shapes public and regulatory discourses on sustainability through underlying narratives and problem framing (Archer 2024).

The disclosure of ESG information has become a standard practice among corporations (Conca et al. 2021). However, most of the existing academic literature on ESG reporting has centered on the financial implications of such disclosures, both in general (Dinh et al. 2023, Jain and Tripathi 2023) and also specifically within the agrifood sector (Leite De Almeida et al. 2024). Very limited attention has been paid to the potential of ESG reporting to contribute to the sector's sustainable development (Witt et al. 2025).

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In this paper, we aim to address this critical research gap by analyzing the ESG reports of leading multinational agrifood companies from a PBs perspective. Our goal is to gain insight into how these companies assume responsibility for the sector's sustainability transition, which topics they define as material, and whether these overlap with the sector's actual contribution to the transgression of the PBs. This analysis ultimately presents implications for the agrifood sector's transition toward more sustainable agricultural production, especially in relation to the question of “transition toward what?,” which is pivotal for the transitions of production-consumption systems (Geels et al. 2023). We focus on the reports of large multinational companies, as we argue that they hold significant potential to initiate and drive the agrifood sector away from unsustainable agricultural practices and toward an agrifood system that operates within PBs. Although we do not delve deeply into direct power dynamics (e.g., political lobbying), we view these dynamics as an underlying context influencing the narratives, framing, and self-disclosures made by these companies in their ESG reports. The conceptual framing in Figure 1 informs the remainder of this study.

## METHODS

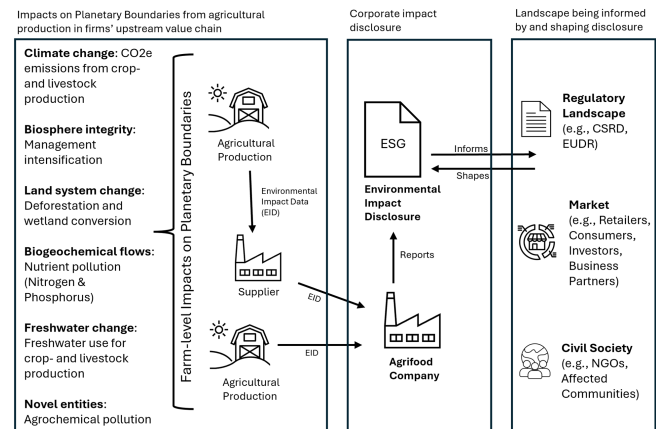
### Scope of analysis

We categorized companies' environmental impact disclosures based on Campbell et al.'s (2017) assessment of agriculture's contribution to the transgression of the PBs. The authors identified agriculture as the main driver of anthropogenic impacts on the PBs biosphere integrity, biogeochemical flows, land system change, freshwater change, as well as a significant contributor to climate change. As novel entities were not yet included in Campbell et al.'s (2017) assessment, we included them as a sixth category.

To assess the transgression of the PBs, the framework defines control variables for each boundary. These describe the “most important anthropogenic influence at the planetary level of the boundary in focus” (Richardson et al. 2023). For example, the control variable for land system change is the area of forested land as the percentage of original forest cover. Given that the PBs have not yet been operationalized within any ESG reporting framework, we argue that focusing solely on direct reporting on control variables would likely give limited findings. Instead, we use the PBs as broader categories, assigning each piece of disclosed farm-level environmental impact information to one of six categories:

1. Climate change: information on GHG mitigation with at least Scope 3 (upstream value chain) granularity, ensuring the inclusion of agricultural activities.
2. Biosphere integrity: all disclosures related to the impact of agricultural activities on biodiversity.
3. Biogeochemical flows: all disclosures concerning nitrogen, phosphorus, and other nutrient flows resulting from agricultural activities.
4. Land system change: disclosures related to deforestation-free supply chains for agricultural commodities, as well as afforestation efforts on land previously used for agriculture.
5. Freshwater change: all disclosures regarding the use of blue and green water in agricultural production.

**Fig. 1.** Agriculture's impacts on the planetary boundaries, their relation to firms' environmental impact disclosure, and the landscape being informed by and shaping this disclosure.



6. Novel entities: all disclosures concerning chemical substances used in agricultural production, such as herbicides and pesticides.

In our analysis, we focus exclusively on the reported environmental impacts of agricultural production within the companies' value chains. We exclude the companies' own operations (e.g., impacts from energy use in production facilities and transportation) because our interest lies solely in the impacts of agricultural production. Our approach reflects an “inside-out” perspective, or, in the terminology of the European Sustainability Reporting Standards (ESRS; European Commission 2023), an “impact materiality” perspective. Accordingly, we do not consider the “outside-in” or “financial materiality” perspective, which concerns the disclosure of financial risks to the company. An exhaustive study on this latter perspective for the agrifood sector has been conducted by Boiral et al. (2024).

### Data collection

We collected data from the publicly available ESG reports of the 51 largest global agrifood companies by sales with operations in the EU (FoodDrinkEurope 2023). The list initially included 53 companies. We excluded one company whose sales are only partially related to agrifood products and another for which no ESG report could be identified. The range of global agrifood sales for the 51 companies was between 1.7 and 169.5 billion € in the 2022 fiscal year (FoodDrinkEurope 2023). We focused on firms with operations in Europe (with a processing plant in at least one member state) because of the region's increasingly stringent sustainability governance landscape, demonstrated through, amongst others, the Corporate Sustainability Reporting Directive (CSRD; European Union 2022) and the EU Regulation on Deforestation-free Products (EUDR; European Union 2023). For each company, we retrieved the most recent sustainability report available on their website. The reports were downloaded in March and April 2024, and the latest available reports at that time covered either the 2023 or 2022 financial year. The dataset includes companies that were subject to the EU Directive 2014/95/EU

(NFRD) as well as companies that reported voluntarily. Albeit not implemented yet at the financial year of the analysis, several companies already followed the structure and key characteristics of the CSRD, such as the double materiality assessment. We do not state company names because we do not aim to single out individual organizations but want to highlight structural tendencies within the sector.

### Data analysis

We analyzed the data from the companies' ESG reports using a qualitative content analysis approach (Mayring 2022). First, we systematically reviewed the reports and extracted all available numeric disclosures related to environmental impacts, which were recorded in an MS Excel file. We then categorized all data entries according to the six categories previously defined. Given the limited results of this initial step, we revisited the reports and decided to expand the scope of the analysis by also including qualitative acknowledgements of negative environmental impacts. These were added as quotes to our existing database. To better present the different qualitative and quantitative disclosures within each PBs category, we structured them into four different disclosure types:

(A) Reported numeric impacts: All disclosures related to environmental impacts associated with the farming activities in the companies' value chains. These impacts typically include a reported numeric status, often linked to a quantified target.

(B) Numeric disclosures without reported impact: Instances where a target is mentioned or quantified, but no status is disclosed regarding progress toward the target. Even if no impact is reported in this category, the disclosure of an environmental reduction target inherently acknowledges the existence of a negative impact that must be reduced. We also included "positive" environmental targets, i.e., those aiming to have a positive environmental impact (e.g., planting pollinator flower strips), intensity disclosures (e.g., information pertaining to the GHG intensity of a kg of milk), and "sustainable sourcing" targets clearly linked to a PB (e.g., "% of palm oil sourced certified by RSPO"). Although these targets do not specify a negative impact to be reduced, they nonetheless indicate the company's ambitions to improve environmental conditions within the agricultural supply chain.

(C) Company-specific qualitative acknowledgements: This includes qualitative descriptions of companies' negative environmental impacts through agricultural production in their value chains. For example, a company might state, "as the world's largest dairy producer, we are partly responsible for the eutrophication of freshwater ecosystems."

(D) Sector-generic qualitative acknowledgements: Instances where a general qualitative acknowledgement of agriculture's negative environmental impact is disclosed (e.g., "food production is a major contributor to climate change").

Because not every quantitative or qualitative acknowledgment could be clearly attributed to a PB, we added a category for "unclassified" impacts.

## RESULTS

In total, we identified 148 disclosures that acknowledge an impact on the PBs under one of the A, B, C, or D categories (Table 1). Most disclosures relate to climate change and the fewest relate to novel entities. Most disclosures were of type B, and least of type C.

**Table 1.** Summary of disclosures.

	A	B	C	D	Total	%
Climate change	35	22	4	12	73	44%
Biosphere integrity	0	2	5	14	21	13%
Land system change	0	37	0	11	48	29%
Biogeochemical flows	0	2	3	3	8	5%
Freshwater change	0	2	4	8	14	8%
Novel entities	0	1	0	0	1	1%
Total	35	66	16	48	165	100%
%	21%	40%	10%	29%	100%	

### Climate change

Out of the 51 companies analyzed, 47 reported on climate change, with a total of 73 disclosures identified. These disclosures were categorized into four types:

Type A (Quantitative impact): Thirty-five disclosures, for example: "Our company's Scope 3 emissions account for 30% of our total emissions, with agriculture representing the largest portion."

Type B (Numeric targets without reported impact): Twenty-two disclosures, including commitments such as: "We aim to reduce Scope 3 emissions by 20% by 2030" but without disclosing a status on this target. The level of granularity in Type A and B disclosures varies: 14% cover Scope 1–3 emissions, 50% focus on Scope 3 emissions, 4% report on Scope 1–3 FLAG emissions, 5% on Scope 3 FLAG emissions, and 18% address agricultural emissions specifically.

Type C (Qualitative acknowledgments): Four disclosures qualitatively acknowledged the company's impact on climate change. A typical statement was: "As one of the largest dairy producers, we recognize our responsibility in mitigating climate change through reduced emissions from agriculture."

Type D (Sector-generic acknowledgments): Twelve disclosures included general industry-wide acknowledgments, such as: "Agriculture accounts for 25% of global GHG emissions, which must be reduced to address the climate crisis."

### Biosphere integrity

Twenty-one disclosures by 13 companies in three categories:

Type B: Two disclosures that report positive impacts, "% of cultivated area using pollinator protection" and "total size of flower strips across beet growing countries."

Type C: Five disclosures acknowledge the reporting company's negative impacts. For example, "(Our company) has a material impact on biodiversity loss, on the number of species and on the conditions of ecosystems. (Our company's) impact on biodiversity materializes through the land use of our farmers."

Type D: Fourteen statements acknowledge either agriculture's general, or commodity-specific (e.g., dairy, palm oil, soy, etc.) negative impacts, typically relating to biodiversity loss and land degradation. For example: "Today's farming and food systems are accelerating the biodiversity loss that is threatening the health of the planet."

### Land system change

Forty-eight disclosures by 25 companies in two categories:

Type B: Thirty-seven disclosures, of which 18 pertain to deforestation/conversion-free supply chain targets, 17 to certification targets that are directly associated with deforestation and conversion free sourcing of a commodity, and two relating to afforestation targets. Most disclosures are limited to a specific commodity, such as soy, palm oil, cocoa or coffee.

Type D: Eleven disclosures, most of which relate to soy and palm oil. For example: “the significant global increase in demand for palm oil and soya has resulted in the clearing of land, sometimes illegally.”

### Biogeochemical flows

Eight disclosures by six companies in three categories:

Type B: Two disclosures, describing the “reduction of nitrogen pollution in water stressed areas through value chain activities (t N-eq),” and the “% of cultivated area on which nitrogen fertilization is reasonable.”

Type C: Three disclosures, such as “as an agricultural company, we are depleting some crucial non-renewable resources, for example phosphorus through our land use.”

Type D: Three disclosures, such as “Poor management of N & P contributes to GHG emissions and water contamination” and “Agricultural inputs can also affect the quality of water resources.”

### Freshwater change

Fourteen disclosures by 14 companies in three categories:

Type B: Two disclosures, describing the “improvement in irrigation efficiency,” and the “improvement in water use efficiency in water stressed regions.”

Type C: Four disclosures, including examples such as “making our products requires large amounts of water, including water consumption in the agricultural supply chain.”

Type D: Eight disclosures, for example: “On average, more than 70% of global freshwater use is associated with agriculture,” or “a substantial amount of water is used in food production.”

### Novel entities

One disclosure:

Type B: One disclosure of a positive target, “% of cultivated area on which at least one alternative method to synthetic pesticides is used.”

### Unclassified

We identified 59 Type B disclosures that cannot be attributed to a specific PB but acknowledge negative environmental impacts through the disclosure of environmental targets. Thirty-three of these state that a commodity has been sourced “sustainably” or “responsibly,” without specifying what negative environmental impact this certified commodity is addressing.

Further, 26 Type B disclosures relate to “sustainable agricultural management and regenerative agriculture,” including disclosures of areas under regenerative or sustainable production, shares of regeneratively farmed crops, farmer engagement, and adaptation

of specific sustainable agronomic measures. Without specifying the problems that a sustainably sourced crop, certified commodity, or a regeneratively managed area aim to tackle, the quantitative disclosure of these indicators holds limited informative value in terms of acknowledging corporate impacts.

### Key findings

Numeric impact disclosures (Type A) are only found in the climate change category. The highest disclosures are of Type B, expressing numeric environmental targets without disclosing any underlying environmental impact that is to be addressed. Climate change and land system change receive disproportionately higher attention in corporate ESG disclosures compared to other PBs, such as novel entities or freshwater change.

### DISCUSSION

Our results show a misalignment between the reported and the sector’s actual impacts on the PBs. This trend may reflect both the maturity of different reporting frameworks and the institutional pressures that have historically centered around different environmental topics. In the following, we provide potential reasons for overlooking PB impacts in reporting practices. We do not claim that this is an exhaustive list of all relevant elements, but rather an overview of what can influence the (lack of) disclosure. We then proceed to discuss the broader implications of our findings for the sustainability transition of the agrifood sector.

### Landscape influences on reporting

#### *Frameworks*

The topics of climate change and land system change are covered in the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB) standards, which combined are by far the most used standards in our dataset. Corporate Scope 3 GHG disclosure has further matured under the Science Based Targets Initiative (SBTi), under which over 7000 businesses have set emission reduction targets of which 96% cover Scope 3 emissions (SBTi 2023). Widely used carbon accounting frameworks, such as the GHG Protocol and SBTi, offer companies standardized tools for disclosure, further pushed by a global increase in mandatory corporate GHG disclosure (Amel-Zadeh and Tang 2025). Similar standards exist for corporate zero-deforestation commitments, especially regarding commodities linked to deforestation. The use of such frameworks has steadily increased in popularity (Newton and Benzeev 2018) and the EU Regulation on Deforestation-free Products (EUDR) now mandates that every company that places commodities associated with a deforestation risk on the EU market must prove that these “products do not originate from recently deforested land or have contributed to forest degradation” (European Union 2023).

In contrast, disclosures on freshwater change, biosphere integrity, novel entities, and biogeochemical flows remain limited. Although freshwater use and biodiversity are also addressed in, for example, the GRI and SASB, these PBs are inherently more complex and less standardized in impact measurement. Freshwater use, for instance, varies widely by geography and crop type, and its impact depends not only on quantity but also on local water stress. Likewise, the category of novel entities, including pesticides, plastics, and other synthetic compounds, lacks consistent frameworks for corporate-level measurement or



reporting. As such, these categories are often either ignored or reported at a minimal narrative level (Type C and D). More attention to these topics might be given in the future because of regulatory changes, such as the introduction of GRI's agriculture-specific standards or the ESRS. The latter is seen by many as the most ambitious reporting framework to date (Baks 2024), covering the environmental topics climate change, pollution, water and marine resources, biodiversity and ecosystems, and resource use and circular economy. However, for these topics to mature to the same level as GHG disclosure will likely take time, because of difficulties in data collection and a scientific knowledge-practice divide.

#### *Materiality*

The reporting of these topics further depends on companies' materiality assessments, which are a key feature of ESG frameworks to identify and prioritize the topics that a company should report on (Bellantuono et al. 2018). There are significant differences in how materiality is defined, thereby influencing the type of information disclosed (Jørgensen et al. 2022). By only looking at the financial effects of a given topic on the company's "financial condition or operating performance" (SASB), the financial materiality approach inherently neglects the disclosure of environmental impacts.

The impact materiality perspective aims to identify topics that represent the organization's most significant impacts on the economy, environment, and people (Global Reporting Initiative 2021) and actual and potential negative impacts of companies and their value chains on people and the environment (European Commission 2023). However, this approach does not seem to sufficiently cause disclosure of actual PB impacts, as illustrated by the limited disclosure of impacts on biogeochemical flows. For example, a dairy company in our dataset that operates in a country where dairy production is strongly associated with eutrophication of water bodies, uses the ESRS' double materiality assessment but defined pollution (including water pollution) as an immaterial topic. This exemplifies that even under the ESRS with its double materiality perspective, there is a risk of a misalignment between corporate disclosure of negative environmental impacts and their actual impacts, as also stressed by Wassénus et al. (2024).

#### *Stakeholder focus and legitimacy*

In addition to the regulatory elements and the design of reporting frameworks, previous literature has shown that ESG reporting behavior, including in the agrifood sector (Witt et al. 2025), is influenced by an interplay of mechanisms beyond regulatory factors, such as mimetic and normative pressures (Aureli et al. 2020, Zampone et al. 2023, Wukich et al. 2024) and efforts to maintain legitimacy (Baldini et al. 2018, Del Gesso and Lodhi 2025). The strong focus on climate could thereby be explained by its high presence in public sustainability discourses, while overlooking other important environmental issues, a phenomenon referred to as "carbon tunnel vision" (Achakulwisut et al. 2022). However, this does not sufficiently explain the disclosure gap of other negative environmental impacts. As an example, the topic of agrochemicals receives high public attention, displayed in consumer demands for organic products, concerns about pesticide residues (Koch et al. 2017), and lawsuits against producers of these products (Centner 2020). Nitrogen

pollution also receives significant public attention and is addressed by several public policies, such as the EU Water Framework Directive (European Union 2000), but neither topic is extensively covered in the reports, suggesting a perception bias.

#### **Implications for the sustainability transition**

The implications of our findings for the sustainability transition of the agrifood sector are twofold. First, it matters from a classical market perspective on ESG reporting. A popular term in management studies is "what gets measured gets managed," thus, "measuring the wrong thing matters" (Barnett 2015:5). Our results suggest that the non-disclosure of many of the sector's most significant impacts hinders various stakeholders in their decision-making processes (e.g., investors, financial institutions, and business partners) to include the actual environmental impacts of the disclosing companies. This is also relevant from a financial risk perspective, as several of the financial risks disclosed by agrifood companies (Boiral et al. 2024) are direct consequences of their environmental impacts on ecosystems (Díaz et al. 2006). To sufficiently assess the financial risks that, for example, droughts have on the production of wheat within a food company's value chain, one would need to know the actual water use (and thereby also dependency) that is needed to produce this commodity. This "cognitive disconnect" of not linking corporates' own contributions to the very risks they try to manage can drive a systemic failure in risk assessments (Crona et al. 2021).

Second, we argue that through the way these powerful agrifood companies disclose their environmental impact information, they shape and inform what is considered "sustainable agriculture." Thereby, they influence the question of "transition toward what" (Geels et al. 2023) and consequently the possible pathways toward more sustainable agricultural production methods. Highly critical of ESG disclosure, Archer (2024) highlights how the practice of ESG reporting and the technical discussions surrounding it are often an exercise of corporate power that distracts from a focus on root causes of the Anthropocene crises and narrows discussions around alternative sustainable futures. We align with this perspective to elucidate how the limited disclosure of negative environmental impacts shapes the discussion on sustainable agriculture more broadly.

We found that companies often disclose targets and ambitions that highlight a positive contribution to the environment, such as regenerative agricultural practices, without mentioning what specific negative impacts they address. When these impacts are mentioned, they are typically framed in abstract terms (Type B) or attributed to the sector at large (Type D), thereby deflecting responsibility from the individual company. Through leaving out this crucial information, the disclosure of positive targets can quickly turn into cherry-picking, with a pathway to a sustainable agricultural future guided by different trends, rather than being informed by actual negative planetary impacts. This is not to say that having these positive targets and strategies, such as for regenerative agriculture, is not worthwhile. In several instances and approaches to regenerative agriculture, these positive strategies might (coincidentally) align with the actual planetary impacts. However, by omitting specific information about which negative impacts should be addressed, companies can present a one-sided picture of their "doing-good." This shifts the focus away from

unsustainable agricultural production methods and distracts from more fundamental changes needed to reduce environmental harm, thereby ultimately helping to maintain the unsustainable status quo.

We acknowledge the challenge of data collection from a vast number of suppliers to be able to disclose Type A information for all PB impacts. Setting up internal structures to enable sufficient reporting can be very resource intensive both for agrifood companies and farmers in their upstream value chain (Witt et al. 2025). Our point is not to criticize these companies for ignoring value chain data collection and reporting, but rather to highlight the implications of the structural negligence of the sector's most relevant impacts on the PBs, as even Type C and D disclosures were limited for most categories. Because mimetic behavior is common in corporate ESG reporting (Herold 2018), the reporting practices of the analyzed multinational companies can significantly influence sector-wide practices.

## CONCLUSION

Our findings show that many environmental topics are overlooked by large agrifood companies and are not aligned with the sector's overall negative impacts on the PBs. Following Cambell's (2017) assessment, agriculture's contribution to climate change is relatively small compared to its significant impacts on other PBs. However, climate change was the most dominant category in terms of disclosure quantity, and it was the only category for which we found numeric impact disclosures (Type A). In stark contrast, despite biogeochemical flows being the most transgressed PB (driven largely by agricultural activities), we found only eight disclosures addressing this. This discrepancy can be attributed to several factors, including different maturity levels of data collection for different PB impacts, a lack of clear guidance in current ESG reporting standards, and a strong bias toward financial materiality.

We emphasize that this underreporting of the sector's most significant negative impacts is problematic for two key reasons. First, from a market perspective, it hinders the efficiency of channeling financial flows toward more sustainable activities. Second, by omitting disclosures on their most significant negative impacts, large agrifood companies can shape discussions and narratives of sustainable agriculture in ways that downplay the urgency of system-wide transformation.

These findings have significant implications for researchers, practitioners, and policy makers within the domain of sustainability reporting, as they show that current ways of reporting are insufficient to capture the agrifood sector's most pressing impacts. Scholars have therefore raised the need for a "planetary materiality" perspective, i.e., grounding the reporting of corporations' environmental impacts in natural scientific assessments (Wassénus et al. 2024). Considering recent ESG simplification efforts in the EU under the so-called Omnibus-Act, our results emphasize that reporting focus should be given to these few but urgent actual environmental impacts. Finally, to fully understand how corporate actions contribute to the transgression of PBs, the need to incorporate sustainability thresholds has been highlighted (McElroy and Van Engelen 2012, Bjørn et al. 2017), a concept also referred to as "absolute sustainability" (Hauschild et al. 2020) and reflected in recent attempts to translate the PBs

framework for businesses (Bai et al. 2024). We emphasize that, as a first step, actual negative impacts should be assessed before they are compared against such thresholds.

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## Data Availability:

The data that support the findings of this study are available in Zenodo at <https://doi.org/10.5281/zenodo.15222650>. The ESG reports from which the disclosed data were retrieved are publicly available and were downloaded from the companies' respective websites.

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