October | 2023

Assessment of the six largest pesticide companies' approaches to addressing biodiversity loss

ShareAction»

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ShareAction is a non-profit NGO working to build a global investment sector which is responsible for its impacts on people and planet. We mobilise investors to take action to improve labour standards, tackle the climate crisis, protect the natural world, and address pressing global health issues, such as childhood obesity. Over the last 18 years, ShareAction has used its powerful toolkit of research, corporate campaigns, policy advocacy and public mobilisation to drive responsibility into the heart of mainstream investment. We want a future where all finance powers social progress.

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Acknowledgements

ShareAction would like to extend appreciation to our funders for their support of this work. We would also like to thank the reviewers of this briefing for their valuable insights, including: Aidan Shilson-Thomas, Dr Claudia Gray, Penny Fowler, Joanna Weightman, Danielle Vrublevskis, Izzy Monnickendam, Dr Jonathan Middleton, Simon Rawson, Emma Latham-Jones, Robert-Alexandre Poujade, Greta Fearman, Dr Katie Leach and Pesticide Action Network UK.

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Executive Summary

Executive summary

Biodiversity[1] underpins all life on Earth. It supports the health and survival of all living things, from the smallest organisms to the largest communities of people. But biodiversity and the services it provides are rapidly deteriorating. Biodiversity loss, driven by human activity, does not only affect species and ecosystems: it significantly threatens the goods and services humans rely on to fulfil our needs, including food, water, medicine and a stable climate[i].

Just six companies account for almost 80 per cent of global pesticide production. Through their domination of the pesticides market, these companies hold huge power over the health of the natural world. Currently, none of them is doing enough to address pesticide-related biodiversity loss.

In this report, we demonstrate that the industry's largest players – BASF, Bayer, Corteva, FMC Corporation, Syngenta and UPL – have not taken sufficient action to prevent pesticide-related biodiversity loss and to transition their business models away from hazardous pesticides. In doing so, we make clear how companies must change to align with best practices and global standards for addressing biodiversity loss.

All six companies lack ambitious, goal-oriented, and transparent approaches to addressing their role in biodiversity loss. They have failed to establish the commitments and targets, impact assessment methodologies, management plans, disclosure practices and innovation approaches needed to enable a transition away from pesticides that pose high risks to biodiversity.

To explore the quality, scope and transparency of these companies' approaches we assessed these companies in five key areas:

- **Product portfolios**, including if the company produces Highly Hazardous Pesticides (HHPs)[2] and whether it exports pesticides banned for use within Europe to other countries;
- **Impact assessment practices**, including whether the company assesses its impacts and dependencies on nature, and the risks resulting from these, and the quality of the methods it uses to do this;
- **Biodiversity strategies**, including the commitments and targets that guide the company's ambitions and any strategies it has in place to achieve these;
- **Disclosure**, including whether the company aligns with disclosure practices recommended by standard-setting organisations on biodiversity impact and value chain transparency;
- **Product innovation**, including research and development practices and efforts to transition away from hazardous products.

[1] Biodiversity is "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are partindic this includes diversity within species, between species and of ecosystems". See the Convention on Biological Diversity (2022): https://www.cbd.int/convention/articles/?a=cbd-02

[2] Highly Hazardous Pesticides (HHPs) are pesticides that present particularly high levels of acute or chronic hazards to health or environment. See the Assessment Framework (page 19) for more information on how we define HHPs.

Although we found variation in performance across the industry, our assessment showed that all six companies need to make profound changes to effectively address this issue and align with growing global expectations for companies to reduce the risks they pose to biodiversity.

Investors can play a central role in encouraging pesticide companies to transition their business models and address biodiversity loss. By doing so, investors can take responsibility for the impacts on nature that their financing enables while helping to transform a high-impact industry. Alongside supporting pesticide and biodiversity-related regulation and encouraging the development of more sustainable agricultural solutions, engagement with pesticide companies can help drive system-wide change.

We recommend that investors ask all companies to:

1. Establish and measure progress against commitments and targets that aim to reduce the risks of pesticide products by 50 per cent by 2030, including by phasing out Highly Hazardous Pesticides, in line with the Kunming-Montreal Global Biodiversity Framework's Target 7.
2. Assess and disclose biodiversity-related impacts, dependencies and risks that result from all its pesticide products, in line with the Taskforce for Nature-related Financial Disclosures, Global Biodiversity Framework Target 15, and Global Reporting Initiative GRI 304-2.
3. Develop a transition plan and product stewardship strategy to address the risks that Highly Hazardous Pesticides pose to biodiversity and human health.

Introduction

Introduction

Pesticides contribute to the global biodiversity crisis

Pesticides damage biodiversity through their role in pollution and land use change, which are two primary drivers of biodiversity loss according to the Intergovernmental Panel on Biodiversity and Ecosystem Services[ii].

Pesticides create systemic risks for our planet and its people. For example, pesticides put long-term food security at risk by compromising services such as pollination, natural pest predation and soil fertility, which are essential for maintaining the health and productivity of agricultural land. Their widespread impacts, resulting from use both on food crops and for pest or weed control in cities, on pets and livestock, in conservation, and on non-food crops threatens natural processes and resources we depend on, including water, soil and the services they provide[iii].

Pesticides inflict damage on ecosystems in various ways, including by contaminating and depleting soils[iv], reducing wildlife populations[v], enabling destructive land use practices like monocultures[vi], and accumulating in freshwater food chains[vii]. This effect is especially profound with HHPs[viii] – pesticides with acute and chronic impacts on the environment and human health[3].

HHPs have had notable effects on species and ecosystem services:

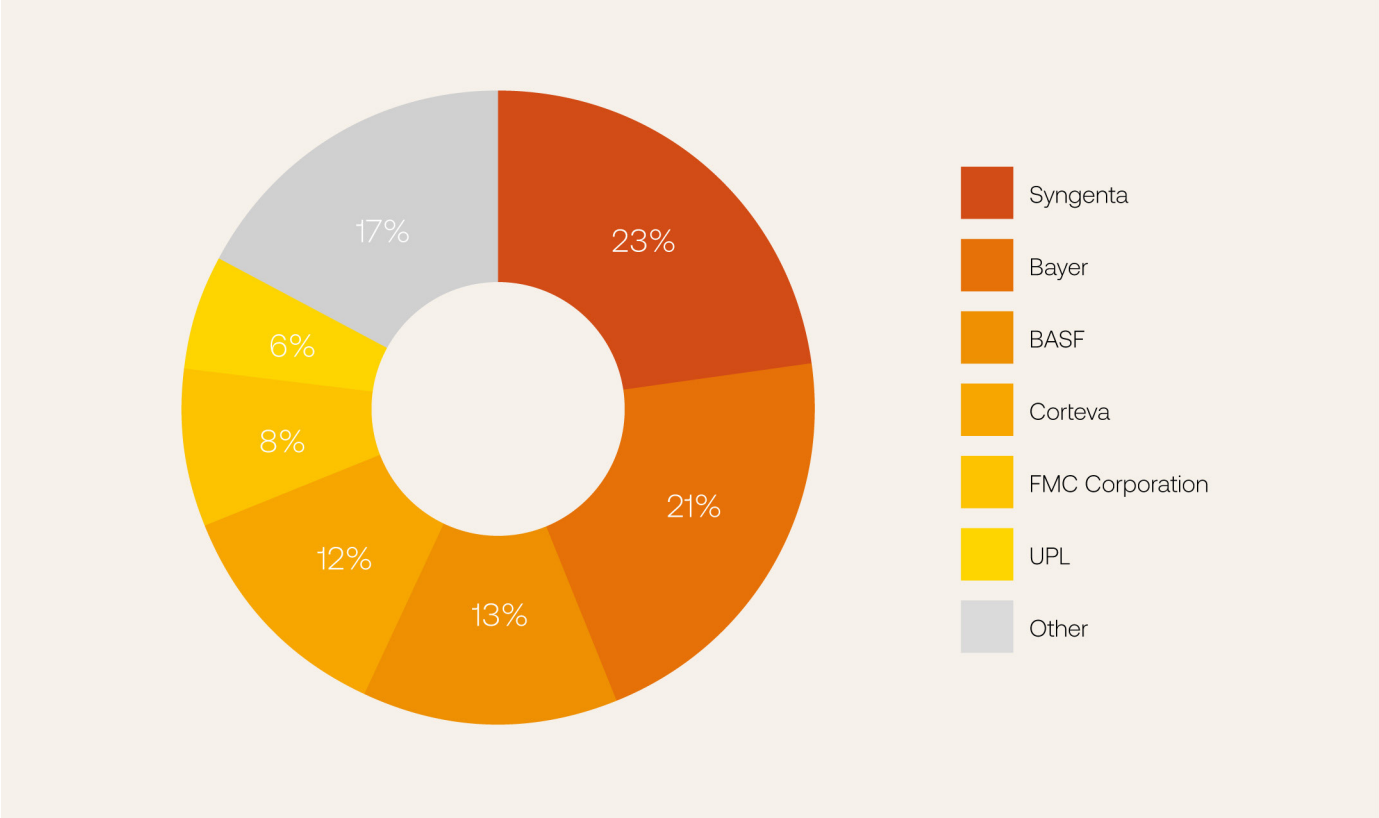
- **Neonicotinoids**, a class of pesticides often used as a seed treatment[4], are a leading driver of pesticide-related biodiversity decline due to their severe effects on birds[ix] and many invertebrates, including pollinators such as bees[x].
- Numerous pesticides, including **glyphosate**[xi], **methamidophos**[xii], and **bromoxynil**[xiii], degrade soil by harming key organisms including earthworms and mycorrhizal fungi[xiv].

Just six companies dominate the global pesticides industry

Just six companies account for nearly 80 per cent of the global pesticides market and are the world's foremost inventors and producers of pesticide products (Figure 1)**.** These companies are failing to sufficiently address the role of pesticides in biodiversity loss. They continue to market hazardous pesticides, lobby against policies that would require them to transition away from this model[xv] and promote a narrative that global food security depends on their products and services. This is despite abundant evidence that more sustainable food production practices, like using low-impact pesticides[xvi], supporting natural predation[xvii], and integrating agroecological growing practices[xviii], can help feed a growing population and replace the excessive and inappropriate use of pesticides[xix].

[3] See Expectation 1.1 in the assessment framework for more information on HHPs.
[4] Seed treatments are pesticide coatings applied directly to seeds, instead of sprayed as a liquid solution.

Figure 1: Six companies dominate the pesticides industry



Pesticide sales data was collected from 2022 company reports and compared to S&P Global's estimated 2022 market valuation of $69.3 billion[5,xx]. The 'Other' category shows pesticide sales not attributed to the six identified companies.

These companies must adopt bold biodiversity strategies and transition away from relying on hazardous pesticides to support their businesses. The evidence is clear: pesticides have highly damaging effects on ecosystems and human health, especially through their use in food production, and alternative solutions for pest management abound. To participate in a rapidly transitioning environment where the health and rights of people and planet are protected from hazardous chemicals, pesticide companies must address the risks they pose to biodiversity.

As the owners and financiers of these companies, investors are well positioned to encourage better biodiversity performance. In leveraging this position to steer companies toward improved performance, investors can also support their own biodiversity objectives and mitigate the risks of investing in pesticides companies that are not transitioning, including regulatory and reputational risks[xxi]. By doing so, investors will hold these companies and their own investments to account for the risks they pose to the natural world.

[5] Sales data were collected through company financial reports, while the market value has been estimated by S&P Global. Both methods have assessed value of sales of pesticides, which include herbicides, fungicides and insecticides. Due to inconsistency in reporting from the six companies, seed treatment sales are excluded from 2022 company pesticide sales as reported here. For this reason, Syngenta's percentage of market share is likely underestimated, given that it is a leading producer of treated seeds.

Purpose of this report

ShareAction assessed the world's largest pesticide companies against emerging and existing best practices for addressing biodiversity loss, using a framework designed to cover areas particularly relevant to the pesticides industry. This report provides key findings from this assessment, introduces the assessment framework methodology, presents the assessments of the six companies, and recommends engagement questions for investors based on assessment findings. Investors are encouraged use the findings and recommendations in this report to inform their engagements with pesticide companies.

Key findings

Key findings

1. Product portfolio: All six pesticide companies produce Highly Hazardous Pesticides. None has committed to phasing them out

All of the assessed companies produce HHPs. HHPs are inherently high-risk due to their properties, such as ecotoxicity and persistence in the environment. The risks pesticides pose to biodiversity and human health can be drastically reduced by phasing out these products and replacing them with safer alternatives. Yet none of the world's largest pesticide companies has time-bound plans to phase out HHPs and only one – FMC Corporation – has taken steps to deliberately remove these pesticides from its product portfolio.

2. Impact assessment: Only two companies assess the impacts of their pesticide products on biodiversity

Most companies only identify the biodiversity risks of products in development, and do not assess how their existing products may affect biodiversity throughout their value chains. While Bayer and BASF have more thorough assessment methodologies for all products, neither sufficiently considers how inherent risks embedded in these products materialise throughout their value chains in at-risk locations like protected areas, on biomes in those locations such as freshwater ecosystems, or on vulnerable species like pollinators. By failing to consider the impact of products throughout their life cycle, companies avoid accountability for how their products affect biodiversity once they are used.

3. Biodiversity strategy: Just one company has committed to reducing the environmental impact of pesticides

Only Bayer has committed to reducing the environmental impact of its pesticide products (by 30 per cent by 2030), and only Bayer, Corteva and Syngenta have clearly defined commitments related to biodiversity. No company has aligned with the Global Biodiversity Framework's (GBF's) Target 7 to reduce risks posed to biodiversity by pesticides by 50 per cent by 2030. Instead, companies' commitments fall short of this target, or aim to 'restore' or 'enhance' ecosystems, rather than reduce the inherent risks and value chain impacts of products that are known to put ecosystems and human health at serious risk.

4. Disclosure: None of the six pesticides companies disclose basic yet crucial information about their impact on biodiversity

None of the assessed companies align with existing and emerging standards for biodiversity disclosures, such as those called for by the Global Reporting Initiative, Taskforce on Nature-related Financial Disclosures, Corporate Sustainability Reporting Directive, and Global Biodiversity Framework. Companies also do not disclose crucial information about their product portfolios, impact assessment methods or value chains. This information, such as the active ingredients a company produces and the at-risk areas where its products are used, is essential for understanding the company's potential and actual impacts on biodiversity, and for supporting decision makers like investors and regulators.

5. Product innovation: All companies continue to develop products that pose risks to biodiversity, while labelling these as 'sustainable'

Companies that assess the inherent biodiversity risks of new or proposed products (only three out of six) still allow the development of products that do not meet their environmental sustainability criteria, while qualifying these products as 'sustainable'. Only FMC Corporation has a product innovation approach designed to phase out products with worse sustainability profiles than proposed alternatives: all other companies lack policies or practices that explicitly call for replacing high-risk products with more sustainable alternatives.

Summary of company performance

All companies perform poorly against baseline expectations to effectively address pesticide-related biodiversity loss. Of the 16 expectations we assessed companies against, no company has met more than two. This shows there is vast room for improvement for all the companies.

Some companies perform better than others on certain expectations and in certain assessment areas. This means there are steps that every company could take immediately to meet to current leading practice across the sector. For example, FMC Corporation is the only company with a policy that explicitly includes replacing benchmark products with alternatives that outperform the benchmark. Bayer is developing an impact assessment methodology that, while needing considerable improvement, considers some of its products' value chain impacts: this outperforms all the other companies, which fail to disclose even basic methodologies for assessing risks to and impacts of products on biodiversity.

Nonetheless, company performance against these expectations is poor across the board. For example, no company has commitments and targets that align with the GBF's Target 7 to reduce risk of pesticides to biodiversity by half by 2030 (Expectation 3.1). And despite the clear dangers posed to human health and the environment, all companies produce HHPs and only FMC Corporation acknowledges the need to phase these products out.

Figure 2: Areas where all companies must improve far outnumber those where some companies perform sufficiently

	Product portfolio		Impact assessment			Biodiversity strategy				Disclosures				Product innovation		
	E1.1: The company does not produce any Highly Hazardous Pesticides	**E1.2:** The company does not sell pesticides banned for use in the EU outside of Europe	**E2.1:** The company assesses biodiversity-related impacts, dependencies and risks	**E2.2a:** The company uses a clearly defined methodology to assess downstream impact of all pesticide products	**E2.2b:** The methodology was developed in partnership with and peer reviewed by independent, subject-matter experts	**E3.1:** The company has targets that align with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	**E3.2:** The company has committed to phase out HHPs by 2035	**E3.3:** The company has a management plan for at-risk locations in its value chain	**E3.4:** The company has a biodiversity strategy that sets out how to achieve relevant targets	**E4.1:** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	**E4.2:** The company publishes a list of active ingredients and discloses sales volumes of HHPs	**E4.3:** The company discloses at-risk locations in its value chain, including areas of biodiversity importance	**E4.4:** The company discloses toxicological studies of all active ingredients	**E5.1:** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks to biodiversity	**E5.2:** The company has a target for expanding safer and sustainable alternatives	**E5.3** The company's innovation practices include replacing hazardous products with lower risk alternatives
BASF	Not achieved	Not achieved	Partly achieved	Partly achieved	Partly achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Partly achieved	Partly achieved	Not achieved	Not achieved
Bayer	Not achieved	Not achieved	Partly achieved	Partly achieved	Partly achieved	Not achieved	Not achieved	Not achieved	Achieved	Not achieved	Not achieved	Not achieved	Partly achieved	Not achieved	Not achieved	Not achieved
Corteva	Not achieved	Not Assessed	Partly achieved	Partly achieved	Not achieved	Not achieved	Not achieved	Partly achieved	Partly achieved	Not achieved	Not achieved	Not achieved	Not achieved	Partly achieved	Achieved	Not achieved
FMC Corporation	Not achieved	Not Assessed	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Partly achieved	Not achieved	Not achieved	Partly achieved	Not achieved	Not achieved	Partly achieved	Achieved	Achieved
Syngenta	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Achieved	Not achieved
UPL	Not achieved	Not Assessed	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved	Not achieved

Companies in data

Figure 3: Market capitalisation[6,7]

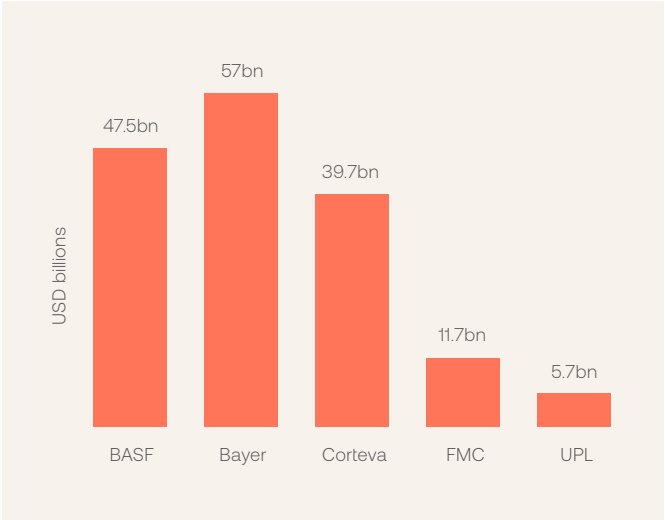


Figure 4: 2022 pesticide sales[8]

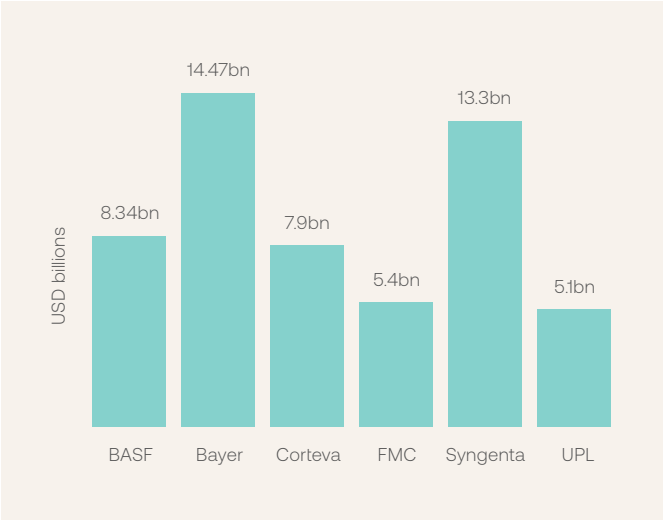


Figure 5: Number of HHPs produced and sold by companies[9]

Company	HHPs
BASF	≥37
Bayer	≥50
Corteva	≥28
FMC Corporation	≥29
Syngenta	≥50
UPL	≥115

Figure 6: 2018 planned exports of pesticides banned for use in the EU[xxii]

Company	Banned pesticides (tonnes)
BASF	1,696
Bayer	3,055
Corteva	17,133
FMC Corporation[10]	10.16
Syngenta	66,411
UPL[11]	10,131

[6] Based on market data retrieved from Eikon in August 2023
[7] Excludes Syngenta, which is a private company and therefore has no market capitalisation
[8] Includes herbicide, insecticide and fungicide products as reported in each company's 2022 financial report, which in most cases excludes seed treatments. Seed treatment revenues are excluded due to inconsistencies in segmented sales reporting: while some of the companies specify revenues from seed treatments, others include these products in grouped sales categories, such as 'Other'. As such, it is impossible to identify and compare sales revenues of seed treatments for all assessed companies.
[9] To identify the number of HHPs each company produces, we assessed the active ingredients in pesticide products that the company markets online and in lists published by the company. It is unclear whether these sources include all active ingredients produced by the company. This number is therefore likely to underestimate the true number of HHPs produced by each company. See Expectation 1.1 in the assessment framework for more information.
[10] Via subsidiary Cheminova
[11] Via subsidiary Arysta LifeScience

Figure 7: Top five HHPs sold in 2018[12,13]

	BASF	Bayer	Corteva	FMC Corporation	Syngenta	UPL
1	Glufosinate	Glyphosate	Cyproconazole	Chlorantraniliprole	Thiamethoxam	No data
2	Epoxiconazole	Glufosinate[14]	Chlorantraniliprole	Bifenthrin	Lambda-Cyhalothrin	No data
3	Fipronil	Isoxaflutole	Spinetoram	Carbosulfan	Glyphosate	No data
4	Pendimethalin	Imidacloprid	Glyphosate	Malathion	Paraquat	No data
5	Chlorfenapyr	Flubendiamide	Spinosad	Indoxacarb	Chlorantraniliprole	No data

[12] Based on 2018 pesticide sales data acquired by investigative organisation Public Eye from a market insights service provider and shared privately with ShareAction. This information is purely for investor reference and is not assessed in any expectations in the framework.

[13] Neonicotinoids present on this list include imidacloprid and thiamethoxam.

[14] In 2018, BASF acquired Bayer's glufosinate-ammonium business. There is no indication that Bayer currently produces glufosinate.

Assessment framework

Assessment framework

ShareAction has developed this framework to assess the quality, scope and transparency of pesticide companies' efforts to address biodiversity loss, and to set out how companies must change to effectively address this issue. The framework consists of 16 expectations that companies must meet if they are to effectively reduce their impact on biodiversity, transition away from harmful business practices, and signal organisation-wide ambition and preparedness to address biodiversity loss. We assessed the companies' performance against these expectations based only on information available on their websites.

The expectations align with many biodiversity- and hazardous chemical-related standards, indicators, principles and targets established by expert organisations, such as the Taskforce for Nature-related Finance Disclosures (TNFD), the Science-Based Targets Network (SBTN), the Convention on Biological Diversity (CBD) and the World Benchmarking Alliance (WBA). Many of these standards are meant to be applied across all industries. For this reason, this framework also incorporates best practices specific to the pesticides industry which have been defined by research organisations and authorities including ChemSec, Pesticide Action Network and the European Union.

The framework covers five important topic areas: Product portfolio, Impact assessment, Biodiversity strategy, Disclosure and Product innovation. We have identified these areas as common themes across existing standards and as important indicators of performance. Other indicators of company biodiversity performance, such as lobbying[15], governance, climate strategy, quality of sustainable solutions and nature's contribution to people, are outside the scope of this assessment[16].

The assessed companies are not ranked or scored. All expectations are deemed of equal importance and are not weighted.

1. Product portfolio

A company's product portfolio includes all the products it sells. This is the starting point for assessing the risk to biodiversity posed by the company and the most important area of change: a company may have biodiversity-related commitments, strategies and disclosure practices, but if it continues to produce a high number and large volume of hazardous pesticides, then it is not effectively mitigating risk to biodiversity where the risk originates[xxiii].

[15] Negative lobbying practices are common in the pesticides industry and pose a serious barrier to improving accountability and positive transformation within the sector. For more information on the lobbying practices of this industry, see InfluenceMap's recent work on CropLife (a trade organisation including BASF, Bayer, Corteva, FMC Corporation and Syngenta): CropLife International; CropLife Europe; CropLife America.

[16] These areas are outside the scope of this assessment due to time and capacity restraints, lack of available information and existing assessments of companies on these topics by other organisations. ShareAction hopes to conduct research on these areas in future work.

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides.

Alignments: ChemSec[xxiv]

Measurement: The company does not produce or sell any pesticide products which include HHPs as active ingredients[17].

Rationale: HHPs include pesticide active ingredients which "present particularly high levels of acute or chronic hazards to health or environment". To avoid the most severe impacts of pesticides on biodiversity and human health, pesticide companies should not produce any HHPs.

We based our assessment on the PAN International List of Highly Hazardous Pesticides drawn up by advocacy organisation Pesticide Action Network (PAN)[xxv]. This list reflects criteria for defining HHPs set out by the United Nations Food and Agriculture Organization (UN FAO) and the World Health Organization (WHO)[xxvi]. These criteria cover classifications of hazardous pesticides by international conventions and health organisations, including the WHO, Rotterdam Convention[xxvii] and Stockholm Convention[xxviii].

PAN's list of HHPs builds on FAO/WHO criteria to also include pesticides with proven eco-toxicological, endocrine-disrupting or inhalational toxicity qualities, demonstrating acute or chronic hazards to human health and the environment. These pesticides have been classified by recognised authorities as having these qualities, including the WHO International Agency for Research on Cancer, European Union (EU), national agencies including the United States Environmental Protection Agency and Japan's Globally Harmonized System, and the Pesticide Properties Database created by the University of Hertfordshire[xxix].

This list does not include *all* pesticide active ingredients that are highly hazardous, given gaps in scientific understanding of some pesticides as well as new chemistries. Still, as much as possible, PAN's list identifies HHPs based on criteria from and classifications by recognised authorities.

Some companies dispute the classification of some products as HHPs on the basis that PAN's list of HHPs goes beyond the FAO/WHO criteria. As described above, PAN's list takes a precautionary approach and is based on science-based criteria established by recognised academic and governmental authorities to identify pesticides that present high levels of acute or chronic hazards to human health or the environment. For more information on the governmental and academic classifications used by PAN, see pages 15 and 16 of PAN's HHP list[xxx].

[17] To identify the number of HHPs produced by each company, we assessed the active ingredients in pesticide products that the company markets online. We also included active ingredients featured in lists published by the company, such as Bayer's Medical Care database and FMC Corporation's Product Range Leaflet. However, it is unclear whether *all* active ingredients produced by each company are publicly marketed or included in these lists. For this reason, the numbers we report are likely to underestimate the number of HHPs each company produces.

Definition: Active ingredients

Active ingredients are the chemicals in a pesticide product designed to kill, control or repel pests. Pesticide products (i.e., 'formulations') can include multiple active ingredients as well as co-formulants, such as ingredients designed to improve product efficiency and usability. Many co-formulants are also very toxic and others increase the toxic effect of the active ingredient in the pesticide formula.

1.2 Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

Alignments: Republic of France Decision no. 2019-823 QPC[xxxi]; Forthcoming regulation from Belgium to ban all exports of EU banned pesticides[xxxii]

Measurement: The company is incorporated in an EU member state and, based on 2018 export notification data to the EU, did not export pesticides that year that are banned for use in the territory under Regulation (EC) No 1107/2009, in compliance with the EU Prior Informed Consent (PIC) Regulation[18].

Corteva, FMC Corporation and UPL are not headquartered in a jurisdiction subject to Regulation (EC) No 1107/2009, so they are not assessed for this Expectation. However, Corteva, Arysta LifeScience (a subsidiary of UPL) and Cheminova (a subsidiary of FMC Corporation) all notified the EU of export of pesticides banned for use in Europe in 2018. These figures are included in their assessments for reference.

Rationale: The European Union has among the highest human health and environmental safety standards for pesticides in the world, having banned nearly 200 active ingredients with known severe impacts on human health and biodiversity for use within its borders[xxxiii]. By selling pesticides banned in Europe to other countries, pesticide companies take advantage of weak local regulation and put biodiversity and human health in importing countries at risk.

[18] The most recent publicly available company export notifications are from 2018 and were acquired by investigative organisation Public Eye. The actual volume of pesticides the companies exported is likely to have deviated slightly from the amount notified for export. Due to lack of data on *actual volumes exported*, the volume of active ingredients notified for export in 2018 is provided.

If an active ingredient has been identified as too dangerous for human health and biodiversity in Europe, its impacts are likely to be even greater in countries receiving exports. Many of these countries are much richer in biodiversity than Europe, and so are more vulnerable to pesticide-related damage to biodiversity. Additionally, most are low- and middle-income countries[xxxiv], where farmers typically cannot afford or do not have access to affordable, high quality, or climate-suitable personal protective equipment to protect them from exposure to pesticides[xxxv].

2. Impact assessment

Companies must assess biodiversity-related impacts, dependencies and risks in order to take meaningful action where their effects on biodiversity are most severe. This is an essential part of a comprehensive approach to address biodiversity loss, as evidenced by numerous expert organisations and governments insisting that companies undertake this practice. Assessments must be carried out using a clearly defined methodology that considers risk-based indicators alongside the company's effect on biodiversity at the location level.

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

Alignments: Taskforce for Nature-related Financial Disclosures (TNFD)[xxxvi]; GBF Target 15[xxxvii]; WBA NB B1[xxxviii]; Global Reporting Initiative (GRI) 304-2[xxxix]; EU Corporate Sustainability Disclosure Requirements (CSRD)[19,xl]

Measurement: The company publicly states that it assesses biodiversity-related impacts and dependencies from its products, and the risks arising from these, and discloses a methodology for doing so. This includes assessing the downstream impacts of products throughout the value chain and including biodiversity in company risk analysis activities. The results of these assessments are disclosed, and disclosures are updated regularly in the event of new findings.

Rationale: Numerous corporate sustainability standards have called for companies to assess their biodiversity-related impacts, dependencies and risks. This is an essential step that enables companies to accurately understand their role in biodiversity loss and integrate these considerations into transition planning.

[19] All large and listed companies in the EU, and companies that generate a net turnover of more than €150 million in the Union and have a subsidiary undertaking or branch in the territory, are subject to CSRD reporting requirements, which include biodiversity. Reporting against these standards will be required starting in the 2024 financial year. All companies assessed here are likely to be subject to this regulation.

It is especially important for the pesticides industry to undertake and disclose such assessments, as there is currently poor traceability of pesticide-related biodiversity loss attributable to individual companies. This has likely resulted in inadequate multi-stakeholder approaches to addressing the drivers of this issue and prevented companies from developing targeted strategies to address their role. In order to align with these standards, and effectively understand their interface with nature, companies must monitor, assess and report the downstream effects of their products on biodiversity throughout their value chains, their exposure to idiosyncratic and systemic risks from biodiversity loss, and their dependence on biodiversity and eco system services to carry out their operations.

The pesticides industry primarily affects biodiversity through downstream impacts, as the supply chain for pesticide products is mostly synthetic and may have minimal material dependencies on nature. For this reason, this assessment prioritises improving capacity for assessing nature-related impacts and risks. For full alignment with TNFD and other standards, all pesticide companies must assess and disclose nature-related dependencies.

Definition: Impacts, dependencies and risks

The TNFD defines impacts, dependencies and risks as follows:

Impacts refer to a change in the state of nature (quality or quantity), which may result in changes to the capacity of nature to provide social and economic functions.

Dependencies are aspects of environmental assets and ecosystem services that a person or an organisation relies on to function.

Nature-related **risks** are potential threats posed to an organisation that arise from its and wider society's dependencies and impacts on nature.

In the context of this expectation, risk refers to 'nature-related risks' as defined by the TNFD. This is different from how the term 'risk' is used in the GBF Target 7: Target 7's use of the term 'risk' refers to the risks a pesticide poses to biodiversity based on the pesticide's inherent properties[xli].

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location level.

Alignments: WBA NB B1c; WBA NB B1e[xlii]; Align[xliii]; TNFD LEAP Approach[xliv]; SBTN 'Assess'[xlv]; GBF Science Briefs[xlvi]; PAN Hazard vs. Risk-based Approaches[xlvii]

Measurement: The company has a publicly disclosed methodology that 1) aligns with the Convention on Biological Diversity's and PAN's guidance on assessing inherent risks of pesticides, and 2) includes impact assessment practices recommended by expert organisations to identify how risks materialise as impacts throughout the value chain.

There is currently no standardised, externally developed methodology for assessing impact of pesticides that companies can adopt. Therefore, we have assumed that each company's methodology is unique and have not assessed these methodologies in depth for their alignment with scientific models best suited to quantifying biodiversity loss[20].

We assessed companies' impact assessment methodologies based on whether they:

- consider the inherent risks to biodiversity of their products, including hazards and use-related risks;
- assess location-level impact of products where they are used[21] in locations considered to be at risk of biodiversity loss (including those at medium and high risk of biodiversity loss and areas of biodiversity importance);
- assess impact of products on material species and relevant biomes[22];
- assess both on-site and downstream impacts on biodiversity from product use;
- assess the biodiversity impact of **all** products produced by the company; and
- disclose the metrics they use to assess risk and/or impact.

This methodology is expected to go beyond standard product safety studies to employ clearly defined biodiversity metrics that assess a product's risks to and impacts on biodiversity throughout the company's value chain.

[20] When there are agreed, standardised sector-specific biodiversity metrics applicable to the pesticides industry, these metrics should be promptly integrated into any impact assessment methodology. These are likely to be proposed by standard-setting bodies, including SBTN, in due course and companies will be expected to adopt these as soon as possible. We recommend that current metrics for measuring biodiversity loss correspond with Align's recommendations for biodiversity indicators and metrics (pages 27 to 29).

[21] As much as possible, companies should collect data on the locations where products are likely to be used, such as by analysing location-level data of direct sales and product retailers. This will enable them to identify locations at risk of pesticide-related biodiversity loss throughout their value chains. These locations, and the species and biomes present in those locations, should inform their assessment of product impact on biodiversity.

[22] Companies should use the TNFD LEAP 'Locate' guidance, SBTN 'Assess' step's value chain assessment guidance, and the IBAT Tool to identify at-risk locations, species and biomes in their value chains. More information on management plans for and identification and disclosure of these locations can be found in Expectations 3.3 and 4.3.

Rationale: Pesticide companies must adopt credible methodologies to assess how their products affect biodiversity. This is essential for understanding how their product portfolio contributes to biodiversity loss and where targeted action is needed.

Drawing on the Convention on Biological Diversity and PAN's guidance on reducing negative outcomes of pesticide use, this methodology should consider how the **inherent risks of a product, including hazardous properties** (such as toxicity and environmental persistence) and **risks related to how they are used** (such as seed coatings and application practices), materialise throughout a company's value chain. These properties are fundamental to include in any assessment of how existing products are impacting biodiversity when they are used. A methodology must also consider how the company's products are affecting locations in the company's value chain, including the species, biomes and at-risk areas (including areas of biodiversity importance that are likely to be exposed to them). Estimating product impact based on laboratory studies or field trials is unlikely to sufficiently consider variation in an ecosystem's susceptibility to damage.

It is crucial that **all products** are covered by the methodology. This will ensure that the company can understand its net impact on biodiversity. This assessment should inform biodiversity-related targets, commitments, management plans and innovation practices to reduce effects on biodiversity.

Definition: Areas of biodiversity importance

Areas of biodiversity importance are areas that have been identified as especially biodiversity-rich or sensitive. These areas include, but are not limited to, Ramsar Sites, Key Biodiversity Areas (KBA), Natura 2000 sites (EU), IUCN Protected Areas, World Heritage Sites and Alliance for Zero Extinction sites. Companies can use the Integrated Biodiversity Assessment Tool (IBAT) to identify areas of biodiversity importance[xlviii] and can identify threats from agriculture and pollution to KBAs using the KBA data tool[xlix].

2.2b Expectation: The company's methodology for impact assessment was developed in partnership with, and peer reviewed by, independent subject-matter experts, as evidenced by a disclosure of all relevant details of the company's relationship and the nature of collaboration with all experts involved.

Alignments: Align[I]

Measurement: The company publicly identifies, and provides information about, third-party contributions to and review of their impact assessment methodology, including criteria for the selection of experts, prior relationship with the experts, details of compensation for their contribution, and nature of their input.

Rationale: Internally developed assessment methodologies risk being biased in favour of outcomes that suit the company's interests. Even when companies collaborate with third-party experts, it is exceptionally difficult to know the extent to which the development of an assessment methodology has been free from influence and bias from the company. To improve transparency, companies should publicly disclose the details of third-party involvement in constructing and reviewing their impact assessment methodologies.

Achievement of this expectation **does not** mean that the methodology is free from bias, but that the company has taken steps to involve independent subject-matter experts on pesticides, biodiversity and related fields in its development.

3. Biodiversity strategy

A strategy to address biodiversity loss is intended to guide a company's transition to a low-impact business model. It indicates that a company has identified biodiversity as a material issue and is taking steps to address its impact. However, a strategy is only as strong as the goals it is designed to meet. For this reason, a strategy must be accompanied by credible commitments, targets and management plans that address the company's principal drivers of negative impact.

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

Alignments: GBF Target 7[Ii]

Measurement: The company has publicly committed to reducing its impact on or risk to biodiversity from pesticide products by 50 per cent by 2030.[23]

[23] Pesticide companies can be considered aligned with GBF Target 7 if their commitment or target refers to either reducing risk or reducing impact, so long as their approach to reducing impact includes addressing inherent biodiversity risks of products, as indicated by the Convention on Biological Diversity's proposed risk-based indicators for this target.

Rationale: The Global Biodiversity Framework is an agreed international standard. In order to align with Target 7, pesticide companies must clearly articulate their ambition to reduce their impact on or risk to biodiversity by half by 2030. These should underpin the company's transformation process and enable it to be held accountable for progress or lack thereof.

It is crucial that a company's biodiversity-related commitments and targets address pesticide-related biodiversity loss resulting from its product portfolio. Companies often focus on safe use of their products, responsibility for which is frequently placed onto regulators and farmers. As a result, companies sometimes set commitments or targets for 'sustainable' product development, farmer training, conservation projects or habitat restoration, but lack commitments and targets to reduce the fundamental risks their products pose to biodiversity.

GBF Target 7 suggests indicators, or ways to measure, a reduction in pesticide risks using both volume ('Pesticide use per area of cropland') and hazard ('Name, amount/volume/concentration of highly hazardous pesticides by type (per land/marine area)'). As such, companies are expected to progress toward this target by prioritising phase-out of HHPs and reducing use-related risks (including volumes and application practices), including addressing how these risks materialise in at-risk locations[24].

Global Biodiversity Framework's Target 7: prioritising risk reduction

GBF Target 7 calls for "reducing the overall risk from pesticides and highly hazardous chemicals by at least half...". Reducing the *volume* of pesticides used is an important step in addressing pesticide-related biodiversity loss. However, reducing the *risks* posed by pesticides, such as by eliminating inherent hazardous properties in pesticides, can be more effective in preventing harm than focusing exclusively on reducing quantity. This is because products such as nano-pesticides, neonicotinoid-coated seeds, and precision application technologies, while reducing volumes of pesticides applied, often result in the use of pesticides that are extremely toxic even in small amounts.

[24] Commitments and targets may be reassessed in the future when additional global standards on biodiversity and hazardous chemicals, or guidance on target setting, have been set. For all nature-related targets, companies should follow SBTN's basic guidance on best practices for target setting. Between 2023 and 2025, SBTN will release more detailed guidance on setting targets (including biodiversity-specific and downstream-specific guidance), which companies should promptly align with.

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

Alignments: Global Framework on Chemicals[25], WBA NB B11a[lii]; ChemSec[liii]; Directive on the Sustainable Use of Pesticides (2009/128/EC)[,26,liv]

Measurement: The company has a public, time-bound commitment to phase out production of HHPs by 2035.

Rationale: Removing hazardous active ingredients and product formulations from the market automatically reduces the chance of negative impact to human health or the environment to zero. This is the **most effective and only guaranteed way** to reduce pesticide-related biodiversity loss. This principle also aligns with the mitigation hierarchy,[27,lv] and the Science-based Targets Network's AR3T (Avoid, Reduce, Regenerate, Restore, Transform) Framework[lvi], both of which prioritise *avoiding* negative impact above *reducing* risk.

In line with the Global Framework on Chemicals established by the Fifth International Conference on Chemicals Management (ICCM5), pesticide companies should set commitments to remove HHPs from their product portfolios by 2035. This will ensure that environmental and human health impacts from pesticides are avoided as much as possible. Companies can refer to the European Commission's list of pesticide candidates for substitution to identify pesticides that can already be replaced[lvii].

[25] At the time of writing (October 2023), this framework has just been agreed at the International Conference on Chemicals Management. As a result, the full framework is not yet publicly available, although the UN Environment Programme has stated that these targets include phasing out HHPs by 2035. For this reason, other targets in the framework have not been considered in our assessment methodology.

[26] While this regulation applies to EU member states, it sets science-based principles for effective protection of biodiversity from pesticides. Article 11 includes specific measures to protect the aquatic environment and drinking water. It suggests "giving preference to pesticides that are not classified as dangerous for the aquatic environment pursuant to Directive 1999/45/EC nor containing priority hazardous substances as set out in Article 16(3) of Directive 2000/60/EC".

[27] The mitigation hierarchy is a principle of nature conservation that advises avoidance, minimisation, restoration and offsets, in that order, as the best practice for mitigating impacts on nature.

Prioritising hazard reduction: why companies must prioritise the phase-out of Highly Hazardous Pesticides

Trying to mitigate risks while using pesticides will never be as effective as eliminating pesticides with inherently hazardous characteristics, such as carcinogenicity or persistency. Pesticide companies often attempt to mitigate risk and impact by addressing how products are used (such as by providing safety guidance), rather than eliminating pesticides with intrinsically toxic properties. **This approach has not sufficiently addressed pesticide-related biodiversity loss:** damage to biodiversity from pesticides continues despite the efforts of companies and regulators to changes use practices. Eliminating inherently hazardous products must be prioritised if pesticide-related biodiversity loss is to be effectively addressed.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

Alignments: WBA NB B3d[lviii]; Directive 2009/128/EC Article 12[28,lix]; Align[lx]

Measurement: The company publicly discloses management plans for at-risk locations in its value chain, including place-based exclusions for sale of HHPs and location-specific stewardship practices for all other products. Wherever possible, the company communicates these plans directly with product users and engages with retailers and distributors to enforce these management plans in locations served by these providers.

Rationale: Pesticide use, especially use of HHPs that have severe impacts on the environment, poses significant threats to areas of biodiversity importance and other ecosystems already at risk of moderate or severe impacts from biodiversity loss. The species, natural resources, ecosystem services, communities, and indigenous groups in these areas are particularly vulnerable and their exposure to pesticides must urgently be reduced.

Companies are expected to identify at-risk areas in their value chains and develop management plans to significantly reduce the risks posed by pesticides in these areas, including restricting sales of HHPs in areas of biodiversity importance: **this is the most effective way to guarantee freedom from harm within these areas.**

[28] This regulation applies to EU member states but sets science-based principles for effective protection of biodiversity from pesticides which are relevant everywhere. Article 12 calls for minimising or prohibiting use of pesticides in protected areas.

Companies should ensure that safe alternatives are available for use in these areas and support their uptake. In the interim, companies should have location-specific stewardship practices that apply to using pesticides in at-risk areas, which may be put into practice through company agronomists, use guidance and direct communication with land workers.

See Expectation 4.3 for information on identification and disclosure of at-risk locations.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

Alignments: WBA NB A1[lxi]

Measurement: The company has a publicly disclosed strategy that sets a clear path for achieving biodiversity-related targets and specifies how progress is measured against targets.

Rationale: A biodiversity strategy is an important first step in guiding a company's efforts to address pesticide-related biodiversity loss. An effective strategy must define how commitments and targets will be achieved and set out how the company's business model will change to address its impact on biodiversity.

Achievement of this expectation does not indicate the quality of the approach, simply the existence of a strategy that defines how existing commitments will be met, and therefore the prioritisation of the issue by the company. The quality of a biodiversity strategy depends on the quality of commitments and targets, impact assessment methodologies and other practices that guide and hold the company accountable for reducing impact, which are explored in other expectations.

4. Disclosure

Disclosure enables stakeholders, including investors, to hold companies to account for their negative impacts and equally to acknowledge their progress. In general, there is very poor transparency from companies in the pesticides industry about how they interface with nature. Disclosing information on company products and relationship to nature will significantly improve accountability in the pesticides industry and ensure alignment with disclosure standards and stakeholder expectations.

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

Alignments: GRI 304[lxii]; TNFD[lxiii]; GBF Target 15[lxiv]

Measurement: The company publicly and comprehensively reports against all topics of GRI 304, including all disclosure requirements for each topic. The company has made a time-bound commitment to report against the TNFD framework and GBF Target 15[29].

Rationale: GBF Target 15, the TNFD framework, and GRI 304 disclosure standards on biodiversity have started to define what information is essential for companies to disclose to significantly improve accountability for their impacts on biodiversity. Pesticide companies must report comprehensively against all available standards to effectively communicate their relationship to and impact on biodiversity.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

Alignments: ChemSec[lxv]

Measurement: The company makes publicly available a full list of all active ingredients it produces and sells. The company publicly discloses the annual sales volumes of products that include HHPs.

Rationale: To improve accountability for the hazards embedded in their product portfolios, companies should disclose full lists of the active ingredients they produce and the annual volumes of HHPs sold. Currently, there is very poor transparency around the products these companies produce and the volumes they sell, and therefore the risks their portfolio poses to biodiversity. Disclosure of this information is critical for investors, regulators, and other key stakeholders to accurately understand the biodiversity risks posed by a company's products. It is also recommended that companies disclose an exhaustive list of all co-formulants included in pesticide products, as these can have negative impacts on biodiversity[lxvi].

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

Alignments: TNFD LEAP Approach[lxvii]; WBA NB B3[lxviii]; GRI 304-2[lxix]; GBF Target 21[30,lxx]

[29] Most companies assessed (or their subsidiaries) will also be required to report against the European Sustainability Reporting Standards (ESRS) starting in the 2024 financial year under the EU's Corporate Sustainability Reporting Directive (CSRD). Many of the ESRS standards align with those of the TNFD and GBF Target 15. Therefore, aligning with the TNFD's disclosure standards can support compliance with the CSRD and alignment with Target 15.

[30] GBF Target 21 requires that "the best available biodiversity data, information and knowledge are readily available to decision-makers and other relevant actors to support informed biodiversity policy, planning and decision-making processes, as well as for monitoring reviewing and reporting progress in implementation".

Measurement: The company publicly discloses locations where its products are likely to be used that are at medium or high risk of biodiversity loss, including locations in or near areas of biodiversity importance. Locations are disclosed with as much geographical precision as possible – ideally at the farm level. Where this is not possible, locations are disclosed at the local administrative area level.

Rationale: The severity and consequences of biodiversity loss are location specific, due to differences across ecosystems in species diversity, ecosystem characteristics, proximity to local communities and indigenous lands, water stress and other variables. Areas of biodiversity importance are especially vulnerable, given that they are vital for providing genetic diversity and ecosystem services. These areas often overlap with regions inhabited by indigenous groups who both rely on and steward nature in these locations[lxxi], leaving them particularly vulnerable to harm from pesticide pollution[lxxii].

Companies can use the TNFD's LEAP Approach guidance to identify areas at medium or high risk of biodiversity loss from pesticide use, and IBAT to identify areas of biodiversity importance[lxxiii]. Companies should assess data related to sales, land worker training, product retailers and any other location-specific company data to identify locations where their products are likely to be used that overlap with at-risk locations. Companies should look to improve their identification and disclosure of locations in their value chains over time.

Disclosure of these locations is crucial for improving company accountability for pesticide-related biodiversity loss. It will also support efforts from other stakeholders, including conservation organisations and governments, to identify drivers of biodiversity loss in at-risk areas and take necessary steps to protect and restore these sites. Investors can use this location-level data to understand their own exposure to pesticide-related biodiversity loss and develop location-specific stewardship practices, including engagement and investment exclusions.

See Expectation 3.3 for information on management plans related to these locations.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

Alignments: GBF Target 21[lxxiv]

Measurement: The company publishes online the safety studies of all active ingredients in its portfolio that have been submitted to regulators or makes them available to all interested parties upon request.

Rationale: Companies should disclose this information to improve transparency around their research process, improve accountability for study findings, and support decision-makers – including investors, users and conservation organisations – to better understand the risks their products pose to biodiversity.

There is evidence that some pesticide companies have withheld some essential studies from regulators[lxxv] and have not followed international standards for conducting chemical safety studies[lxxvi]. To ensure companies are carrying out high quality safety studies and submitting all relevant studies to regulators, they should disclose details of all studies they submit to regulators in all jurisdictions, including full methodology, findings, peer review details and study funding.

Some assessed companies have expressed that, in *some* jurisdictions, regulators publish studies or summaries of studies submitted for active ingredient authorisation or renewal, and that the regulator rather than the submitting company is responsible for disclosing this information. To ensure company accountability for research practices and study findings, companies should take full responsibility for making public all studies they submit to regulators in all jurisdictions, rather than relying on regulators to promptly and comprehensively make all relevant information available.

5. Product innovation

To meaningfully reduce the risks that their products pose to biodiversity and human health, pesticide companies will need to transform their business models. Any product innovation strategy needs to reflect a genuine transition away from hazardous products and towards offering products, technologies and services that reduce agriculture's reliance on high-risk pesticides.

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

Alignment: ChemSec[lxxvii]

Measurement: The company discloses a methodology that is applied to new products, such as a risk assessment framework with relevant biodiversity criteria and clear metrics for assessing products, or the company's impact assessment methodology (see Expectation 2.2a) is applied to new products as much as possible, bearing in mind that a full impact assessment cannot be completed for products that have not yet been used. This methodology ensures that new solutions meet biodiversity-related criteria.

Rationale: All forthcoming crop protection products developed must have significantly improved biodiversity profiles and be able to replace more hazardous products. Products in development should be assessed for their potential risks to biodiversity using a clearly defined methodology that identifies inherent product risks.

5.2 Expectation: The company has a target (such as sales, portion of product portfolio or research and development spending) for expanding safer and sustainable alternatives.

Alignment: WBA NB B11b[lxxviii]; ChemSec[lxxix],[lxxx]

Measurement: The company has publicly disclosed a target for expanding the production of safe and sustainable alternatives[31].

Rationale: Companies should have a clear target that dedicates company resources to sustainable innovation. This is essential for directing the immense capital and research and development capacity of these companies toward a low-risk product portfolio.

Companies often use inconsistent and arbitrary metrics to define what is 'sustainable'. For this reason, achievement of this expectation indicates that the company has committed resources to product innovation – an important step for transitioning a product portfolio – although its qualification of a product as 'sustainable' may not be justified.

What makes a product 'sustainable'?

'Sustainable' products from pesticide companies should ultimately aim to reduce agriculture's dependence on synthetic inputs, including pesticides, such as by building a farm or crop's resilience to pests and disease, encouraging natural predators of crop pests or enabling a transition to agroecological food production systems. This aligns with SBTN's interim targets that call for companies to "Transform" their business models for system-wide change[lxxxi] and GBF's Target 10 which calls for production practices that ensure long-term efficiency and productivity of production systems[lxxxii]. For more information on sustainable solutions, companies and investors should refer to the Soil Association's guidance on technologies and product innovations that align with agroecology[lxxxiii].

Assessing a company's solutions on this basis requires an exhaustive analysis of its products, which is outside the scope of this assessment and will be explored in further work.

[31] For the purposes of this assessment, 'sustainable solutions' are those which are defined as such by the assessed company Further work is required to explore the sustainability of commonly proposed solutions.

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

Alignment: WBA NB B11b[lxxxiv]

Measurement: The company's publicly available criteria, methodology or policy for product innovation explicitly includes the principle of phasing out hazardous products in favour of alternatives that pose lower risks to biodiversity.

Rationale: Phasing out hazardous pesticides must be built into the process of developing new solutions. These pesticides – which are a core part of many companies' business models – must ultimately be discontinued. New solutions should be designed to replace high-risk products, including HHPs. This may take the form of comparing proposed products with existing hazardous products as a benchmark: new products should only be developed if the assessment finds that they pose lower risks to biodiversity than the products they are designed to replace.

For many pesticides, including HHPs, there are known alternatives that serve similar agricultural purposes yet pose lower risks to biodiversity. Companies can refer to the European Commission's list of pesticide candidates for substitution to identify pesticides that can already be replaced[lxxxv].

Supporting farmers to transition away from hazardous products

The six pesticide companies assessed here are the largest in the world, covering 80 per cent of the pesticides market. But they are not the only companies that produce and sell hazardous pesticides. As these dominant companies transition their product portfolios to phase out hazardous pesticides, it is essential to avoid an increase in demand for these products from companies that are slower to transition or not transitioning at all.

Pesticide companies should support farmers that are currently using their hazardous products to transition to more sustainable alternatives, such as by offering farmer trainings for more sustainable products and retraining company agronomists. This will ensure that farmers can continue to access the agricultural solutions they need and understand how to use them in place of older products. By supporting farmers through this transition, pesticide companies can improve uptake of sustainable products and prevent an increase in demand for hazardous products from other companies.

Compamy assessments

BASF: Overview

BASF SE is an industrial chemicals company based in Ludwigshafen, Germany.

Market cap
€43.47 billion ($57.5 billion)

2022 pesticide sales
€8.41 billion (€9.2 billion)[lxxxvi]

Highly Hazardous Pesticides
≥37

Top-selling Highly Hazardous Pesticides in 2018
1) Glufosinate 2) Epoxiconazole 3) Fipronil 4) Pendimethalin 5) Chlorfenapyr

EU-banned pesticides notified for export in 2018
1,696 tonnes

Product Portfolio	**E1.1** The company does not produce or sell any HHPs	Not achieved
	E1.2 The company does not sell EU-banned pesticides outside of Europe	Not achieved
Impact assessment	**E2.1** The company assesses biodiversity-related impacts, dependencies and risks	Partly achieved
	E2.2a The company uses a clearly defined methodology to assess downstream impact of all pesticide products	Partly achieved
	E2.2b The methodology was developed in partnership with and peer reviewed by independent experts	Partly achieved
Biodiversity strategy	**E3.1** The company has a target that aligns with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	Not achieved
	E3.2 The company has a commitment to phase out HHPs by 2035	Not achieved
	E3.3 The company has a management plan for high-risk locations in its value chain	Not achieved
	E3.4 The company has a biodiversity strategy that includes relevant targets and commitments	Not achieved
Disclosures	**E4.1** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	Not achieved
	E4.2 The company publishes a list of active ingredients and discloses sales volumes of HHPs	Not achieved
	E4.3 The company discloses at-risk locations in its value chain, including areas of biodiversity importance	Not achieved
	E4.4 The company discloses toxicological studies of all active ingredients	Partly achieved
Product innovation	**E5.1** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks	Partly achieved
	E5.2 The company has a target for expanding safer and sustainable alternatives	Not achieved
	E5.3 The company's innovation practices include replacing hazardous products with lower risk alternatives	Not achieved

Through its product portfolio and export of hazardous pesticides, BASF embeds risks to biodiversity in its business model. While biodiversity is included in BASF's sustainability efforts as part of its 'product impact' focus, the company has not made any public commitments, nor has it disclosed clearly defined methodologies to assess the impacts of its products throughout its value chain.

INDICATORS OF PROGRESS

- **Impact assessment**: BASF assesses all its products, including pesticides, for their contribution to sustainable outcomes, including biodiversity. As part of this process, it commits to phasing out 'Challenged' products[32] within five years.
- **Disclosures**: BASF makes some information regarding product safety studies available upon request.

AREAS OF CONCERN

- **Product portfolio**: BASF produces a high number of HHPs and exports pesticides banned for use within the EU to other countries.
- **Biodiversity strategy**: BASF has not aligned with GBF Target 7 to reduce risk from its products to biodiversity. The company has no biodiversity-related commitments.
- **Impact assessment**: There are major gaps in BASF's impact assessment approach, including disclosure of metrics used for assessing biodiversity criteria and a methodology to assess location-level impacts of products throughout its value chain.

Assessment

1. Product portfolio

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides[33].

ASSESSMENT NOT ACHIEVED

BASF produces at least 37 active ingredients that are Highly Hazardous Pesticides.

1.2. Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

ASSESSMENT NOT ACHIEVED

In 2018, BASF notified for export 1,696 tonnes of pesticides banned for use in the EU to other countries[lxxxvii].

[32] BASF defines 'Challenged' products as those that do not pass basic sustainability requirements and are of 'strong' concern. Further information can be found on page 12 of the company's TripleS manual.
[33] This does not include industrial (non-agricultural) chemicals that BASF produces that are HHPs.

2. Impact assessment

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

ASSESSMENT PARTLY ACHIEVED

BASF uses its TripleS methodology to assess the potential biodiversity impact of its 45,000 products, including pesticide products[lxxxviii]. This covers potential impacts on biodiversity from product use downstream, such as risk to non-target organisms. The results of this assessment are not disclosed. See Expectation 2.2a for more information on this methodology.

BASF states that it addresses risks and opportunities arising from biodiversity, but does not disclose how this is performed or the outcomes of an assessment process[lxxxix]. BASF does not publicly indicate that it assesses its dependencies on biodiversity.

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location-level.

ASSESSMENT PARTLY ACHIEVED

BASF uses its TripleS approach to assess and categorise all products based on their sustainability qualities. As part of this approach, BASF has determined a set of biodiversity-related criteria to assess products against, including risk-based indicators such as 'improved eco tox profile' and 'higher compatibility with low-drift technologies'[xc].

However, it does not disclose how products are assessed against these criteria, including which metrics are used[34]. It is also not clear if and how products are assessed past the risk stage based on how these risks materialise throughout the company's value chain: BASF does not disclose whether TripleS is used to assess location-level impacts, including the effects of products on at-risk locations, relevant biomes, and material species exposed to products.

[34] In information provided privately to ShareAction, BASF has stated that TripleS is a qualitative approach and that a product can be deemed to contribute to biodiversity if a business unit gives a rationale and proof for this designation. However, for the purpose of this report, companies are assessed only on information that is publicly disclosed.

2.2b Expectation: The company's methodology for impact assessment was developed in partnership with, and peer reviewed by, independent subject-matter experts, as evidenced by a disclosure of all relevant details of the company's relationship and the nature of collaboration with all experts involved.

ASSESSMENT PARTLY ACHIEVED

BASF based its TripleS approach on the World Business Council for Sustainable Development's Portfolio Sustainability Assessment (PSA) methodology, which provides guidance for the chemicals industry on assessing and categorising a company's product portfolio.

However, this methodology does not provide precise guidance or expertise on assessing the risks to or impacts on biodiversity from pesticide use. For this reason, BASF's compliance with the PSA does not fully meet the expectation for subject-matter experts to be involved in the development and review of an impact assessment methodology.

3. Biodiversity strategy

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

ASSESSMENT NOT ACHIEVED

BASF has no commitments or targets that align with GBF Target 7, nor any biodiversity-related commitments or targets more generally[xci].

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

ASSESSMENT NOT ACHIEVED

BASF has not disclosed a commitment to phase out production of HHPs.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

ASSESSMENT NOT ACHIEVED

BASF has not disclosed a management plan to protect locations in its value chain at medium or high risk of biodiversity loss from pesticide use.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

ASSESSMENT NOT ACHIEVED

While BASF has a strategy to address biodiversity loss, this does not include any biodiversity-related commitments that can effectively guide this strategy and hold the company accountable for meeting goals.

BASF's biodiversity strategy focuses on sites and production, product impact, and supply chains. Through the strategy's product impact focus, BASF assesses the impact of products using its TripleS approach (see Expectation 2.2a) and assesses impacts of agricultural practices using an assessment framework called AgBalance[xcii].

4. Disclosures

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

ASSESSMENT NOT ACHIEVED

BASF states that it reports against some topic areas required by GRI 304. However, the company does not report against all topics, nor does it provide all details required by the topics it does report against, to be considered fully aligned with this standard[xciii].
BASF has not committed to align with, or report against, the TNFD framework or GBF Target 15.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

BASF does not disclose this information.

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

ASSESSMENT NOT ACHIEVED

BASF does not disclose this information.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

ASSESSMENT PARTLY ACHIEVED

BASF discloses summaries of studies of 18 active ingredients. This only includes active ingredients that are sold within Europe[xciv]. Individuals can request the full studies for these ingredients, which must be reviewed and approved by the company before they are shared. This includes studies of active substances submitted to regulators that have already been approved for use in the EU. It does not include those pending review by regulators.

5. Product innovation

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

ASSESSMENT PARTLY ACHIEVED

BASF applies the TripleS approach to new products going through the research and development process. See Expectation 2.2a for more information on this approach.

New products do not have to contribute to positive biodiversity outcomes, such as lower ecotoxicity or reduced risk for non-target organisms, to be considered 'Contributor' or 'Pioneer' (the highest sustainability categorisations in this model) or to continue through the development process[xcv].

5.2 Expectation: The company has a target (such as sales, portion of product portfolio, or research and development spending) for expanding safer and sustainable alternatives.

ASSESSMENT NOT ACHIEVED

BASF no longer has a target for expanding safer and sustainable alternatives. The company states that it has met an earlier target to "Increase sales of 'Accelerator products', or products with a significant impact on sustainability, to €22 billion by 2025"[35,xcvi],.

The company previously had a commitment to increase sales share of solutions with substantial sustainability contribution by 7 per cent annually, but this no longer appears in the company's disclosed targets[xcvii].

[35] In information provided privately to ShareAction, BASF has stated that a new target will be communicated in February 2024.

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

ASSESSMENT NOT ACHIEVED

This principle is not included in BASF's sustainable innovation practices.

Bayer: Overview

Bayer AG is a pharmaceutical, personal care and agricultural chemicals company based in Leverkusen, Germany.

Market cap
€52.1 billion ($47.5 billion)

2022 pesticide sales
€13.18 billion[xcviii] ($14.46 billion)

Highly Hazardous Pesticides
≥50

Top-selling Highly Hazardous Pesticides in 2018
1) Glyphosate 2) Glufosinate[36] 3) Isoxaflutole 4) Imidacloprid 5) Flubendiamide

EU-banned pesticides notified for export in 2018
3,055 tonnes

Product Portfolio	**E1.1** The company does not produce or sell any HHPs	Not achieved
	E1.2 The company does not sell EU-banned pesticides outside of Europe	Not achieved
Impact assessment	**E2.1** The company assesses biodiversity-related impacts, dependencies and risks	Partly achieved
	E2.2a The company uses a clearly defined methodology to assess downstream impact of all pesticide products	Partly achieved
	E2.2b The methodology was developed in partnership with and peer reviewed by independent experts	Partly achieved
Biodiversity strategy	**E3.1** The company has a target that aligns with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	Not achieved
	E3.2 The company has a commitment to phase out HHPs by 2035	Not achieved
	E3.3 The company has a management plan for high-risk locations in its value chain	Not achieved
	E3.4 The company has a biodiversity strategy that includes relevant targets and commitments	Achieved
Disclosures	**E4.1** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	Not achieved
	E4.2 The company publishes a list of active ingredients and discloses sales volumes of HHPs	Not achieved
	E4.3 The company discloses at-risk locations in its value chain, including areas of biodiversity importance	Not achieved
	E4.4 The company discloses toxicological studies of all active ingredients	Partly achieved
Product innovation	**E5.1** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks	Not achieved
	E5.2 The company has a target for expanding safer and sustainable alternatives	Not achieved
	E5.3 The company's innovation practices include replacing hazardous products with lower risk alternatives	Not achieved

Bayer is the largest pesticide producer of the six companies we assessed by annual pesticide sales. The company produces a high number of HHPs and exports pesticides banned for use in the EU outside Europe, indicating high risks to biodiversity from its products. The company is

[36] Since 2018, BASF has acquired Bayer's glufosinate-ammonium business. There is no indication that Bayer currently produces glufosinate.

developing an impact assessment methodology to assess its products and has committed to reduce the environmental impact of its pesticide products. However, this is not accompanied by a methodology to assess new products for biodiversity risks, or commitments to support a transition toward a low-risk portfolio.

INDICATORS OF PROGRESS

- **Impact assessment**: Bayer has started to assess the impacts of its products on freshwater using a clearly defined impact assessment methodology.
- **Biodiversity strategy**: Bayer has committed to reduce the environmental impact of its product portfolio by 30 per cent by 2030.

AREAS OF CONCERN

- **Product portfolio**: Bayer produces a high number of HHPs and exports high volumes of pesticides banned for use in the EU outside Europe.
- **Impact assessment:** Bayer's Crop Protection Environmental Impact Reduction (CP EIR) methodology applies to just one biome (freshwater) and does not consider location-level effects on biodiversity in at-risk locations or on all material species.
- **Product innovation**: Bayer has not disclosed a methodology or criteria for assessing the risks of proposed sustainable solutions and has not disclosed any commitments to dedicate company resources to sustainable innovation.

Assessment

1. Product portfolio

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

Bayer produces at least 50 active ingredients that are Highly Hazardous Pesticides.

1.2 Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

ASSESSMENT NOT ACHIEVED

In 2018, Bayer notified for export 3,055 tonnes of pesticides banned for use in the EU to other countries[xcix].

2. Impact assessment

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

ASSESSMENT PARTLY ACHIEVED

Bayer assesses pesticide-related impacts on freshwater ecosystems through the CP EIR methodology. The company states that this approach does not include downstream impacts of pesticide products and only considers impact "during its use phase on the field"[c]. Bayer does not disclose the findings of this impact assessment. See Expectation 2.2a for more information.

The company does not appear to include biodiversity in risk assessment practices[ci], nor does it disclose any assessment of dependencies.

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location-level.

ASSESSMENT PARTLY ACHIEVED

Bayer's CP EIR methodology estimates the environmental impact of 270 active ingredients on freshwater. The company uses the methodology to quantify its environmental impact and track progress against its impact reduction commitment (see Expectation 3.1). It aims to use the findings to reduce the impacts of its crop protection products on non-target species[cii].

Bayer's methodology includes considering the inherent risks posed by pesticide products, including ecotoxicity and degradation half-lives. However, as it only covers freshwater, it is unclear to what extent Bayer considers or plans to consider risks its products pose to biomes or species not relevant to freshwater.

The methodology does not consider all relevant biomes and material species, such as pollinators or soil ecosystems. Bayer also states that this methodology does not consider downstream impacts beyond use at the field level[ciii]. Although Bayer assesses potential impact at the country level, the methodology does not appear to assess product impact at a more granular location level including at-risk areas in its value chain.

It is unclear if Bayer has assessed **all** pesticide products according to this methodology.

2.2b Expectation: The company's methodology for impact assessment was developed in partnership with, and peer reviewed by, independent subject-matter experts, as evidenced by a disclosure of all relevant details of the company's relationship and the nature of collaboration with all experts involved.

ASSESSMENT PARTLY ACHIEVED

Bayer states that its methodology has been developed with the Technical University of Denmark (TUD) and that an external panel of subject-matter experts will review all results and progress[civ]. Bayer discloses this panel of experts and specifies the role of TUD in the methodology[cv].

Bayer has not disclosed the compensation details of the company's relationship with TUD.

3. Biodiversity strategy

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

ASSESSMENT NOT ACHIEVED

Bayer has committed to reduce the negative environmental impact of its pesticide products by 30 per cent by 2030, which is measured using the CP EIR methodology. GBF Target 7 states that pesticide risk must be reduced by 50 per cent by 2030.

The company tracks progress against a 2014–2018 average as the baseline and has reported a 14 per cent reduction in impact as of 2022,[37,cvi]. This progress only reflects the company's calculated reduction in impact on freshwater biomes.

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

ASSESSMENT NOT ACHIEVED

Bayer has not disclosed a commitment to phase out production of HHPs.

[37] Bayer does not specify how the 14 per cent reduction in impact has been achieved.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

ASSESSMENT NOT ACHIEVED

Bayer has not disclosed a management plan to protect locations in its value chain at medium or high risk of biodiversity loss from pesticide use.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

ASSESSMENT ACHIEVED

Bayer's strategy to address biodiversity loss is guided by five 'action-based principles': developing innovative sustainable solutions; supporting farmers and landowners; advancing the science in balancing food production while enhancing biodiversity; helping to protect forests and promoting sustainable vegetation; and helping to mitigate climate change[cvii].

The company has a stated commitment to reduce environmental impact of pesticides by 30 per cent by 2030. It states that impact will be reduced by "optimizing pesticide volumes required per hectare", "discovering new and better crop protection solutions that can significantly reduce environmental impact", and "recommending best practices to growers that can improve their sustainability and reduce their environmental impact"[cviii].

4. Disclosures

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

ASSESSMENT NOT ACHIEVED

Bayer states that it reports against some topic areas required by GRI 304. However, the company does not report against all topics, nor does it provide all details required by the topics it does report against, to be considered fully aligned with this standard[cix].

Bayer states that the company is working to regularly monitor, assess and disclose activities related to sustainability in accordance with Target 15[cx]. However, this is not embodied in a commitment, and the company has not committed to implement the TNFD framework.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

Bayer does not disclose this information.

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

ASSESSMENT NOT ACHIEVED

Bayer does not disclose this information.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

ASSESSMENT PARTLY ACHIEVED

Bayer publicly discloses summaries of safety studies for 32 active ingredients, however, this is a fraction of the active ingredients that the company produces[cxi]. Individuals can request summaries and full safety studies for any Bayer ingredients[cxii]. It is not clear if the summaries or the studies shared with requesting individuals include all studies submitted to regulators.

5. Product innovation

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

ASSESSMENT NOT ACHIEVED

Bayer states that it screens new substances for their environmental impact during the development process but has not disclosed a methodology or criteria for doing this[cxiii]. Bayer has not stated to what extent proposed solutions are assessed against the CP EIR methodology.

5.2 Expectation: The company has a target (such as sales, portion of product portfolio, or research and development spending) for expanding safer and sustainable alternatives.

ASSESSMENT NOT ACHIEVED

Bayer has not disclosed a target for expanding safer or sustainable alternatives.

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

ASSESSMENT NOT ACHIEVED

Bayer has not disclosed an approach to product innovation that includes this principle.

Corteva: Overview

Corteva, Inc. is a seed and agricultural chemicals company based in Indiana, USA. The company was created from a spinoff of major chemical company DowDuPont in 2019.

Market cap
$39.77 billion

2022 pesticide sales
$8.48 billion[cxiv]

Highly Hazardous Pesticides
≥28

Top-selling Highly Hazardous Pesticides in 2018
1) Cyproconazole 2) Chlorantraniliprole 3) Spinetoram 4) Glyphosate 5) Spinosad

EU-banned pesticides notified for export in 2018
17,133 tonnes

Product Portfolio	**E1.1** The company does not produce or sell any HHPs	Not achieved
	E1.2 The company does not sell EU-banned pesticides outside of Europe	Not assessed
Impact assessment	**E2.1** The company assesses biodiversity-related impacts, dependencies and risks	Partly achieved
	E2.2a The company uses a clearly defined methodology to assess downstream impact of all pesticide products	Partly achieved
	E2.2b The methodology was developed in partnership with and peer reviewed by independent experts	Not achieved
Biodiversity strategy	**E3.1** The company has a target that aligns with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	Not achieved
	E3.2 The company has a commitment to phase out HHPs by 2035	Not achieved
	E3.3 The company has a management plan for high-risk locations in its value chain	Partly achieved
	E3.4 The company has a biodiversity strategy that includes relevant targets and commitments	Partly achieved
Disclosures	**E4.1** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	Not achieved
	E4.2 The company publishes a list of active ingredients and discloses sales volumes of HHPs	Not achieved
	E4.3 The company discloses at-risk locations in its value chain, including areas of biodiversity importance	Not achieved
	E4.4 The company discloses toxicological studies of all active ingredients	Not achieved
Product innovation	**E5.1** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks	Partly achieved
	E5.2 The company has a target for expanding safer and sustainable alternatives	Achieved
	E5.3 The company's innovation practices include replacing hazardous products with lower risk alternatives	Not achieved

Corteva is the largest pesticide company in the United States. Despite its size and the high number of HHPs it produces, the company does not disclose a methodology it uses to assess the risks to or impacts on biodiversity from its pesticide products throughout its value chain. Corteva's strategy to address biodiversity loss, while focusing on product innovation, lacks clear plans to reduce the inherent risks its existing products pose to biodiversity.

INDICATORS OF PROGRESS

- **Product innovation:** Corteva has set criteria to guide its product innovation process and made a commitment that all new products will meet these criteria by 2025.

AREAS OF CONCERN

- **Impact assessment**: Corteva does not disclose a clearly defined impact assessment methodology used to assess the risks to and impacts on biodiversity from all its products throughout its value chain.
- **Biodiversity strategy**: Corteva has not committed to reduce the risks to or impacts on biodiversity from its product portfolio. Its only biodiversity-related commitment does not address the impact of pesticides, and the company does not specify how progress toward this commitment is measured, or what metrics are used.

Assessment

1. Product portfolio

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

Corteva produces at least 28 active ingredients that are Highly Hazardous Pesticides.

1.2 Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

ASSESSMENT NOT ASSESSED

Corteva is not incorporated in a country subject to European Union pesticide use restrictions. However, the company manufactures chemicals in the EU and is therefore subject to EU regulations on notifying the export of chemicals banned for use in the territory. In 2018, Corteva notified for export 17,133 tonnes of pesticides banned for use in the EU to other countries[cxv].

2. Impact assessment

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

ASSESSMENT PARTLY ACHIEVED

Corteva states that it assesses the environmental impacts of some pesticide products using a life cycle assessment (LCA)[cxvi]. However, the results of these assessments are not disclosed, and it is not clear how far this methodology calculates impact throughout the company's value chain. See Expectation 2.2a for more information.

The company states that "The S&I [Sustainability and Innovation] Committee oversees biodiversity-related risks and opportunities, with the responsibility to review and monitor Corteva Agriscience's biodiversity risks, plans, goals and targets, and progress against such goals and targets no less than annually on behalf of the Board"[cxvii]. However, the findings of this work are not disclosed.

Corteva does not disclose any assessment of pesticide-related dependencies.

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location-level.

ASSESSMENT PARTLY ACHIEVED

Corteva does not disclose an impact assessment methodology that assesses the biodiversity impact of all pesticide products.

The company states that it uses LCAs to "quantify environmental impacts throughout the value chain of a product or process". It is not clear to what extent this approach considers the inherent biodiversity risks of its products and how those risks may materialise in the company's value chain.

It is also not clear to what extent this approach considers all relevant biomes and material species, or if it considers location-level impacts of products in at-risk areas: the company states that its assessment is based on meta-analysis, laboratory and field studies and local on-farm testing[cxviii].

Additionally, Corteva states that this approach is used to "understand the impact of select products", indicating that it may not be applied to all products[cxix].

Corteva uses its sustainable innovation criteria to assess sustainability of new products, which includes biodiversity-related criteria. See Expectation 5.1 for information on this methodology.

2.2b Expectation: The company's methodology for impact assessment was developed in partnership with, and peer reviewed by, independent subject-matter experts, as evidenced by a disclosure of the company's relationship and the nature of collaboration with all experts involved.

ASSESSMENT NOT ACHIEVED

Corteva does not disclose a methodology to assess the biodiversity impact of all its products. Regarding its LCA approach, the company states that the "LCA team will continue to partner with external consultants and stakeholders to provide the analysis and insights needed to achieve targets and further quantify the environment impact of our sustainable differentiated products"[cxx]. However, the company does not disclose any additional information about these experts or their role in developing the company's environmental impact assessment approach. The company does not disclose whether its sustainable innovation criteria have been developed with or reviewed by independent subject-matter experts.

3. Biodiversity strategy

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

ASSESSMENT NOT ACHIEVED

Corteva's biodiversity-related commitments and targets do not align with GBF Target 7. The company has one commitment related to biodiversity:

- Support biodiversity and outcomes aligned to regenerative agriculture on 25 million acres in biomes where the company works and sells its products by 2030.

The company set targets in 2020 for improving soil health and enhancing biodiversity on grazing lands and natural ecosystems[cxxi]. However, it no longer states that these are targets and they did not appear in its sustainability reports in 2021[cxxii] and 2022[cxxiii].

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

ASSESSMENT NOT ACHIEVED

Corteva has not disclosed a commitment to phase out production of HHPs.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

ASSESSMENT PARTLY ACHIEVED

Corteva has not disclosed a management plan for locations in its downstream value chain that are at medium or high risk of pesticide-related biodiversity loss.

Corteva states that its biodiversity 'Area of Focus' includes "Efforts to reduce environmental impacts through agronomic best practices and investment in preventing future land-use change in **sensitive areas**"[cxxiv]. This is also included in the company's Sustainable Innovation

Criteria for new products, which the company states should "prioritise conservation in **eco-sensitive areas**"[cxxv].

The company does not disclose how sensitive areas are identified, if Corteva products are currently used in these areas, or if its management plan includes restricting or reducing the use of pesticides in these areas.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

ASSESSMENT PARTLY ACHIEVED

The company's goal to help "support biodiversity and outcomes aligned to regenerative agriculture on 25 million acres in biomes where we work and sell our products by 2030" guides the company's biodiversity strategy. Corteva intends to accomplish this through new products and systems, improved genetic gain and yield protection, partnerships to support conservation and restoration of land, and more favourable biodiversity practices at facilities and production fields[cxxvi].

However, the company does not state how it measures progress against this goal, including the metrics it uses to assess "biodiversity and outcomes aligned to regenerative agriculture". Corteva has not disclosed any progress it may have achieved since this goal was set.

4. Disclosures

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

ASSESSMENT NOT ACHIEVED

Corteva states that it reports against only one of the four topics required for disclosure by GRI 304[cxxvii].

Corteva has not committed to align with or report against the TNFD framework or the GBF Target 15.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

Corteva does not disclose this information.

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

ASSESSMENT NOT ACHIEVED

Corteva does not disclose this information.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

ASSESSMENT NOT ACHIEVED

Corteva does not disclose any studies of its active ingredients.

5. Product innovation

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

ASSESSMENT PARTLY ACHIEVED

Corteva assesses products in development according to its sustainability criteria, which are based on the United Nations Sustainable Development Goals[38]. The criteria related to biodiversity include "improve soil quality and restore degraded land" and "protect biodiversity and ecosystems"[cxxviii]. In 2021, the company identified the metrics used to assess products against these criteria, which include ensuring that new solutions have less environmental persistence and reduce risk to non-target organisms relative to at least one target benchmark product[cxxix].

New products do not have to meet biodiversity-related criteria to be developed or to be considered 'sustainable'. They must only meet "baseline requirements and deliver at least one notable sustainability advantage while maintaining parity compared to other products in the market today"[cxxx]. Corteva does not disclose baseline requirements.

The presence of indicators enabling Corteva to partly achieve this expectation – namely, the metrics used to assess product risk to biodiversity – is based on information provided in the company's 2021 Sustainability and ESG Report. This information is absent from subsequent annual sustainability reports. The company has informed ShareAction directly that this information remains part of its innovation practices.

5.2 Expectation: The company has a target (such as sales, portion of product portfolio, or research and development spending) for expanding safer and sustainable alternatives.

ASSESSMENT ACHIEVED

Corteva has committed to every new product meeting its sustainability criteria by 2025[cxxxi].

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

ASSESSMENT NOT ACHIEVED

While Corteva compares new products with benchmark products, it has not publicly stated that these benchmark products are replaced with better performing products.

[38] Sustainable Development Goal 15 is to 'Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'.

FMC Corporation: Overview

FMC Corporation (FMC) is an agricultural chemicals company based in Pennsylvania, USA.

Market cap
$11.76 billion

2022 pesticide sales
$5.38 billion[cxxxii]

Highly Hazardous Pesticides
≥29

Top-selling Highly Hazardous Pesticides in 2018
1) Chlorantraniliprole 2) Bifenthrin 3) Carbosulfan 4) Malathion 5) Indoxacarb

EU-banned pesticides notified for export in 2018
10.16 tonnes (via Cheminova)

Product Portfolio	**E1.1** The company does not produce or sell any HHPs	Not achieved
	E1.2 The company does not sell EU-banned pesticides outside of Europe	Not assessed
Impact assessment	**E2.1** The company assesses biodiversity-related impacts, dependencies and risks	Not achieved
	E2.2a The company uses a clearly defined methodology to assess downstream impact of all pesticide products	Not achieved
	E2.2b The methodology was developed in partnership with and peer reviewed by independent experts	Not achieved
Biodiversity strategy	**E3.1** The company has a target that aligns with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	Not achieved
	E3.2 The company has a commitment to phase out HHPs by 2035	Not achieved
	E3.3 The company has a management plan for high-risk locations in its value chain	Partly achieved
	E3.4 The company has a biodiversity strategy that includes relevant targets and commitments	Not achieved
Disclosures	**E4.1** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	Not achieved
	E4.2 The company publishes a list of active ingredients and discloses sales volumes of HHPs	Partly achieved
	E4.3 The company discloses at-risk locations in its value chain, including areas of biodiversity importance	Not achieved
	E4.4 The company discloses toxicological studies of all active ingredients	Not achieved
Product innovation	**E5.1** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks	Partly achieved
	E5.2 The company has a target for expanding safer and sustainable alternatives	Achieved
	E5.3 The company's innovation practices include replacing hazardous products with lower risk alternatives	Achieved

FMC is the fifth largest pesticide-producing company in the world and produces a high number of HHPs. FMC is the only company among those assessed that acknowledges the risks of HHPs and takes steps to mitigate these risks, although FMC identifies HHPs internally and not according to PAN's list. Despite FMC's good performance in sustainable innovation practices, the company does not appear to have any formal structures, such as impact assessment methodologies, commitments, strategies or disclosure practices, in place to guide efforts to address biodiversity loss.

INDICATORS OF PROGRESS

- **Product innovation**: FMC's sustainable innovation practices include replacing products with more sustainable alternatives. The company has also referenced its efforts to identify and phase out HHPs.
- **Biodiversity strategy**: FMC states that it undertakes risk assessments and product stewardship programmes to safely manage the use of HHPs in specific countries.

AREAS OF CONCERN

- **Biodiversity strategy**: FMC does not appear to have a clear strategy to address pesticide-related biodiversity loss and has no commitments or targets relevant to biodiversity.
- **Impact assessment**: FMC does not indicate that it assesses the biodiversity impacts on or risks to biodiversity from all pesticide products throughout its value chain, nor does it disclose a methodology to do so.

Assessment

1. Product portfolio

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

FMC produces at least 29 active ingredients that are Highly Hazardous Pesticides[39].

1.2. Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

ASSESSMENT NOT ASSESSED

FMC is not incorporated in a country subject to European Union pesticide use restrictions. However, the company's subsidiary Cheminova manufactures chemicals in the EU and is therefore subject to EU regulations on notifying the export of chemicals banned for use in the territory. In 2018, Cheminova notified for export 10.16 tonnes of pesticides banned for use in the EU to other countries[cxxxiii].

[39] The company has stated that HHPs accounted for less 0.2 per cent of its 2022 sales, however, it is not clear which pesticides the company considers to be HHPs and whether these align with PAN's list.

2. Impact assessment

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

ASSESSMENT NOT ACHIEVED

There is no indication that FMC assesses its pesticide-related impacts or dependencies on biodiversity.

The company states that it "continuously monitors risks and issues related to biodiversity…", however, additional information or findings of this process are not disclosed[cxxxiv].

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location-level.

ASSESSMENT NOT ACHIEVED

FMC does not disclose an impact assessment methodology to assess impact on biodiversity from all pesticide products.

FMC assesses potential risks of new products to biodiversity using its Sustainability Assessment Tool[cxxxv]. See Expectation 5.1 for more information on this methodology.

2.2b Expectation: The company's methodology for impact assessment was developed in partnership with, and peer reviewed by, independent subject-matter experts, as evidenced by a disclosure of all relevant details of the company's relationship and the nature of collaboration with all experts involved.

ASSESSMENT NOT ACHIEVED

FMC does not appear to have a methodology to assess the biodiversity impact of all its products. The company does not indicate that its Sustainability Assessment Tool has been developed with or reviewed by independent experts.

3. Biodiversity strategy

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

ASSESSMENT NOT ACHIEVED

FMC does not have any commitments and targets that align with GBF Target 7.

FMC has committed not to develop any new HHPs, which the company identifies based on FAO/WHO criteria[40]. This commitment, while presented under the company's 'Biodiversity' issue focus[cxxxvi], is excluded from the 'Environmental Goals' that guide the company's sustainability strategy[cxxxvii]. The company reports progress on this commitment: in 2020 and 2021, HHPs accounted for around 0.4 per cent of company sales[cxxxviii],[cxxxix]; in 2022, HHPs accounted for around 0.2 per cent of company sales[cxl].

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

ASSESSMENT NOT ACHIEVED

FMC states: "we continue to actively review our portfolio according to the FAO process, taking action to phase out newly identified HHPs where alternatives exist." The company has committed to not develop any new HHPs[cxli].

However, FMC has not made any formal or time-bound commitment to phase out HHPs.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

ASSESSMENT PARTLY ACHIEVED

FMC states that, where no effective alternatives to HHPs exist, the company undertakes risk assessments and product stewardship programmes for remaining HHP products in specific countries so they can be managed safely. FMC does not disclose which locations this includes, and if they have been identified as at-risk locations, nor does the company disclose details of its risk assessments and product stewardship programmes[cxlii].

[40] It is not clear if FMC's identified HHPs align with those on PAN's list.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

ASSESSMENT NOT ACHIEVED.

FMC does not appear to have a strategy to address biodiversity loss.

Biodiversity is referenced in the company's 'global sustainability platform', called 'Greater Than Green', which aims to "enhance soil health, crop nutrition and biodiversity on the farm to ensure healthy, resilient and productive harvests". However, biodiversity is not included in any of the platform's stated goals, which focus on energy, water, and waste[cxliii].

4. Disclosures

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

ASSESSMENT NOT ACHIEVED

FMC states that it reports against some topic areas required by GRI 304. However, the company does not report against all topics, nor does it provide all details required by the topics it does report against, to be considered fully aligned with this standard .
FMC has not committed to align with or report against the TNFD framework or GBF Target 15.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

ASSESSMENT PARTLY ACHIEVED

FMC does not publish an exhaustive list of active ingredients or annual sales volumes of HHPs. However, it does report the share of annual sales revenue attributed to HHPs it has identified in its product portfolio (see Expectation 3.1a).

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

ASSESSMENT NOT ACHIEVED

FMC does not disclose this information.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

ASSESSMENT NOT ACHIEVED

FMC does not disclose any studies of its active ingredients.

5. Product innovation

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

ASSESSMENT PARTLY ACHIEVED

FMC uses the Sustainability Assessment Tool to identify sustainability issues with products in development. The Tool includes a category on 'Environmental Consciousness' comprised of nine criteria relevant to the product's impact on biodiversity[cxliv]. These criteria include many risk-based indicators, including ecotoxicity, risk to material species, and compatibility with precision farming.

It is not clear how many 'Environmental Consciousness' criteria a product must meet to be considered to positively impact 'Environmental Consciousness'. Products do not have to positively impact 'Environmental Consciousness' to be considered 'sustainable' or to progress through the development process: they must only perform better than a benchmark product in one of six Global Challenges assessed by the tool.

5.2 Expectation: The company has a target (such as sales, portion of product portfolio, or research and development spending) for expanding safer and sustainable alternatives.

ASSESSMENT ACHIEVED

The company has committed to spend its entire research and development budget on 'sustainably advantaged products' by 2025; this refers to those that outperform benchmark products according to the company's Sustainability Assessment Tool[cxlv].

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

ASSESSMENT ACHIEVED

This principle is built into FMC's Sustainability Assessment Tool. The company advises "using a commercial product or products as benchmarks that the development product is designed to replace". It is not clear whether, in practice, this has led to replacing the benchmark product in all cases.

Syngenta: Overview

Syngenta AG is a seed and agricultural chemicals company based in Basel, Switzerland. The company is owned by ChemChina and is not publicly listed.

Market cap
Syngenta is a private company and does not have a market cap. The company's sales revenue in 2022 was $33.4 billion[cxlvi].

2022 pesticide sales
$16.14 billion[cxlvii]

Highly Hazardous Pesticides
≥50

Top-selling Highly Hazardous Pesticides in 2018
1) Thiamethoxam 2) Lamba-Cyhalothrin 3) Glyphosate 4) Paraquat 5) Chlorantraniliprole

EU-banned pesticides notified for export in 2018
66,411 tonnes[cxlviii]

Product Portfolio	**E1.1** The company does not produce or sell any HHPs	Not achieved
	E1.2 The company does not sell EU-banned pesticides outside of Europe	Not achieved
Impact assessment	**E2.1** The company assesses biodiversity-related impacts, dependencies and risks	Not achieved
	E2.2a The company uses a clearly defined methodology to assess downstream impact of all pesticide products	Not achieved
	E2.2b The methodology was developed in partnership with and peer reviewed by independent experts	Not achieved
Biodiversity strategy	**E3.1** The company has a target that aligns with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	Not achieved
	E3.2 The company has a commitment to phase out HHPs by 2035	Not achieved
	E3.3 The company has a management plan for high-risk locations in its value chain	Not achieved
	E3.4 The company has a biodiversity strategy that includes relevant targets and commitments	Achieved
Disclosures	**E4.1** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	Not achieved
	E4.2 The company publishes a list of active ingredients and discloses sales volumes of HHPs	Not achieved
	E4.3 The company discloses at-risk locations in its value chain, including areas of biodiversity importance	Not achieved
	E4.4 The company discloses toxicological studies of all active ingredients	Not achieved
Product innovation	**E5.1** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks	Not achieved
	E5.2 The company has a target for expanding safer and sustainable alternatives	Achieved
	E5.3 The company's innovation practices include replacing hazardous products with lower risk alternatives	Not achieved

Syngenta poses significant risks to biodiversity through its product portfolio by producing a high number of HHPs and exporting considerably more pesticides banned for use in the EU outside of Europe than any other assessed company. Syngenta is transparent regarding its biodiversity-related targets, metrics, and data used to assess progress, however, none of these commitments aim to reduce the biodiversity-related impacts or risks of Syngenta's products, nor does the company appear to assess the effects of its products on biodiversity throughout its value chain.

INDICATORS OF PROGRESS

- **Biodiversity strategy**: Syngenta provides detailed methodologies, metrics and data regarding its existing biodiversity commitments. This indicates it has the capacity to assess and disclose against more effective commitments to reduce the risks of pesticide products.
- **Product innovation**: Syngenta has set targets for investing in sustainable solutions.

AREAS OF CONCERN

- **Product portfolio**: Syngenta produces over 50 HHPs and, in 2018, planned to export 66,411 tonnes of pesticides banned for use in the EU – this is over 20 times the amount notified by the next largest EU-based exporter company assessed (Bayer).
- **Impact assessment**: Syngenta does not disclose a methodology to assess the impacts on or risks to biodiversity from all pesticide products throughout its value chain.
- **Product innovation**: Syngenta does not disclose how it assesses biodiversity-related risks of new products using its Sustainability Investment Criteria, and this framework does not include replacing hazardous products with alternatives.

Assessment

1. Product portfolio

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

Syngenta produces at least 50 active ingredients that are Highly Hazardous Pesticides.

1.2 Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

ASSESSMENT NOT ACHIEVED

In 2018, Syngenta notified for export 66,411 tonnes of pesticides banned for use in the EU to other countries.

2. Impact assessment

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

ASSESSMENT NOT ACHIEVED

Syngenta does not publicly state whether it assesses pesticide-related impacts, dependencies or risks to biodiversity.

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location-level.

ASSESSMENT NOT ACHIEVED

Syngenta does not disclose an impact assessment methodology that it uses to assess the biodiversity impact of its pesticide products.

Syngenta's Sustainability Investment Criteria includes biodiversity-related criteria, but is only applied to products in development[cxlix]. See Expectation 5.1 for more information on this methodology.

2.2b Expectation: This methodology was developed in partnership with, and peer reviewed by, independent experts, as evidenced by a disclosure of all relevant details of the company's relationship and the nature of collaboration with all experts involved.

ASSESSMENT NOT ACHIEVED

Syngenta does not appear to have a methodology to assess the biodiversity impact of all its products. The company does not indicate whether its Sustainability Investment Criteria have been developed with or reviewed by independent experts.

3. Biodiversity strategy

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

ASSESSMENT NOT ACHIEVED

Syngenta's targets do not align with GBF Target 7.

Syngenta's biodiversity-related targets include:

- Strive for the lowest residues in crops and the environment
- Enhance biodiversity and soil health on three million hectares of rural farmland every year.

Syngenta discloses methodologies for measuring progress against these targets and discloses relevant data[ch].

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

ASSESSMENT NOT ACHIEVED

Syngenta has not disclosed a commitment to phase out production of HHPs.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

ASSESSMENT NOT ACHIEVED

Syngenta has not disclosed a management plan to protect locations in its value chain at medium or high risk of biodiversity loss from pesticide use.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

ASSESSMENT ACHIEVED

Syngenta's Good Growth Plan includes accelerating innovation for farmers and nature; striving for carbon neutral agriculture; helping people stay safe and healthy; and partnering for impact. The strategy has clear targets with precise methodologies, against which progress is reported[ci].

4. Disclosures

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

ASSESSMENT NOT ACHIEVED

Syngenta states that it reports against only one of the four topics required for disclosure by GRI 304[cli].

Syngenta has not committed to align with or report against the TNFD framework or GBF Target 15.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

Syngenta does not disclose this information.

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

ASSESSMENT NOT ACHIEVED

Syngenta does not disclose this information.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

ASSESSMENT NOT ACHIEVED

Syngenta provides contact information through which individuals can request access to safety data[cliii]. However, the company does not publicly disclose any studies or summaries of studies of its active ingredients.

5. Product innovation

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

ASSESSMENT NOT ACHIEVED

Syngenta uses its Sustainability Investment Criteria to assess whether its investments constitute 'sustainable agriculture breakthroughs'[cliv].

Through this process, Syngenta assesses how potential investments perform against five outcomes, including the biodiversity-related outcomes 'improve soil health and support climate smart agriculture' and 'protect natural resources'. Syngenta does not disclose the metrics that are used to assess how products achieve these outcomes. As a result, it is not clear whether this process considers inherent risks that proposed solutions pose to biodiversity.

Investments only need to meet one of the five 'breakthrough outcomes' to be considered 'breakthrough' investments, which contributes to Syngenta's sustainable agriculture breakthroughs target (see Expectation 5.2). For this reason, the company does not appear to ensure that all proposed investments pose the lowest possible risks to biodiversity.

5.2 Expectation: The company has a target (such as sales, portion of product portfolio, or research and development spending) for expanding safer and sustainable alternatives.

ASSESSMENT ACHIEVED

Syngenta has committed to:

- Invest $2 billion in sustainable agriculture breakthroughs
- Deliver two new sustainable technology breakthroughs per year[clv].

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

ASSESSMENT NOT ACHIEVED

This principle is not included in Syngenta's Sustainability Investment Criteria.

UPL: Overview

UPL Limited is an agricultural and industrial chemicals company based in Mumbai, India. The company mostly produces and sells post-patent (generic) pesticide products.

Market cap
₹ 470.23 billion ($5.71 billion)

2022 pesticide sales
₹ 36,300 crore ($4.38 billion)[clvi]

Highly Hazardous Pesticides
≥115

Top-selling Highly Hazardous Pesticides in 2018
No data

EU-banned pesticides notified for export in 2018
10,131 tonnes (via Arysta LifeScience)

Product Portfolio	**E1.1** The company does not produce or sell any HHPs	Not achieved
	E1.2 The company does not sell EU-banned pesticides outside of Europe	Not assessed
Impact assessment	**E2.1** The company assesses biodiversity-related impacts, dependencies and risks	Not achieved
	E2.2a The company uses a clearly defined methodology to assess downstream impact of all pesticide products	Not achieved
	E2.2b The methodology was developed in partnership with and peer reviewed by independent experts	Not achieved
Biodiversity strategy	**E3.1** The company has a target that aligns with GBF Target 7 to reduce pesticide risks to biodiversity by half by 2030	Not achieved
	E3.2 The company has a commitment to phase out HHPs by 2035	Not achieved
	E3.3 The company has a management plan for high-risk locations in its value chain	Not achieved
	E3.4 The company has a biodiversity strategy that includes relevant targets and commitments	Not achieved
Disclosures	**E4.1** The company fully reports against GRI 304 and has committed to align with the TNFD and GBF Target 15	Not achieved
	E4.2 The company publishes a list of active ingredients and discloses sales volumes of HHPs	Not achieved
	E4.3 The company discloses at-risk locations in its value chain, including areas of biodiversity importance	Not achieved
	E4.4 The company discloses toxicological studies of all active ingredients	Not achieved
Product innovation	**E5.1** The company assesses inherent risks of new solutions and ensures they pose lowest possible risks	Not achieved
	E5.2 The company has a target for expanding safer and sustainable alternatives	Not achieved
	E5.3 The company's innovation practices include replacing hazardous products with lower risk alternatives	Not achieved

UPL produces and sells the highest number of HHPs of all companies assessed[41]. However, it does not appear to have any strategy, targets or methodologies focused on assessing or acting on biodiversity loss from its pesticide products, nor does the company have any established frameworks that guide sustainable solutions development. While UPL is small compared to other assessed companies, it is the largest pesticide producer in India.

[41] The total volume sold is likely to be lower than that of other assessed companies, as UPL has the lowest annual pesticides sales of all companies.

INDICATORS OF PROGRESS

- None

AREAS OF CONCERN

- **Product portfolio**: UPL produces and sells the highest number of HHPs of all assessed companies.
- **Biodiversity strategy**: UPL does not disclose a strategy to address pesticide-related biodiversity loss, nor does it have commitments or targets relevant to biodiversity.
- **Impact assessment**: UPL does not disclose a methodology to assess the biodiversity-related impacts or risks posed by its pesticide products.

Assessment

1. Product portfolio

1.1 Expectation: The company does not produce any products with active ingredients that appear in Pesticide Action Network's list of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

UPL produces or sells at least 115 active ingredients that are HHPs[clvii].

1.2 Expectation: If the company is incorporated in a country subject to European Union pesticide use restrictions, it does not sell pesticides that are banned for use in the EU to other countries.

ASSESSMENT NOT ASSESSED.

UPL is not incorporated in a country subject to European Union pesticide use restrictions. However, the company's subsidiary Arysta LifeScience manufactures chemicals in the EU and is therefore subject to EU regulations on notifying the export of chemicals banned for use in the territory. In 2018, Arysta notified for export 10,131 tonnes of pesticides banned for use in the EU to other countries[clviii].

2. Impact assessment

2.1 Expectation: The company assesses its pesticide-related impacts and dependencies on biodiversity, and the risks arising from these, across its full value chain, including downstream impacts.

ASSESSMENT NOT ACHIEVED

UPL states that the company "works with experts to assess the impact of its operations on biodiversity as a part of its environmental impact assessment process and takes steps to reduce any negative effects"[clix]. However, it does not specify if this includes the assessment of pesticide-related impacts throughout the company's value chain. It does not disclose details about this process or its outcomes[42].

The company does not indicate that it assesses pesticide-related risks or dependencies[clx].

2.2a Expectation: The company uses a clearly defined methodology to assess its impact on biodiversity from all pesticide products, which includes considering how inherent risks of a product materialise throughout the company's value chain and impact biodiversity at the location-level.

ASSESSMENT NOT ACHIEVED

UPL does not disclose a methodology it uses to assess the biodiversity impact of its pesticide products.

2.2b Expectation: The company's methodology for impact assessment was developed in partnership with, and peer reviewed by, independent subject-matter experts, as evidenced by a disclosure of all relevant details of the company's relationship and the nature of collaboration with all experts involved.

ASSESSMENT NOT ACHIEVED

UPL does not disclose a methodology it uses to assess the biodiversity impact of its pesticide products.

[42] The company has stated in conversations with ShareAction that it is in the process of conducting life cycle assessments, but these do not include biodiversity.

3. Biodiversity strategy

3.1 Expectation: In alignment with the Global Biodiversity Framework's Target 7, the company has commitments and targets that seek to reduce the company's impact on or risk to biodiversity from its pesticide products by 50 per cent by 2030.

ASSESSMENT NOT ACHIEVED

UPL's commitments and targets do not align with GBF Target 7.

UPL has committed to "achieve Net Positive Impact on biodiversity across our company's value chain by 2030"[clxi]. The company has not specified how this will be achieved or how progress will be measured.

3.2 Expectation: The company has committed to phase out production of Highly Hazardous Pesticides by 2035.

ASSESSMENT NOT ACHIEVED

UPL has not publicly committed to phase out production of HHPs.

3.3 Expectation: The company has a management plan for locations within its downstream value chain that are at medium or high risk of negative biodiversity impacts from pesticide use, including areas of biodiversity importance. This plan includes restricting sales of some products to at-risk locations.

ASSESSMENT NOT ACHIEVED

UPL has not disclosed a management plan to protect locations in its value chain at medium or high risk of biodiversity loss from pesticide use.

3.4 Expectation: The company has a clear biodiversity strategy, which sets out how it will meet biodiversity-related commitments and targets.

ASSESSMENT NOT ACHIEVED

UPL has not disclosed a strategy to address biodiversity loss. The company has a Biodiversity Policy; however, this does not reference the impact on biodiversity of the company's pesticide products. It focuses primarily on environmental stewardship around production facilities that it owns and operates[clxii].

4. Disclosures

4.1 Expectation: The company's biodiversity disclosures fully align with standards set by the Global Reporting Initiative 304 guidance on biodiversity. The company has committed to implement the disclosure framework set by the Taskforce for Nature-related Financial Disclosures and to report biodiversity-related impacts, dependencies and risks in alignment with Global Biodiversity Framework Target 15.

ASSESSMENT NOT ACHIEVED

UPL states that it reports against some topic areas required by GRI 304. However, the company does not report against all topics, nor does it provide all details required by the topics it does report against, to be considered fully aligned with this standard.

UPL has not committed to align with or report against the TNFD framework or GBF Target 15.

4.2 Expectation: The company publishes an exhaustive list of active ingredients included in its products and discloses annual sales volumes of Highly Hazardous Pesticides.

ASSESSMENT NOT ACHIEVED

UPL does not disclose this information.

4.3 Expectation: The company discloses locations where its pesticide products are used that have been identified as at-risk, including those at medium or high risk of negative biodiversity impacts from pesticide use and those in or near areas of biodiversity importance.

ASSESSMENT NOT ACHIEVED

UPL does not disclose this information.

4.4 Expectation: The company discloses toxicological studies of all active ingredients included in its product portfolio, including all studies submitted to regulators for product approval.

ASSESSMENT NOT ACHIEVED

UPL does not disclose any studies of its active ingredients.

5. Product innovation

5.1 Expectation: The company assesses the inherent risks of proposed agricultural solutions or those in development and ensures all new solutions pose the lowest possible risks to biodiversity.

ASSESSMENT NOT ACHIEVED

UPL does not indicate that it assesses the biodiversity risks of proposed alternative solutions or ensures that they pose the lowest possible risks to biodiversity.

5.2 Expectation: The company has a target (such as sales, portion of product portfolio, or research and development spending) for expanding safer and sustainable alternatives.

ASSESSMENT NOT ACHIEVED

UPL has not published any targets for expanding safer and sustainable alternatives.

5.3 Expectation: The company's innovation practices explicitly include replacing hazardous products with lower risk alternatives.

ASSESSMENT NOT ACHIEVED

UPL does not appear to have a methodology, criteria or policy around sustainable innovation that includes this principle.

Conclusion and Investor Recommendations

Conclusion and Investor Recommendations

The six companies ShareAction assessed must urgently improve their approach to addressing pesticide-related biodiversity loss. Given their dominance within the global pesticides market, transformation within these six companies will result in major progress toward tackling this issue. As the owners and financiers of these companies, and under increasing pressure to address their own impacts on biodiversity, investors can and must play a role in pushing for these changes.

There are numerous areas where companies must improve, as evidenced by their failure to meet most expectations in our assessment. These engagement questions are designed to push companies toward improved performance in the most vital areas. Achievement of these investor expectations can put companies on a path to transitioning their business models and can drastically improve company accountability for the effects their products have on the natural world.

The most important changes that every company needs to make are covered by the first set of engagement questions below. Each question has a set of Indicators against which its progress can be judged. These are followed by company-specific questions to address shortcomings in each company's approach to biodiversity.

Please refer to the assessment framework methodology on page 18 for important contextual information behind these engagement questions.

Engagement questions

Engagement questions for all six companies

1. **Will the company establish and measure progress against commitments and targets that aim to reduce the risks of its pesticide products by 50 per cent by 2030, in line with the Kunming-Montreal Global Biodiversity Framework's Target 7?**
   a. **Indicator:** The company publicly discloses a target aligned with this ambition and a clear approach for measuring progress toward this goal.
   b. **Indicator:** The company commits to phase out HHPs from its product portfolio by 2035.
   c. **Indicator:** To address the downstream impacts of pesticides throughout its value chain, the company develops management plans for at-risk locations to reduce the likelihood of negative biodiversity impact from all company products.

2. **Will the company assess and disclose biodiversity-related impacts, dependencies and risks that result from all its pesticide products, in line with the Taskforce for Nature-related Financial Disclosures, Global Biodiversity Framework Target 15, and Global Reporting Initiative 304-2?**
   a. **Indicator**: The company has an impact assessment methodology that considers how inherent risks of all products materialise throughout the company's value chain, including in at-risk locations, biomes, and species. The company discloses the outcomes of this assessment.
   b **Indicator**: The company assesses and discloses its material dependencies on biodiversity.
   c **Indicator**: The company includes biodiversity in all risk monitoring activities.

3. **Will the company develop a transition plan and product stewardship strategy to address the risks that Highly Hazardous Pesticides pose to biodiversity and human health?**
   a. **Indicator:** The company commits to phase out HHPs from its product portfolio by 2035.
   b. **Indicator:** The company includes a principle in its product innovation practices to replace HHPs in its portfolio with lower risk alternatives.
   c. **Indicator:** The company develops management plans to reduce the use of HHPs in at-risk locations in its value chain.

Company-specific engagement questions

BASF

1. Will BASF disclose a clear methodology for assessing the biodiversity risks and impacts of products within the TripleS approach, including metrics used to assess achievement of biodiversity outcomes?
2. Will BASF assess the biodiversity risks of proposed solutions against benchmark products, and agree to phase out benchmark products that pose higher risks to biodiversity?

Bayer

1. Will Bayer expand the scope of the Crop Protection Environmental Impact Reduction methodology to include all relevant biomes, material species and impacts on at-risk locations in its value chain?
2. Will Bayer assess the biodiversity risks of proposed solutions against benchmark products, and agree to phase out benchmark products that pose higher risks to biodiversity?

Corteva

1. Will Corteva agree to phase out benchmark products that pose higher risks to biodiversity than proposed alternatives through its product innovation process?
2. Will Corteva disclose the methodology it uses, including all metrics, to measure progress against its existing biodiversity target?

FMC

1. Will FMC establish a clear strategy for addressing biodiversity loss, including setting biodiversity-related commitments to reduce product impact, and develop a plan for achieving these goals?
2. Will FMC disclose the locations and product stewardship plans in place for locations in its value chain where HHPs are used?

Syngenta

1. Will Syngenta publish a list of all the active ingredients it produces and disclose its annual sales volumes of HHPs?
2. Will Syngenta agree to compare proposed solutions assessed in its Sustainability Investment Criteria against benchmark products, and to phase out benchmark products that pose higher risks to biodiversity?

UPL

1. Will UPL establish a clear strategy for addressing biodiversity loss from its pesticide products, including setting biodiversity-related commitments to address product impact, and develop a plan for achieving these goals?
2. Will UPL assess the biodiversity risks of proposed solutions against benchmark products and agree to phase out the sale and production of benchmark products that pose higher risks to biodiversity?

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About ShareAction

ShareAction is a NGO working globally to define the highest standards for responsible investment and drive change until these standards are adopted worldwide. We mobilise investors to take action to improve labour standards, tackle climate change and address pressing global health issues. Over 15 years, ShareAction has used its powerful toolkit of research, corporate campaigns, policy advocacy and public mobilisation to drive responsibility into the heart of mainstream investment. Our vision is a world where the financial system serves our planet and its people.

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EU Transparency Register number: 75791956264-20