



MEASURING THE IMPACT OF AGRICULTURAL SUPPLY CHAINS ON BIODIVERSITY

A corporate needs assessment



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About this working paper

This joint effort was brought together through the Aligning Biodiversity Measures for Business collaboration.



The EU Business @ Biodiversity Platform

The EU Business @ Biodiversity Platform provides a unique forum for dialogue and policy interface to discuss the links between business, finance and biodiversity at EU level. It was set up by the European Commission with the aim to work with and help businesses integrate natural capital and biodiversity considerations into business practices. It has been recognised for its role as independent, neutral and objective sounding board for assessing and centralising available biodiversity measurement approaches. Through the European Business & Nature Summit (EBNS), it also aims to act as a catalyst for action on biodiversity by corporates.

The TRADE Hub

The UKRI GCRF Trade, Development and the Environment (TRADE) Hub, led by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) operates as a research consortium with over 50 organisations from 15 different countries, to help make trade sustainable for people and the planet. A major research component is the investigation of trends and impacts of trade in agricultural commodities. The TRADE Hub is actively engaging the private sector to ensure that key supply chain actors have a direct role in shaping research outputs and solutions.

Authors: Sharon Brooks, Julie Dimitrijevic, Kim Dunn, Kiran Sehra, Yann Verstraeten
Reviewers: Annelisa Grigg, Matt Jones, Johan Lammerant

Executive Summary

Businesses with agricultural supply chains depend on and impact biodiversity, both directly through their activities and indirectly through their supply chains and there is growing momentum to better assess and manage these relationships with nature. However, the business community is facing challenges in measuring their biodiversity performance and keeping track of the rapidly evolving landscape of biodiversity measurement approaches for business, which increases confusion amongst many corporates around their specific applications.

The TRADE Hub, and the EU B@B Platform of the European Commission have come together to support industry, scientists and practitioners to assess the challenges and potential solutions for measuring and disclosing biodiversity impacts and dependencies of companies with agricultural supply chains. This working paper compiles the findings of a corporate needs assessment that consisted of a survey and interviews with companies and a multi-stakeholder workshop.

The overall perception of companies is that measuring biodiversity impacts is complex and raises many questions including: how to measure, where to start, when to combine different approaches and metrics, how to aggregate results, and how results can inform action.

The study highlighted six main challenges faced by companies attempting to measure their relationship with biodiversity:

- Lack of capacity and understanding to implement existing measurement approaches
- Lack of approaches to measure impacts directly and heavy reliance on proxies
- Lack of evidence of application
- Lack of access to biodiversity data by business
- Few measurement approaches to track targets
- Difficulty interpreting and aggregating results

This review and consultation identified an initial set of solutions that could make progress in applying biodiversity measurement along agricultural supply chains: (1) alignment across existing approaches and (2) guidance on how to navigate through those approaches were identified as the most pressing solutions followed by (3) training on how to use the different methods and (4) improved data availability. This working paper further discusses how alignment in terms of input data, presentation of outputs and how they could inform action could help the uptake of biodiversity indicators, metrics and tools by companies with agricultural supply chains. Finally, by providing the outputs of consultations, this working paper lays the foundation for the development of guidance that could offer a relatively 'quick win' to improve corporate measurement of biodiversity.



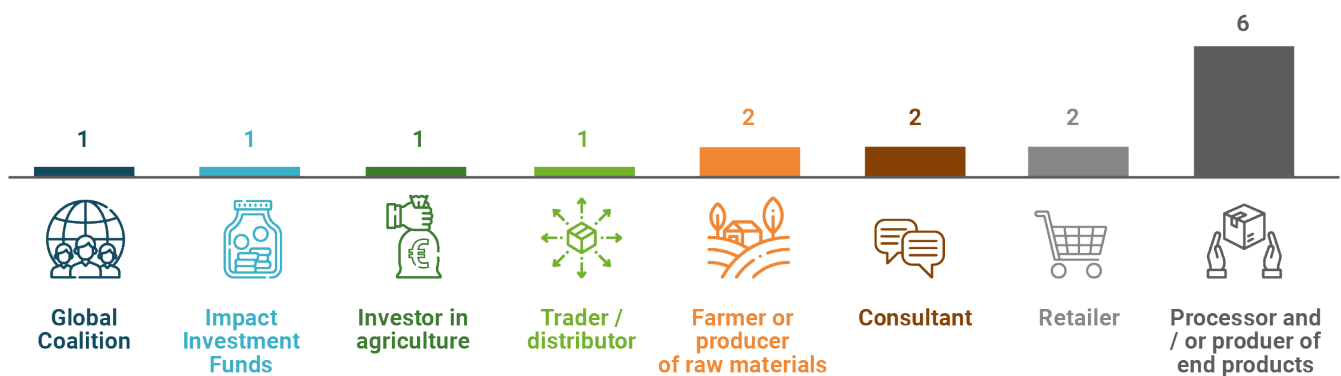
Introduction

This working paper highlights the business needs for improving the measurement of impacts and dependencies on biodiversity by companies with agricultural supply chains, the challenges faced in this endeavour and the potential solutions. It will form the foundation for developing common guidance on biodiversity measures for agricultural supply chains, anticipated to commence in 2021 on behalf of the European Commission under the Aligning Accounting Approaches for Nature (Align project¹) and called upon by the EU Biodiversity Strategy for 2030². The findings laid out in this working paper will also support the research and engagement efforts being carried out by The [TRADE Hub](#), specifically those related to biodiversity metrics, tools and data that can be used by all stakeholders to support sustainable trade of agricultural commodities

This working paper is based on a limited and rapid review of business and expert opinions, provided through a series of consultations during November and December 2020. These included:

- A survey collecting 16 responses from a range of companies across the value chain of a range of consumer goods (incl. food, textile, fragrance) (from farmers/producers and processors, to retailers and investors) to identify current use of measurement approaches, challenges and solutions to their broader uptake;
- Five semi-structured interviews with business representatives to articulate challenges and solutions in more detail;
- A multi-stakeholder online workshop which attracted over 90 individuals to gain a diversity of perspectives on the issue and confirm the solutions identified above³.

Figure 1 Survey respondents (n = 16)



A desktop study was used to provide more background on some of the existing biodiversity tools, metrics and data that are applicable to agricultural supply chains.

Identifying the needs

Why do companies measure biodiversity?

Before considering the methods and tools that can be used by a company to measure biodiversity, it is important to consider the purpose of doing so to inform the way in which biodiversity can be incorporated into corporate decision making. Based on our survey of companies⁴, most were focused on assessing impacts and dependencies on biodiversity at farm and landscape level (rather than at company, individual commodity, supplier or country level). The companies surveyed showed alignment in the purposes of measurement (as shown in Figure 1) which were to:

- Assess a company's current biodiversity performance
- Assess a company's future biodiversity performance
- Track progress towards biodiversity targets

1 See "Next steps" section for more detail.

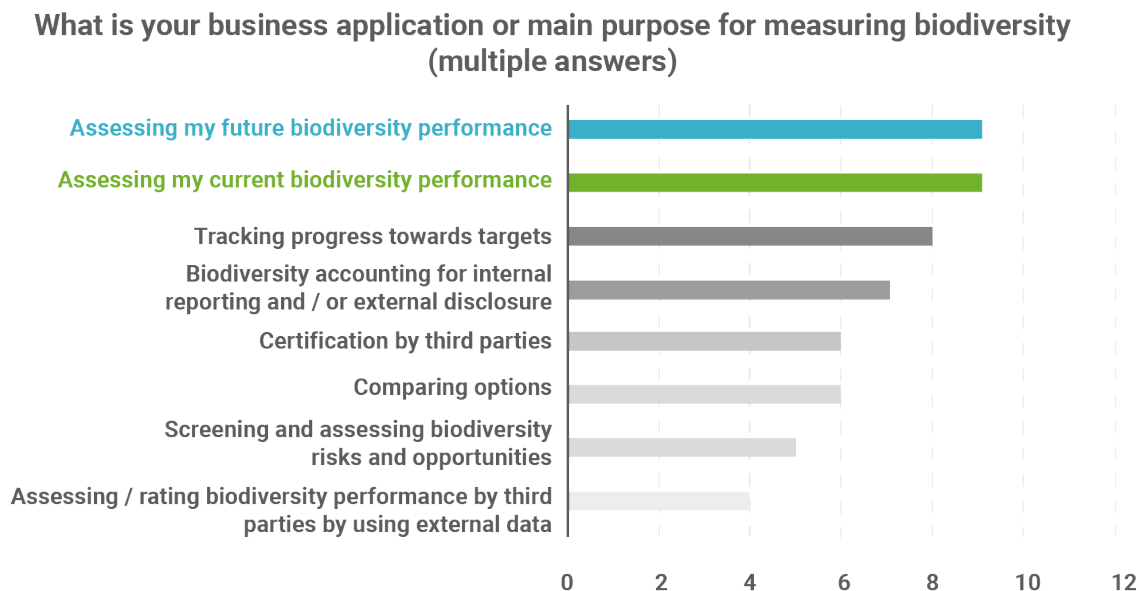
2 COM/2020/380 final. Notably in Section 3.3.3.

3 The main findings of the workshop are presented throughout this working paper. The full details of the online workshop interactive discussion can be found online through this [link](#).

4 The full details of the survey results can be found in the Annex.

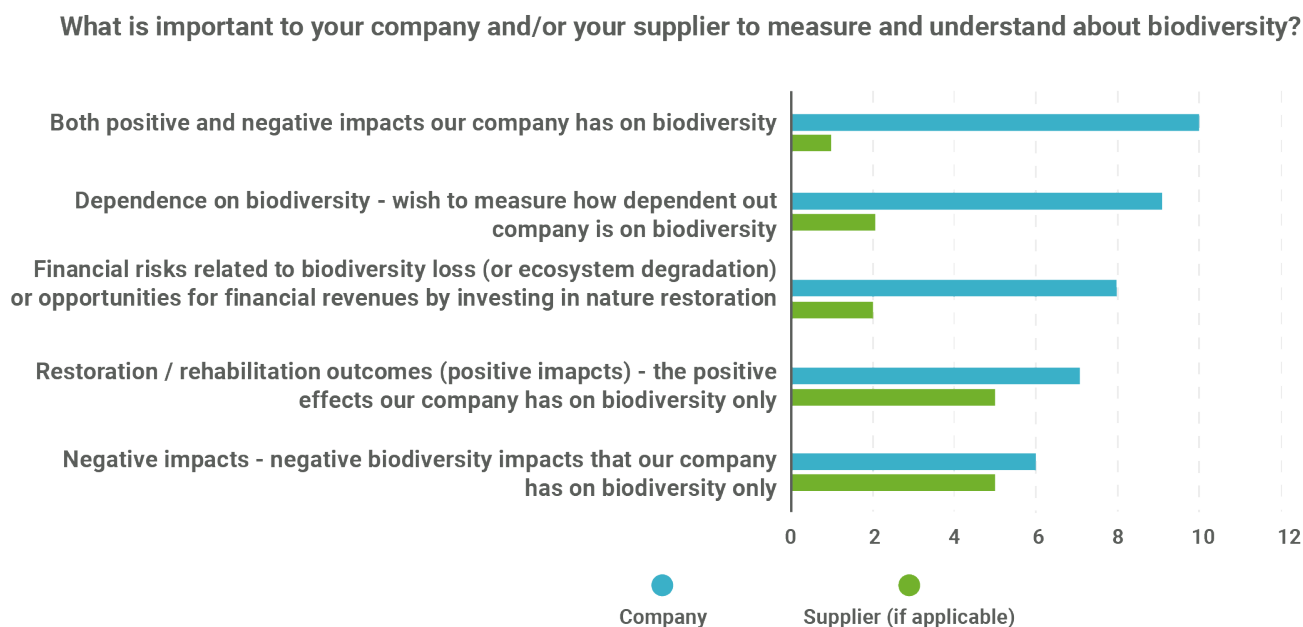
Company interviews identified that corporate engagement on biodiversity often stems from a moral obligation⁵ (“duty to act”, “we want to play our part”, “science says we need to act”) towards society and a need to safeguard the long-term viability of a business in the face of a perceived increase of risks (e.g. of productivity declines stemming from biodiversity loss) and societal (e.g. consumer, media) expectations. While biodiversity starts to be recognised as a priority for companies, measuring of impacts often constitutes a first step to understand a firm’s relationship to nature, and weighs corporates’ impact on the decision-making process (“biodiversity [assessment] is required from a higher level”). Measuring impacts helps business leaders to better understand their firm’s current and future performance on biodiversity, providing necessary data for setting biodiversity targets and ambitions.

Figure 2 Business application / purpose of biodiversity measurement



Interviews suggest that measuring impacts often constitutes a good entry point to start acting on the pressures and drivers of biodiversity loss from a company’s perspective. At the agricultural supply chain level, this often implies working with suppliers to understand how they impact nature and can contribute to making a positive change. Based on the survey results (see Figure 3), most firms seem to approach biodiversity at the supply chain level from an impact perspective (both negative and positive impacts), with many also interested to understand their level of dependence on biodiversity (e.g. the benefits that an ecological diverse habitat or soil has on specific crops).

Figure 3 Interest for measuring biodiversity from a company or supplier perspective



⁵ A forthcoming report from the EU B@B Platform analysing the relationship between SMEs and nature also came to a similar conclusion that social benefits and moral incentives are clear drivers for SMEs to engage on nature and biodiversity. Risk mitigation is seen as one of the important benefits once SMEs have started their natural capital journey.

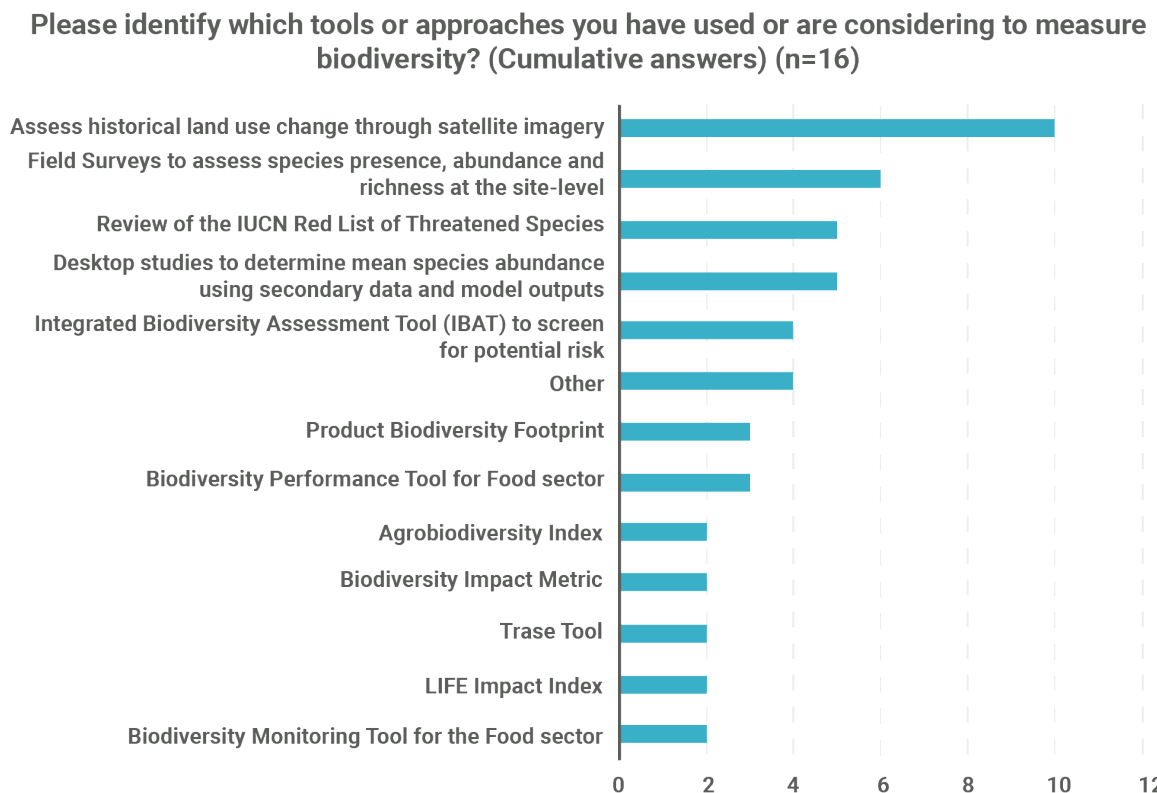
How is biodiversity being measured?

Companies that responded to the survey were at different stages in their measurement of biodiversity. Some have started to collect data and measure progress, whereas some have started to identify concrete options for biodiversity measurement and allocate resources to complete an assessment.

The majority of those who started a biodiversity assessment have done so in cooperation with an NGO or academic institution. This has resulted in the creation of several bespoke measurement approaches or frameworks. However, overall, the survey showed that individual companies are relying on a variety of tools and approaches to assess their relationship with biodiversity (see Figure 4). These include desktop studies to assess land-use changes (e.g. deforestation) through satellite imagery or assessing potential risks associated with biodiversity through the Integrated Biodiversity Assessment Tool (IBAT) or the IUCN Red List, most specifically. Desktop studies can provide a high-level picture of a company's relationship with biodiversity and are often complemented with field surveys to assess species presence, abundance and richness at the site level. There were fewer responses related to tools that are more specific to the business or agricultural sector.

Interviews indicated that understanding the firm's impacts and dependencies on biodiversity often happens through a trial-and-error process whereby various tools are explored. Sometimes a company will use more than one approach, selecting the approach according to the measurement aim. For example: informing consumers on biodiversity risks linked to single products and areas of sourcing, screening high-level risks to inform additional assessment efforts, addressing location-specific challenges such as deforestation, or guiding the selection of sourcing commodities.

Figure 4 Tools and approaches to measure biodiversity⁶



Existing approaches for measuring biodiversity impacts

There are a wide array of approaches that can support companies in measuring their impacts on biodiversity (24 of these are included within the Annex – Table 1 and Table 2). These approaches can be broadly classed as metrics, data, tools and frameworks, according to the definitions in Box 1. However it must be recognised that these categories are not mutually exclusive and some approaches can appear in more than one category. Under the [Aligning Biodiversity Measures for Business collaboration](#), a number of approaches specifically developed to measure biodiversity change were evaluated. Of the 12 assessed, the majority are applicable to companies with agricultural supply chains. A summary of these is provided in Annex 1, Table 1. In addition to these, there are a wide array of tools and metrics that were compiled under the [Trade Hub project](#) as a desktop study, that have been further reviewed in this context of this project and are provided in Annex 1, Table 2.

⁶ A third update of this report was published on 1st March 2021 on the Platform's website. All reports, including Update Report 3 can be found through this [link](#).

Box 1. Definitions of the terminology used within the desktop study.

Measurement approach– In this working paper, we define “measurement approach” to encompass developed metrics, data/models, tools and frameworks, which can be used to assess biodiversity impact and dependencies.

Metric– a mathematical representation of reality (e.g. *Mean Species Abundance*)

Data/Model– measured or modelled information (e.g. *GLOBIO*)

Tools – packages of data and one or more metrics (*LC-IMPACT*)

Frameworks – criteria and guidance for decision-making (e.g. *LandScale*)

Source: *The Biodiversity Consultancy during Webinar 3: Case studies on supply chain level biodiversity measurement approaches for business, EU Business @ Biodiversity Platform*

As highlighted above, a common business purpose was to measure current and future biodiversity performance. The existing approaches can support this in the following ways:

- Providing an estimate of change in biodiversity associated with pressures, often at the population or ecological community level (e.g. Mean Species Abundance (MSA) or Potentially Disappeared Fraction of Species (PDF)).
- Measuring levels of habitat loss and other pressures as a proxy for biodiversity loss (e.g. deforestation or rate of expansion into natural areas).

The biodiversity pressure data typically includes:

- land-use changes, such as habitat loss and ecosystem loss and
- climate change or greenhouse gas emissions, and to a lesser extent
- pollution and
- invasive species.

Despite a few approaches supporting current and future performance, only some approaches have been developed to track progress to biodiversity targets specifically and some tools only cover targets in a qualitative way (e.g. LIFE and the Agrobiodiversity Index) ([EU Business @ Biodiversity Platform and UNEP-WCMC, 2019](#)). Some approaches could be used for initial risk screening (GMAP, Living Planet Index, Biodiversity Impact Metric) as these indicators can provide a coarse overview on biodiversity impact due to low data resolution functionality. Other approaches provide flexibility catering to multiple business applications (e.g. GLOBIO, LandScale, LIFE Key, Agrobiodiversity Index) ([EU Business @ Biodiversity Platform and UNEP-WCMC, 2019](#)). Some approaches have a commodity focus (e.g. GMAP, IOTA-SEI, The Soy Toolkit), and others are product specific (e.g. The EU Product Environmental Footprints).

What are the challenges to measuring biodiversity?

A range of challenges, six of which are presented below in further detail, preventing the measurement of biodiversity were identified.

Lack of capacity and understanding to implement existing measurement approaches

There are many different approaches for measuring biodiversity, and many have complex methodologies that require a high level of capacity to implement.

Interviewees indicated the difficulty to “find their way in the number of tools available”, and “struggling to find the right place/tool to start assessing their biodiversity footprint”. Assessing a company’s impact and dependence on biodiversity requires in-house knowledge about the specificities of measurement approaches, which is often lacking. Faced with insufficient technical expertise, companies often rely on external staff, so they do not build in-house capacity which then remains inadequate. Some tools such as ENCORE, GMAP, Living Planet Index, do not require specialists, while others require specialist skills use as Geographical User Interface (GIS) mapping/interpretation, statistical analysis interpretation (SCP- Hotspots Analysis Tool, GLOBIO, InVEST) or specialist biologists (LC-IMPACT)

Lack of approaches to measure impacts directly with heavy reliance on proxies

Some interviewees indicated that the right tools to measure impacts and dependencies of agricultural supply chains on

biodiversity do not exist (“none of the methods fit everything”). The reliance on proxies to infer a firm’s relationship with biodiversity was observed among companies interviewed and supported by the desktop study. Many approaches use well-known drivers of biodiversity loss such as land-use change, deforestation, rate of expansion into natural areas, etc. (See Annex 1, Table 2) to infer impacts on biodiversity. While these are credible proxies and supported through existing scientific literature, there can be challenges in attributing these changes to the activities of an individual company and their suppliers, as well as the ability for such proxies to reflect the ultimate impact of any interventions in the supply chain that might be implemented. Assessing management interventions such as protecting High Conservation Value areas is also used by some companies as a proxy to assess performance, but these do not measure conservation outcomes. There are approaches which rely on species-centric data to measure biodiversity loss directly but their use by companies is less common.

Lack of evidence of application

Interviews suggested that companies need to have certainty that tools and methodologies used to assess a company’s impact on biodiversity are robust and the results are meaningful. Companies are often not well placed to assess the scientific credentials of an approach, and a lot of progress on this topic remains academic rather than practical in nature. The multitude and complexity of approaches leads to the ‘black box effect’ whereby underlying methods are not known or understood by business users. This undermines trust in the accuracy of these tools and their utility for informing decisions.

Lack of access to data by business

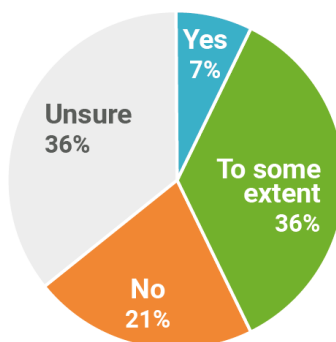
Some approaches have extensive minimum data requirements for businesses to use (e.g. LC-IMPACT, Agrobiodiversity Index), whereas others are more straightforward (Biodiversity Impact Metric). While some provide data and clear guidance (LandScale, EU PEP, JNCC), this can still require a lengthy process to implement. The finding from consultation suggests that the science underpinning these approaches is not accessible to businesses using them. According to survey results, data availability / data requirements are perceived as the second most important barrier preventing the measurement of biodiversity.

Few measurement approaches to track targets

Few measurement approaches can be used to track progress towards corporate or global goals, as highlighted by the survey (see Figure 5). As a growing number of companies are starting to set their own biodiversity ambition or commitment towards biodiversity, the use of approaches to assess corporates’ progress towards their own goals is likely to gain traction going forward.

Figure 5 Suitability of measurement approaches to track progress towards targets

Are the measurement approaches that are currently available suitable for setting and tracking progress towards company or global targets? (n=14)



Difficulty interpreting and aggregating the results of measurement approaches

- Difficulty in interpreting results:

Results may not be actionable: Company representatives interviewed mentioned that metrics need to lead to conclusions that firms can operationalise (which can be translated into concrete actions). Several approaches being explored by business have not been developed with businesses in mind. Many are designed for policy at the national/landscape level, rather than for use by companies to measure biodiversity impacts, hence they need interpretation and adaptation. Different approaches have different focusses and calculate biodiversity loss differently using different metrics. For example, the Global Biodiversity Score uses Mean Species Abundance (MSA) while LC-IMPACT and SCP Hotspots Analysis use Potentially Disappeared Fraction (PDF). Interpretation of results from seemingly different biodiversity measurement approaches may in fact be related due to the same underpinning data or methodologies used, which can

be hidden from the user due to a lack of transparency. The majority of approaches include the main drivers of land-use change to inform biodiversity impact.

- Difficulty in aggregating results:

Interview results suggest that companies often rely on a variety of tools and indicators to assess biodiversity. However, data aggregation is often difficult, and the different approaches may not be able to be used in conjunction with each other (as the results are not comparable).

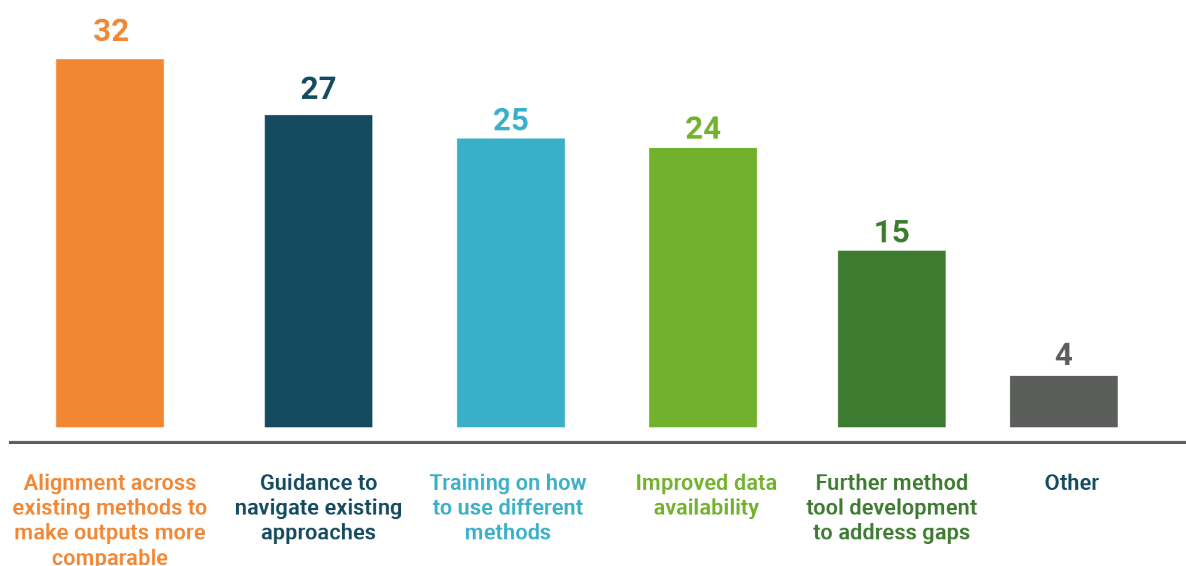
Proposed solutions

Overview

This review and consultation identified an initial set of solutions that could make progress in applying biodiversity measurement along agricultural supply chains. These were used as a starting point for exploring the type of solutions companies require in the online workshop (held December, 2020).

Figure 6 below shows the solutions presented to the workshop participants. Alignment across existing approaches and guidance on how to navigate through those approaches were identified as the most pressing solutions followed by training on how to use the different methods and improved data availability.

Figure 6 Responses from the workshop participants on what businesses require to help address the barriers and challenges outlined above.



Helping businesses measure biodiversity will require a combination of many solutions. Developing guidance and increasing alignment across the existing methods are two important solutions and are discussed in further detail in the following sections. Training, improved data availability and further method development are also going to be required. Training will be needed to provide a concrete starting point for businesses to implement approaches to measure biodiversity, informing and training them on how to use available tools. Improved data availability is a clear need and while advances in this area are being made, proxy data can be used to fill the gaps. More information on the appropriate use of proxy data and its limitations is however needed. Finally, further method development to improve existing approaches and ensure they meet the needs of businesses and investors is important and a continually evolving space.

Alignment

Through this working paper, it is clear that alignment on the use of input data and metrics, the outputs provided and the possible applications of these outputs is needed between different measurement approaches. This would increase comparability and allow companies to fully understand the impacts and dependencies of their businesses on biodiversity along their supply chains.

A further complication arises when businesses, particularly businesses with complex supply chains, are required to aggregate data from a farm or local level, to a total corporate value, and the interviewees agreed that there was a critical need for trust in the aggregation of data. Alignment of different approaches would allow the outputs of tools to

be more meaningfully aggregated. This would enable businesses to analyse their full supply chain using the different approaches appropriate for their specific business application

While there are many global biodiversity datasets available, across all geographic and commodity areas, they are often only available at a global, national or regional scale. The datasets are often not deemed suitable for corporate use due to their granularity not allowing for aggregation or site specific assessments, and the inaccessibility of the methods or background data. 'Therefore, there is a need for a database of common datasets across the available measurement approaches as this would allow businesses to work from the same dataset and aggregate their outputs from a number of approaches (as the information sources can be similar). By aligning approaches, comparisons would then be possible across businesses including suppliers, farmers or retailers.

Aligning and linking existing biodiversity initiatives and approaches should ultimately facilitate the uptake of biodiversity indicators, and subsequent measurement and reporting. This in turn should support improved management of biodiversity impacts and dependencies and allow businesses to demonstrate their contributions to global efforts to reverse the current biodiversity crisis

Developing guidance

During the workshop, the participants were asked to respond to a variety of questions regarding the guidance to navigate existing approaches could offer a relatively 'quick win' to improve corporate measurement of biodiversity. The guidance should be concise and simple to use. This would be through the inclusion of key steps that generate actionable results. The steps should be clearly outlined to ensure that the guidance drives positive action and should include information on the effective implementation of biodiversity specific tools and the positive actions that result. By understanding how and why guidance implementation can drive positive impact will promote action for biodiversity positive decision-making.

Target audience

There was a general agreement that the guidance should be targeted at supply chain managers and sustainability managers, as this would be the most useful audience within the businesses. The guidance should however be accessible to all organisations within the supply chain, allowing businesses to recognise themselves by organisational focus, sub-sector and business application. This would allow the guidance to be used applicable to a wide range of business users due to the variety of business applications for biodiversity measurement.

Who should be the target audience for the guidance (if produced)?



Figure 7 Target audience for the guidance

Content

The guidance should be outcome focused and provide actionable advice to businesses with agricultural supply chains and their existing targets and goals. It should include practical support on how to select the most suitable biodiversity measurement approach or combination of approaches and related metrics and data sources. Specifically it should contain:

- Clear business case per sector on how measuring biodiversity can benefit the business to foster internal support and investment.
- Explanatory notes for existing methods, supported by examples and case studies which relate to all types of companies and sectors within the value chain (farmers, producers, retailers and distributors).
- Clear structured summary of the benefits/limitations of available method/tools, as well as details of how to access key datasets. This should include guidance on the cost and use of the available data.
- Practical support to inform the selection and application of the appropriate measurement approach.

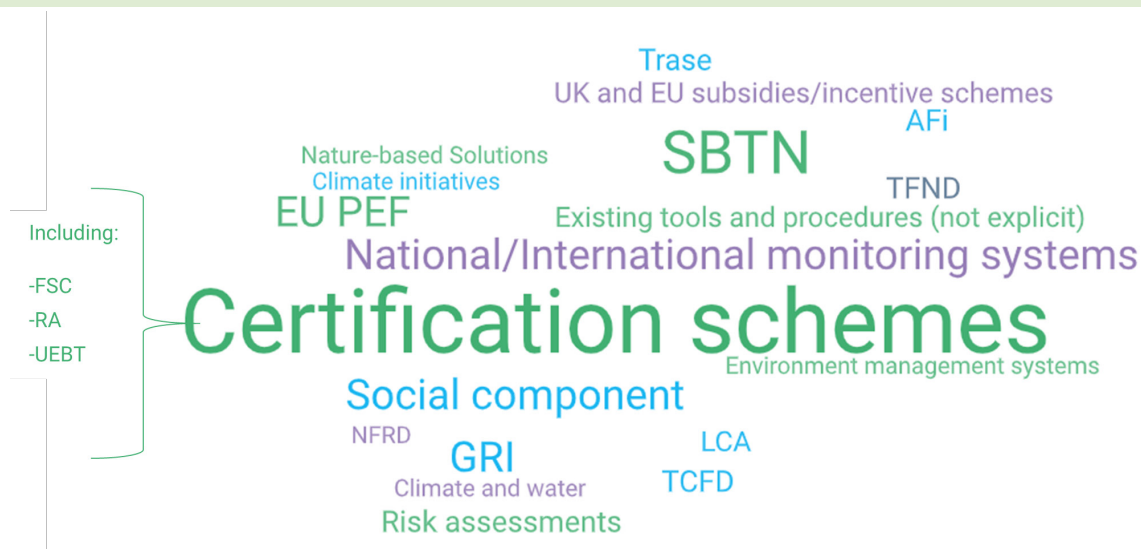
- Description on how tools and methodologies can be integrated with other corporate reporting requirements that are already implemented.

Links to other tools/guidance/approaches

For the guidance to be easy to integrate and add value to the processes businesses are already involved with, it was important to establish where links to other tools, already available guidance or approaches exist, and which the agricultural supply chain guidance should link to. The most common suggestion was for the guidance to link to certification schemes, Science-based Targets for Nature initiative and align to national and international monitoring systems (Figure 8). Less common suggestions included linking to subsidy and incentive schemes by the government, and climate initiatives, as well as the Global Reporting Initiative.

A range of reports on biodiversity measurement approaches have been or are in the process of being developed that will be important to link to. These include the Biodiversity Guidance to accompany the Natural Capital Protocol (already developed), with an accompanying interactive Navigation Tool (currently under development by the Capitals Coalition). There will also be a complementary Navigation Wheel made available by the EU Business @ Biodiversity Platform (available from March 2021, see Figure 8 below). These resources will provide support to businesses on how to better incorporate biodiversity measurement approaches within their activities and decision making.

Figure 8 Wordle highlighting responses of participants towards “What would make the guidance credible and adopted by business?”



The larger the text size the increased number of responses. Note the following acronyms used are: SBTN (Science-based Targets for Nature), EU PEF (European Union Production Environmental Footprint), GRI (Global Reporting Initiative), AFI (Accountability Framework Initiative, TCFD (Task Force on Climate-related Financial Disclosure), TFND (Task Force on Nature-related Financial Disclosure), LCA (Life Cycle Assessment), NFRD (Non-financial reporting disclosure), UEBT (The Union for Ethical BioTrade), FSC (Forest Stewardship Council), RA (Rainforest Alliance).

Process & Format

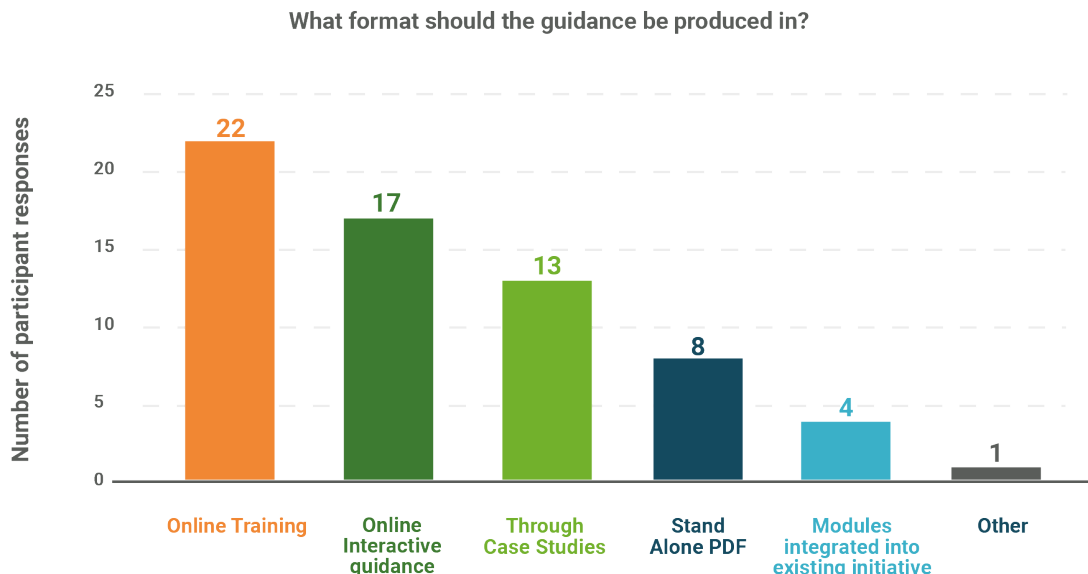
The workshop participants highlighted that new guidance should steer away from the standard ‘PDF report format’, and aim towards a more interactive and engaging process, with ‘Online Training’ and ‘Online Interactive Guidance’ having the most responses. It was also highlighted that the development of guidance should be an iterative process with the business users engaged at every stage of its development.

Update to EU B@B report

The EU B@B Platform launched the [Update Report 3](#) on biodiversity measurement approaches for businesses and financial institutions on 2nd March 2021. The report highlights the development of the Navigation Wheel, a decision framework for selecting the most suitable (set of) biodiversity measurement approaches based on the specific needs of the company. The Navigation Wheel relies on more than 10 selection criteria and therefore is much more sophisticated compared to the initial decision framework presented in the Update Report 2, which was only built on two selection criteria i.e. business applications and organisational focus areas. It is important to note that the Navigation Wheel is complementary to the Biodiversity Guidance Navigation Tool which is more aligned with the sequential steps of

the Natural Capital Protocol. The Update Report 3 focuses now entirely on real-life applications of measurement approaches and includes 16 high quality case studies, some of them discussing biodiversity measurement approaches in the agricultural supply chain. The report and case studies will be available on the Platform's website. In 2021 case studies will also be collected, reviewed and presented during dedicated webinars.

Figure 9 Graph showing participant responses on what format the guidance should take



Online training and interactive guidance are increasingly recognised as mechanism for increasing uptake due to the ease and speed at which it can be used.

Ensuring credibility and fostering adoption by business

During the workshop, the participants were asked what would help make the guidance credible to increase uptake by business, see Figure 10 below:

Figure 10 Responses from participants on what the requirements are needed to ensure credibility and increasing engagement with business.



Next steps

The findings of this needs assessment will be taken forward within the ALIGN and TRADE Hub Projects. ALIGN is a new European project is comprised of a Consortium of partners (WCMC Europe, Capitals Coalition, ICF, Arcadis and UNEP-WCMC) and is funded by DG Env. The objective of the ALIGN project is to establish and operate a business-driven discussion and alignment process that can streamline and strengthen methods and metrics for measuring biodiversity related business impacts and dependencies and their management across a range of sectors, including agricultural supply chains.

The project aims to produce a standardised approach for biodiversity measurement, teaming this with sectoral guidance and modules linking the approach into other efforts to standardise natural capital management accounting practice such as the EU-led initiatives on Product Environmental Footprint and Organisational Environmental Footprint, the [Non-Financial Reporting Directive](#), the Task Force on Nature Related Financial Disclosures and/or the Transparent project led by the [Value Balancing Alliance](#).

As part of the Align project, a technical hub will be established with biodiversity measurement tool developers to focus on understanding current issues inhibiting alignment between measurement approaches. In addition, a business driven Community of Practice will be formed, to call upon interested stakeholders for their input and continued involvement in the development of fit-for-purpose guidance documents with the aim to improving corporate biodiversity tool alignment. This will

ensure that the conversation around business needs and the development of tools continues as an iterative and guided process.

The TRADE Hub consists of an extensive network of researchers working to evaluate the environmental and social impacts of globally important agricultural supply chains. It will continue efforts to identify common biodiversity metrics and further develop tools to support impact assessments at different scales. Working across both public and private sectors and providing input to global policy discussions, the TRADE hub will aim to fill data and knowledge gaps and support uptake by private and public sector decision makers. TRADE hub is also looking to understand also how and why metrics might be used in a complementary way to cover different biodiversity 'aspects' in supply chain assessments. Through its Corporate Advisory Forum, the TRADE Hub will engage with companies with agricultural supply chains and will work closely with the ALIGN project to support this sector in measuring biodiversity impacts.



Annex 1

Table 1. Overview of assessed biodiversity measurement approaches and disclosure frameworks identified under the Aligning Biodiversity Measures for Business Initiative.

EU B@B Platform, 2019 and UNEP-WCMC, 2019, Discussion paper 1 for the Technical Workshop on Aligning Biodiversity Measures for Business: Identifying common ground between corporate biodiversity measurement approaches.

Name of tool / framework	Developer	Description	Status	Private sector uptake (with case studies marked in bold)
Approaches with one or more quality reviewed case studies				
Biodiversity Footprint Financial Institutions (BFFI)	ASN Bank (NL) CREM (NL) PRé Sustainability (NL)	The BFFI is designed to provide an overall biodiversity footprint of the economic activities a financial institution (FI) invests in. The methodology allows calculation of the environmental impact and the environmental footprint of investments within an investment portfolio.	Operational	<ul style="list-style-type: none"> ■ ASN Bank (full footprint) ■ Volksbank ■ Some case studies were done with the PBAF partners In 2020, a project started with case studies for six other financial institutions
Biodiversity Indicators for Site-based Impacts (BISI)	UNEP-WCMC, Conservation International, and Fauna & Flora International (Int)	It is a joint initiative between UNEP-WCMC, Conservation International and Fauna & Flora International, with support from IPIECA and the Proteus Partnership. The methodology provides an approach for companies with significant site-based impacts to understand their impacts on biodiversity and link this to their performance in mitigating them. The methodology is being piloted by extractives companies throughout 2019-2020.	Site-level stages are operational. Corporate-level stage will be piloted in 2021	Anglo American, BHP, Chevron, ENI, Equinor, Newmont, Total.
Biodiversity Impact Metric (BIM)	Cambridge Institute for Sustainable Leadership (CISL) (UK)	The BIM can be used to assess and track how a business's sourcing affects nature, through the biodiversity lost as a result of agricultural production. The metric allows comparison of potential impacts across different sourcing locations and between commodities. The metric is an ideal entry-level approach that allows a company to undertake a rapid risk-screening of its sourcing in order to identify where the greatest impacts are likely to occur, thereby helping to prioritise further investigations and interventions.	Operational	Applied with members of CISL's Natural Capital Impact Group including Asda & Kering
Global Biodiversity Score® (GBS)	CDC Biodiversité (France)	It provides an overall and synthetic vision of the biodiversity footprint of economic activities. It is measured by Mean Species Abundance (ratio between the observed biodiversity and the biodiversity in its pristine state), based on PBL Netherlands Environmental Assessment Agency's model of five terrestrial pressures (land use, nitrogen deposition, climate change, fragmentation, infrastructure/ encroachment) and 5 aquatic pressures, and their impacts on biodiversity.	Operational	BNP Paribas Asset Management, Mirova, EDF, GRT Gaz, L'Oréal, Michelin, Schneider Electric, Solvay, Suez, Veolia & a luxury goods company.

				The GBS® has been developed with the Businesses for Positive Biodiversity Club (B4B+), a group of about 10 financial institutions and 25 companies, benefiting from extensive road-testing: 9 case studies and 2 full scale Biodiversity Footprint Assessments. 16 consultants and companies are already trained to use the tool.
GBS® for financial institutions	CDC Biodiversité (France) & partners	<p>GBS® combined to company-level data from non-financial rating agencies and data providers. Provides data on the biodiversity impacts of a large universe of companies.</p> <p>The GBS® for financial institutions is actually several distinct tools, one with each data provider, including the:</p> <ul style="list-style-type: none"> - Biodiversity Impacts Analytics (BIA) developed with Carbon4 Finance 	Developing	CDC Asset Management, BIA (Carbon4 Finance)
LIFE Key (LIFE)	LIFE Institute (Brazil)	The Methodology provides quantitative information on a company's performance (pressure and positive impacts on biodiversity) and provides strategic guidance to organizations to ensure the effectiveness of their conservation actions. Is characterized by being a robust and measurable methodology, integrating business and biodiversity, being adaptable to any country or region and applicable to companies of any size or sector.	Operational in Brazil and Paraguay, LIFE was adapted for Europe in 2020 with first pilots scheduled for January - April 2021	<p>ABN AMRO Bank, Boticário, Catallini</p> <p>C-Pack (3 evaluated business units)</p> <p>Gaia, Silva & Gaede, Itaipu Binacional (Brazil and Paraguay), JTI Tobacco International (8 evaluated business units), Lapinha, Neoenergia Group (2 evaluated business units), Posigraf, Rocha, SANEPAR, Suzano, UDU Adecoagro (2 evaluated business units), Agricert, Amaggi, JBS, Karanda, Payco Raízen Group (2 evaluated business units), Tamanduá (2 evaluated business units),</p>
Product Biodiversity Footprint (PBF)	I CARE – Sayari (France)	PBF combines biodiversity studies and companies' data to quantify the impacts of a product on biodiversity along its life cycle stages. PBF provides guidance for product changes, especially in an ecodesign approach. PBF is also declined at site level, with a life cycle approach, taking into account direct impact of on-site operations and indirect impacts (off-site) related to site inbound and outbound flows.	Operational. Already tested in agriculture, food, cosmetics and apparel, electricity and energy sectors,	L'Oréal, Kering, Avril, EDF (on going), Primagaz (on-going), Citeo (on-going)

			Ongoing tests in all other sectors to be completed in Q1 2021.	
Species Threat Abatement and Restoration metric (STAR)	IUCN (Int)	The STAR* measures the contribution that investments can make to reducing species extinction risk. It can help the finance industry and investors target their investments to achieve conservation outcomes, and can measure the contributions these investments make to global targets such as the Sustainable Development Goals.	Pilot testing in Indonesia, New Zealand and with other private sector operators finalized, Guidance notes for private sector users under development. Portal for access to STAR data layers in early access programme via the Integrated Biodiversity Assessment Tool (IBAT) under development	18 tests underway or completed: 5 for agricultural products companies, 4 finance industry, 2 conservation planning, 2 forest management, 1 extractive industry, 1 private sector advisory services,
Biodiversity Footprint Methodology and Calculator	Plansup	<p>The pressure based methodology is used to quantify the biodiversity impact of a product, sector or company for the three major pressure types: Land use, GHG emission, and N and P emission to water. Cause - effect relations from GLOBIO are used and impact is calculated per part of the production chain. Used to determine which part of the chain leads to the highest impact, and to test effectiveness of company measures.</p> <p>The Biodiversity Footprint Calculator is a simple open source tool that allows to calculate the terrestrial impact of land use and GHG for most relevant parts of the production chain.</p>	Calculator tool is operational.	
Corporate Biodiversity Footprint	Iceberg Data Lab	The Corporate Biodiversity Footprint measures the impact of corporates on Biodiversity. It is designed to serve the needs of Financial Institutions to have a Science-based and scalable approach capable of covering large portfolios with a bottom-up approach covering the most material impacts of constituents throughout their value chain.	Operational	Axa IM, BNPP AM, Mirova, Sycomore
Biodiversity Net Gain Calculator	Arcadis		Operational	Alvance Aluminium, Brussels Airport Company
BIRS and ES assessment	LafargeHolcim		Operational	LafargeHolcim

ReCiPe2016	Radboud University, RIVM, Norwegian University of Science and Technology, PRÉ Sustainability	Life cycle impact assessment (LCIA) translates emissions and resource extractions into a limited number of environmental impact scores by means of so-called characterisation factors. There are two mainstream ways to derive characterisation factors, i.e. at midpoint level and at endpoint level. To further progress LCIA method development, we updated the ReCiPe2008 method to its version of 2016. We implemented human health, ecosystem quality and resource scarcity as three areas of protection. Endpoint characterisation factors, directly related to the areas of protection, were derived from midpoint characterisation factors with a constant mid-to-endpoint factor per impact category. We included 17 midpoint impact categories. The update of ReCiPe provides characterisation factors that are representative for the global scale instead of the European scale, while maintaining the possibility for a number of impact categories to implement characterisation factors at a country and continental scale. We also expanded the number of environmental interventions and added impacts of water use on human health, impacts of water use and climate change on freshwater ecosystems and impacts of water use and tropospheric ozone formation on terrestrial ecosystems as novel damage pathways.	Operational	
Approaches without quality reviewed case studies				
Agrobiodiversity Index (ABDi)	Alliance of Bioversity International and CIAT (Int)	ABDi assesses risks in food and agriculture related to low agrobiodiversity. The framework is based on 22 indicators, assessing multiple components of agrobiodiversity in markets and consumption, agricultural production, genetic resource management, and related actions and commitment.	Piloting with food and agriculture companies	HowGood & Danone; Olam
Biological Diversity Protocol (BD Protocol)	Endangered Wildlife Trust (South Africa)	This protocol is aligned to the Natural Capital Protocol. It helps provide biodiversity-specific guidance to measuring changes in the state of natural capital (step 6 of the Natural Capital Protocol), by providing guidance on how to measure change(s) in biodiversity components affected by business. It differs from the other measurement approaches in that it offers an accounting framework.	Under development	
Biodiversity Performance Tool for Food sector (BPT)	Solagro (France)	The Biodiversity Performance Tool (BPT) is being elaborated in the frame of the EU LIFE Project "Biodiversity in standards and labels for the food sector" aims at proposing a methodology to quite easily assess the integration of functional biodiversity at farm level for food sector actors (product quality or sourcing managers) as well as for certification companies (certifiers and auditors). The BPT should help farmers and farm advisors to elaborate and implement sound Biodiversity Action Plans, which contribute substantially to a better biodiversity performance on farm level. The tool will support auditors and certifiers of standards as well as product, quality and sourcing managers of food companies to better assess the preservation and improvement of integration of biodiversity at farm level. The BPT should help farmers and farm advisors to elaborate and implement sound Biodiversity Action Plans, which contribute substantially to a better biodiversity performance on farm level. The tool will support auditors and certifiers of standards as well as product, quality and sourcing managers of food companies to better assess the preservation and improvement of integration of biodiversity at farm level.	Online tool tested in Oct – Dec 2019. Available from Oct 2019	Currently 350 users (farmers), but still no longer term case study available

Biodiversity Monitoring System for the Food Sector (BMS)	Lake Constance Foundation, Global Nature Fund, Germany	The tool (also elaborated in the frame of the EU LIFE Project “Biodiversity in standards and labels for the food sector”) has been created to offer food standards and food companies the possibility to monitor indicators with relevance for biodiversity of their certified farms / their producers. The monitoring is divided into two levels. Level 1 monitoring is a system wide approach with 25 indicators to evaluate the potential created for biodiversity (ecological structures, biotope-corridors, buffer zones, etc.) and the reduction of negative impacts on biodiversity (use of chemical pesticides and fertilizers, erosion, water use, etc.). Level 2 will be developed in 2021: An In-depth sampling beyond the scope of certification. It monitors mid- and long-term effects of certification on wild biodiversity on the farm and its direct surroundings by selected key indicator species.	Pilots were planned in May – Sept. 2020 but was limited due to Covid19 pandemic. Intensive promotion will happen in 2021. The new German sector initiative “Biodiversity in the Food Sector” agreed on the implementation of the Biodiversity Monitoring System Available from Sept. 2020	
Environmental Profit & Loss (EPL)	Kering (France)	The EP&L measures carbon emissions, water consumption, air and water pollution, land use, and waste production along the entire supply chain, thereby making the various environmental impacts of the company’s activities visible, quantifiable, and comparable. These impacts are then converted into monetary values to quantify the use of natural resources.	Operational	
BioScope	Ministry of Economic Affairs, CODE, Arcadis, PRé Sustainability	BioScope provides users with an estimation of where the most important impacts on biodiversity in their supply chain could be. This is a first step into determining which of the purchased products and services may actually matter, allowing you to focus on the relevant commodities and suppliers for managing the biodiversity risks and opportunities in your supply chain.	Operational, but not maintained	

Source: EU B@B Platform, 2019 and UNEP-WCMC (on behalf of the Aligning Biodiversity Measures for Business initiative). 2019. Discussion Paper 1 for the Technical Workshop on Aligning Biodiversity Measures for Business: Identifying common ground between corporate biodiversity measurement approaches.

Annex 2

Table.2 Overview of biodiversity measurement approaches and resources used to measure biodiversity impacts for businesses with agricultural supply chains.

These approaches and resources have been included as they i) are launched, ii) include a range of spatial scales not exclusive to a specific country and iii) the biodiversity pressure data included is not exclusive to a specific country. Note that this table is not a comprehensive overview of all approaches available and is intended to build upon prior reports from the [EU B@B Platform, 2019 and UNEP-WCMC, 2019, Discussion paper 1 for the Technical Workshop on Aligning Biodiversity Measures for Business: Identifying common ground between corporate biodiversity measurement approaches \(see Table on page 16\)](#). The Update Report 3 on biodiversity measurement approaches for businesses and financial institutions (published on March 2, 2021 includes an update to this list of approaches). Therefore, the intention was to explore what other tools and resources are available to help further the understanding of the current landscape of biodiversity tools available to businesses with agricultural supply chains.

Biodiversity Measurement Resource	Description	Biodiversity Metric/ Indicator Used	Minimum Data Requirements	Biodiversity Pressure Data Included Within the Tool
Tools				
ENCORE	<ul style="list-style-type: none"> ■ ENCORE is used to understand natural capital risks arising from dependencies and impacts of business activities through the use of spatial data. ■ The aim of the tool is to help financial institutions to better understand, assess and integrate natural capital risks in their activities. ■ Although not directly a biodiversity measurement approach, it provides information on the potential risks to businesses by outlining the impacts and dependencies they have on biodiversity. There is a biodiversity measurement module currently in development that will show the impact of agricultural portfolios to ecological integrity and threatened species. 	N/A	Users need to know the country to be screened by the business	<p>Provides impact drivers to biodiversity loss using the GICS sector classification system but cannot quantify these pressures. Examples of impact drivers:</p> <ul style="list-style-type: none"> ■ Diseases ■ Droughts ■ Earthquakes ■ Fire ■ Habitat modification ■ Intensive agriculture ■ Invasive species ■ Landslides, ■ Pollution
GMAP	<ul style="list-style-type: none"> ■ GMAP provides an early and high-level country and commodity-level evaluation of environmental and social risks associated with agri—commodity primary production. ■ The criteria and indicators align with the IFC 2012 Performance Standards (PS) on Environmental and Social Sustainability, in particular the supply chain-related requirements of PS2 “Labour and Working Conditions” and PS6 “Biodiversity Conservation and Sustainable Management of Living Natural Resources”. 	<ul style="list-style-type: none"> ■ Rate of expansion into natural areas ■ Impact on protected areas ■ Presence and impact on high or unique terrestrial biodiversity 	Users need to know the country and commodity to be screened by business	<ul style="list-style-type: none"> ■ Rate of expansion into natural areas ■ Impact on protected areas ■ Presence and impact on high or unique terrestrial biodiversity ■ Presence and impact on high or unique freshwater biodiversity
Sustainable Consumption and Production (SCP) Hotspots Analysis Tool	<ul style="list-style-type: none"> ■ The SCP Hotspots Analysis Tool (SCP-HAT) aims at identifying the hot spot areas of unsustainable production and consumption in order to support setting priorities in national SCP and climate policies. 	Potentially disappeared fraction of species (PDF).	For Module 1 and 2, the tool uses primary data so the user can filter the PDF indicator (biodiversity metric). For the 3rd module on national data system, users can insert their national data on domestic raw material extraction and greenhouse gas emissions produced and substitute the default data.	The PDF metric incorporates biodiversity pressure data for land occupation and land transformation for six different land use types (- annual crops, permanent crops, pasture, urban, extensive forestry and intensive forestry).

Frameworks				
EU Product Environmental Footprints	<ul style="list-style-type: none"> ■ EU project and biodiversity measurement methodology that aims to standardise the way in which companies can measure product and company level footprints. ■ Uses a Life cycle assessment (LCA) based method to quantify the environmental impacts of products (goods or services). ■ The overarching purpose of PEF information is to reduce the environmental impacts of goods and services taking into account supply chain activities (from extraction of raw materials, through production and use and to final waste management). 	N/A	The data should include all known inputs and outputs for the processes. Inputs are use of energy, water, materials, etc. Outputs are the products, co-products (77), and emissions. Emissions can be divided into four categories: emissions to air, to water, to soil, and emissions as solid waste.	Pressure is not used as a term. Data should include those listed within the Minimum Data Requirements column.
LandScale	The LandScale assessment framework helps users gain critical insights, make more informed decisions, and share credible stories of impact. It provides a holistic overview of a landscape in relation to four pillars of sustainability: ecosystems, human well-being, governance, and production.	Measures of extent of natural ecosystems and important habitats converted, degraded, protected and under restoration, as well as threatened species	There are required and optional data requirements for the framework to use. Examples of required data includes: <ul style="list-style-type: none"> ■ Changes in threats to species (changes in threats to populations of indicator species or other species identified as important in the landscape, using the IUCN Red List) ■ Biodiversity habitat conversion (ha of natural ecosystem conversion within areas identified as important for biodiversity and percentage % of such areas that this represents). 	<ul style="list-style-type: none"> ■ Ecosystem conversion ■ Ecosystem degradation ■ Biodiversity habitat conversion ■ Biodiversity habitat degradation ■ Changes in water quantity ■ Changes in water quality, ■ Greenhouse gas emissions ■ Soil health (erosion rates, percentage of soil organic carbon at production sites)
Data /model				
GLOBIO	GLOBIO can be used to quantify various policy-relevant dimensions of human-nature interactions by linking climate-change, land use and nitrogen deposition to biodiversity	Mean Species Abundance	No detailed species data is required, the model uses spatial information from the Integrated Model to Assess the Global Environment (IMAGE)	<ul style="list-style-type: none"> ■ Land use (including agriculture, forestry and urbanisation) ■ Atmospheric nitrogen deposition ■ Hunting ■ Fragmentation ■ Climate change ■ Road disturbance

InVEST	<ul style="list-style-type: none"> ■ InVEST is a suite of free, open-source software models used to map and value the goods and services from nature that sustain and fulfil human life. ■ Models are spatially explicit, using maps as information sources and producing maps as outputs. ■ InVEST returns results in either biophysical terms (e.g., tons of carbon sequestered) or economic terms (e.g., net present value of that sequestered carbon). The tool incorporates models for 16 terrestrial, marine and freshwater services and can provide results in either biophysical values (e.g. tons of carbon sequestered) or economic terms (e.g. net present value of sequestered carbon). 	<p>The InVEST Habitat and Species Risk Assessment (HRA/SRA) model uses habitat quality and rarity as a proxy for biodiversity which estimates the extent of habitat and vegetation types across a landscape and their state of degradation. The model allows users to identify regions on a landscape or seascape where human impacts are highest.</p>	<p>GIS data/map data, information tables (csv format)</p>	<ul style="list-style-type: none"> ■ Land use cover including current land cover, future land cover, baseline land cover ■ Threats to species' habitat
Metrics				
JNCC/Route2 Indicator Project (The project includes 24 metrics)	<ul style="list-style-type: none"> ■ The UK Biodiversity Indicators project provides an annual list of 24 UK biodiversity indicators which are used to track progress with respective communities in each country of the United Kingdom (England, Scotland, Wales and Northern Ireland). ■ These indicators have a specific purpose for international reporting and provide a flexible framework and common set of methodologies which could be applied to the corporate context. 	<p>Examples of metrics include: i) Area of land in agri-environment schemes and ii) area of forestry land certified as sustainably managed. Other indicators include measures on: protected areas, habitat connectivity, status of European habitats and species, status of UK priority species, biodiversity and ecosystem services, expenditure on UK and international biodiversity.</p>	<p>Dependent on the indicator used. For indicator</p> <ul style="list-style-type: none"> ■ (see column Biodiversity Metric/ Indicator Used), area of land covered (in ha) by higher-level or targeted agri-environment schemes. For indicator ■ percentage of woodland area certified as sustainably managed. 	<ul style="list-style-type: none"> ■ Agricultural and forest area under environmental management schemes (land-use change) ■ Climate change adaptation ■ Invasive species
Multiple applications (Metric, tool, data/model)				
LC-IMPACT	<p>The LC-IMPACT methodology aims to provide a global life cycle impact assessment methodology for three main areas - human health, ecosystem quality and resources. For each of the three areas, a metric is used to account for impact.</p>	<p>Potentially Disappearing Fraction of species (PDF) which accounts for a fraction of species richness that may be potentially lost due to an environmental mechanism. There are 10 environmental mechanisms (listed in column Biodiversity Pressure Data column of this Table and in</p>	<p>The characterisation factors (provided for each pressure in Biodiversity Pressure Data column). Depending on the characterisation factor, these spatial scale of the pressures differs.</p>	<ul style="list-style-type: none"> ■ Water stress ■ Climate change ■ Photochemical ozone formation ■ Freshwater eutrophication ■ Freshwater ecotoxicity ■ Land stress ■ Acidification ■ Marine eutrophication

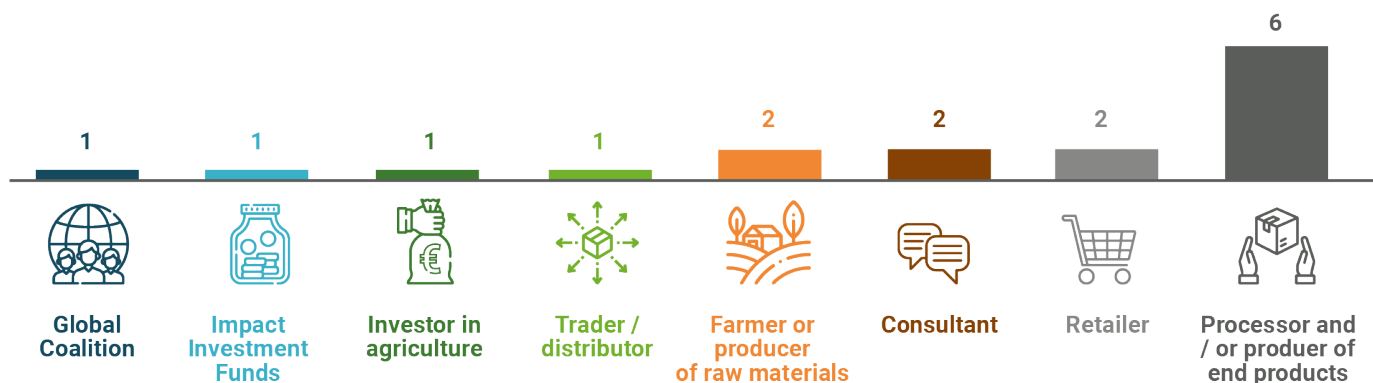
		the annex) which influence the PDF metric.		<ul style="list-style-type: none"> ■ Marine ecotoxicity ■ Terrestrial ecotoxicity
Living Planet Index (LPI)	LPI is a measure of the state of the world's global biological diversity based on population trends of vertebrate species, which can be visualised through the online tool. Species population trends are aggregated to produce indices of the state of biodiversity. The LPI the index can be disaggregated to measure trends in different themes (taxonomic groups, species trends at a national or regional level, different threats to populations) Additional pieces of information relating to the population's taxonomy, location and ecology allows for analysis of trends at different scales and for different habitats. This enables the global trend to be subdivided to show trends in temperate/ tropical regions, different systems or biogeographic realms.	Global population trends of mammal, bird, fish, reptile and amphibian species which can be disaggregated to national/ regional level to produce a national indicator	There is no minimum data required from the user as it is a globally assessed indicator for policy reporting. For business, the LPI for subsets of populations can be used to create an index of biodiversity trends in a particular country, be used for exploring trends in selected groups of species, and producing regional and global indices representing particular habitats or biomes	<ul style="list-style-type: none"> ■ Habitat loss and degradation, - overexploitation ■ Invasive species and disease ■ Pollution ■ Climate change
IOTA-SEI	<ul style="list-style-type: none"> ■ SEI's Input-Output Trade Analysis (IOTA) model is an environmental foot printing tool that links physical data on commodity production in different countries with a detailed financial matrix that traces inter-industry buying and selling across the world. 	Does not exclusively use a metric, but data can include those listed within Minimum Data Requirements column	Contextual information by producer country, including <ul style="list-style-type: none"> ■ a water scarcity index ■ data from the IUCN Red List of Threatened Species ■ data from the Bird Life Index ■ data from IUCN Key Biodiversity Areas ■ data from Alliance for Zero Extinction Sites ■ data from WWF Ecoregion 	<ul style="list-style-type: none"> ■ N/A
Commodity specific*				
The Soy Toolkit	<ul style="list-style-type: none"> ■ A framework designed to support companies in the responsible sourcing of soy. It is an accessible guide to the many initiatives which aim to decouple soy production and trading from deforestation, conversion of native vegetation and human rights violations. 	Rate/area of deforestation could be used as a proxy	Companies will need to have resources on their own supply chain to map out the process	<ul style="list-style-type: none"> ■ Deforestation

Approaches highlighted in blue are those approaches which can be used for risk profiling only. Approaches highlighted in orange are those approaches which do not cover biodiversity specifically.

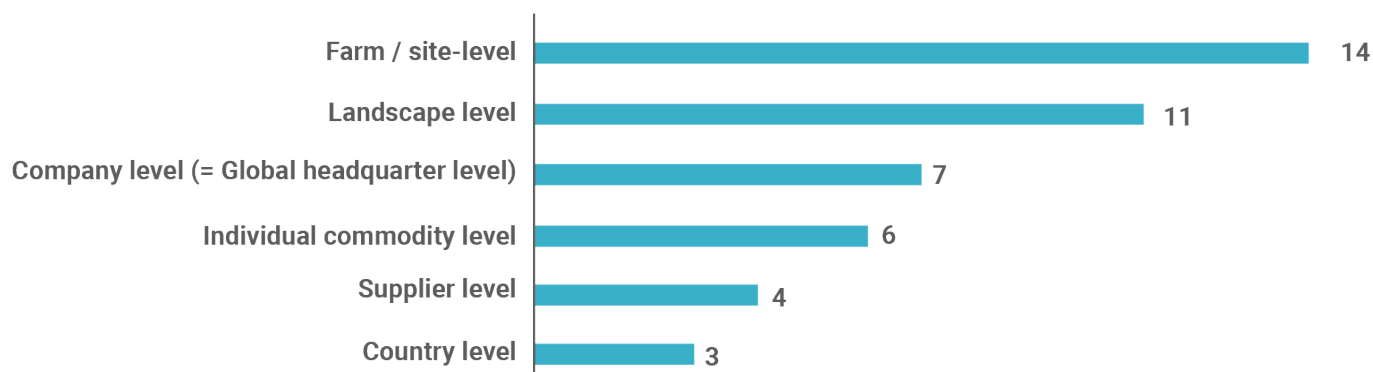
*The Soy Toolkit is an example of commodity approaches that exist for companies. It was not within the scope of this report to assess all commodity specific resources available.

Annex 3

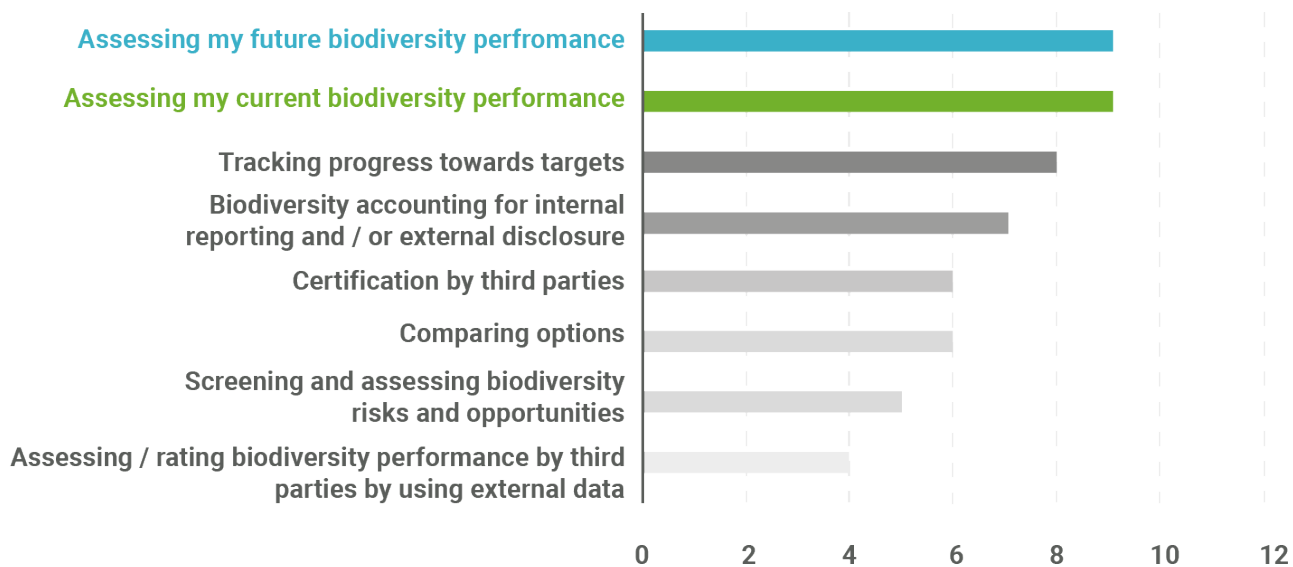
Organisation type



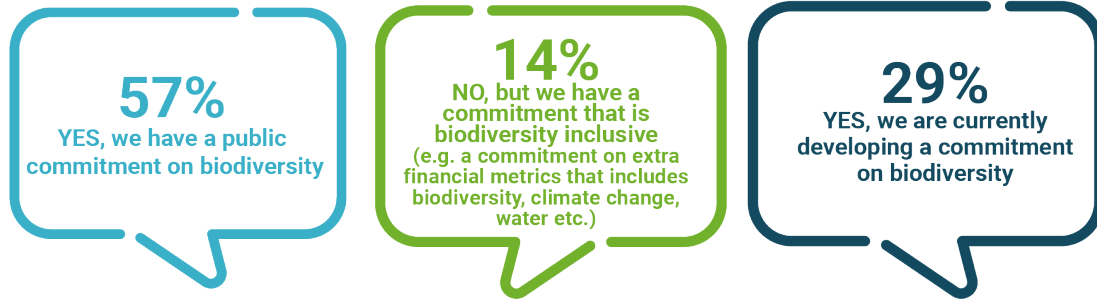
When trying to assess impacts and dependencies on biodiversity, my focus is at the:



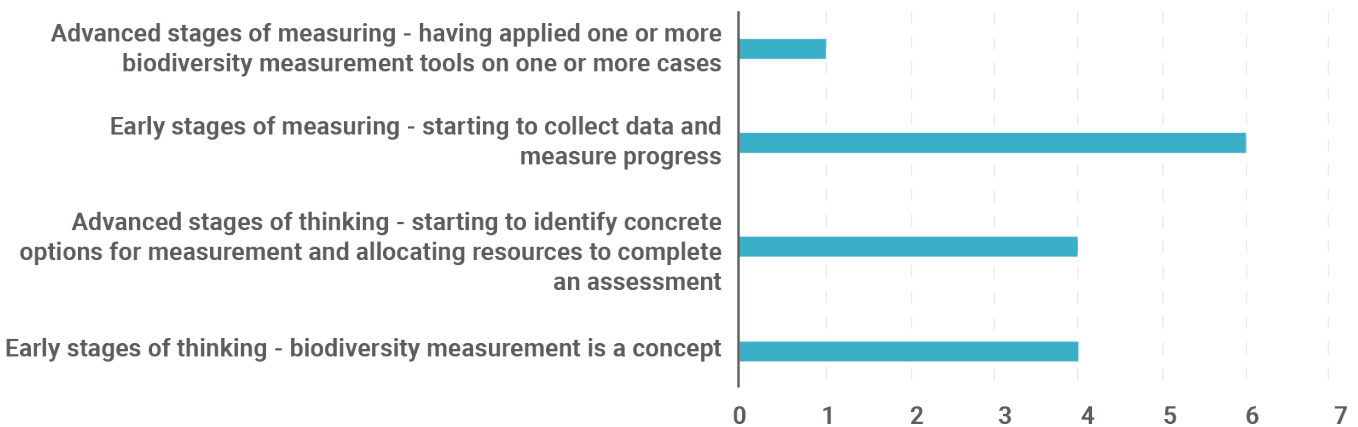
What is your business application or main purpose for measuring biodiversity?



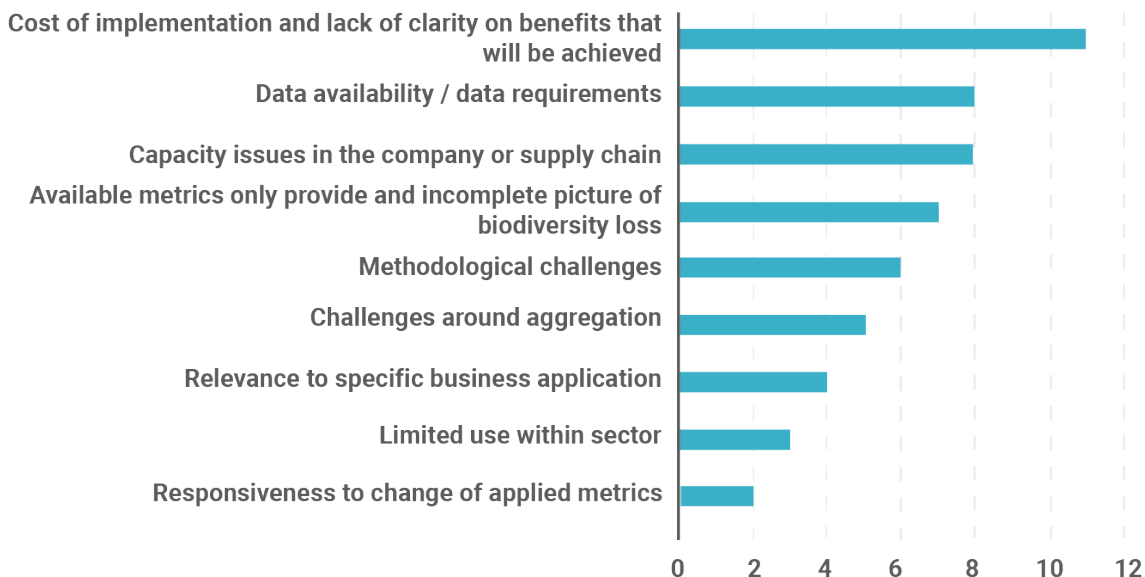
Does your organisation have a commitment specifically on biodiversity?



If you have considered biodiversity measurement before, what stage of development are you currently in?



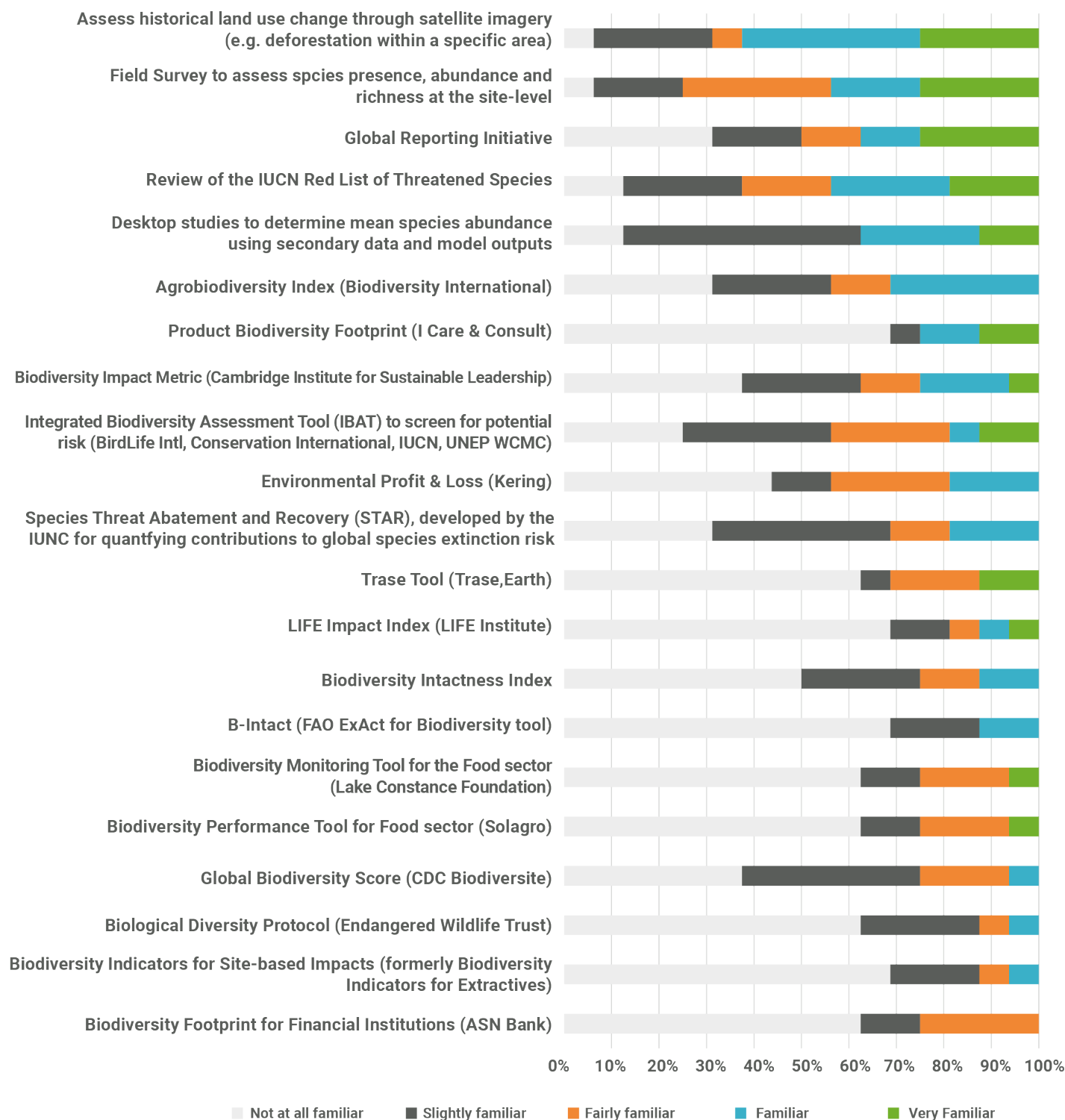
What do you perceive as weaknesses/ barriers to uptake of currently available approaches? (n = 16)



The Science Based Targets Network has recently drafted the Interim Guidance on setting science-based targets for nature, which includes prescriptive guidance for biodiversity. Are you interested in piloting the guidance once available?



On a scale of 0 - 4 (0 = Not at all familiar; 4 = Very familiar), please rate your familiarity with the following approaches for measuring corporate biodiversity:

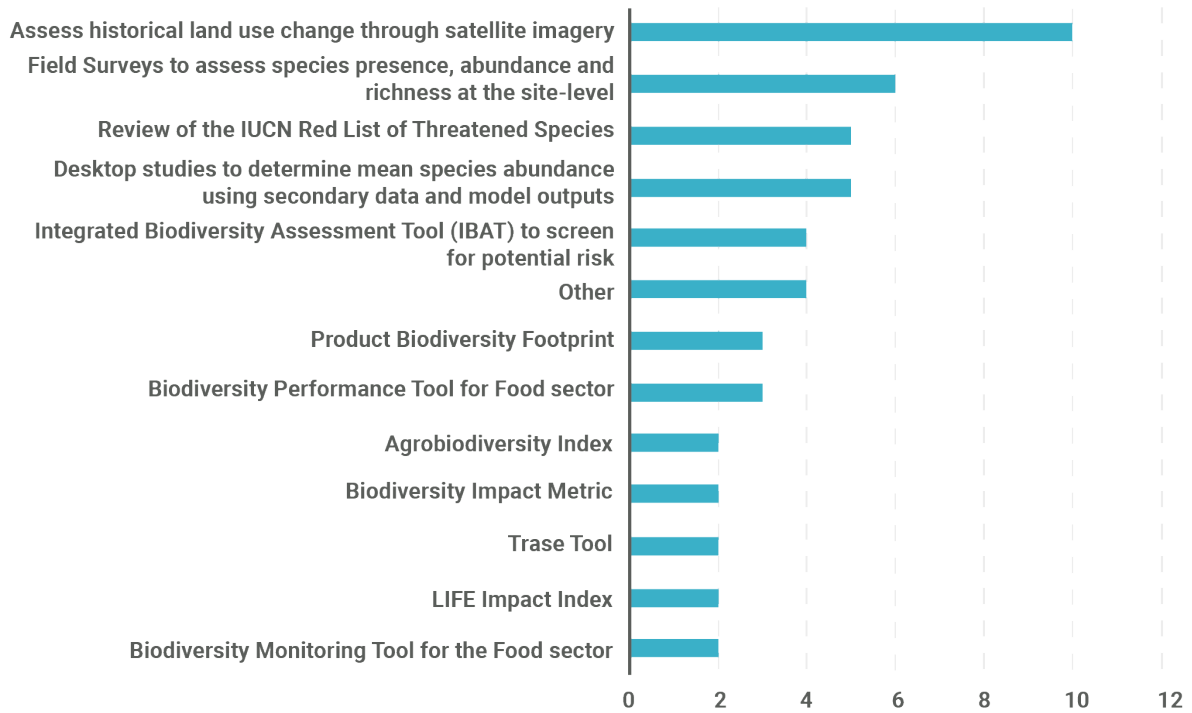


Does your company apply a bespoke measurement approach or framework developed in-house for your specific operations? (n = 16)

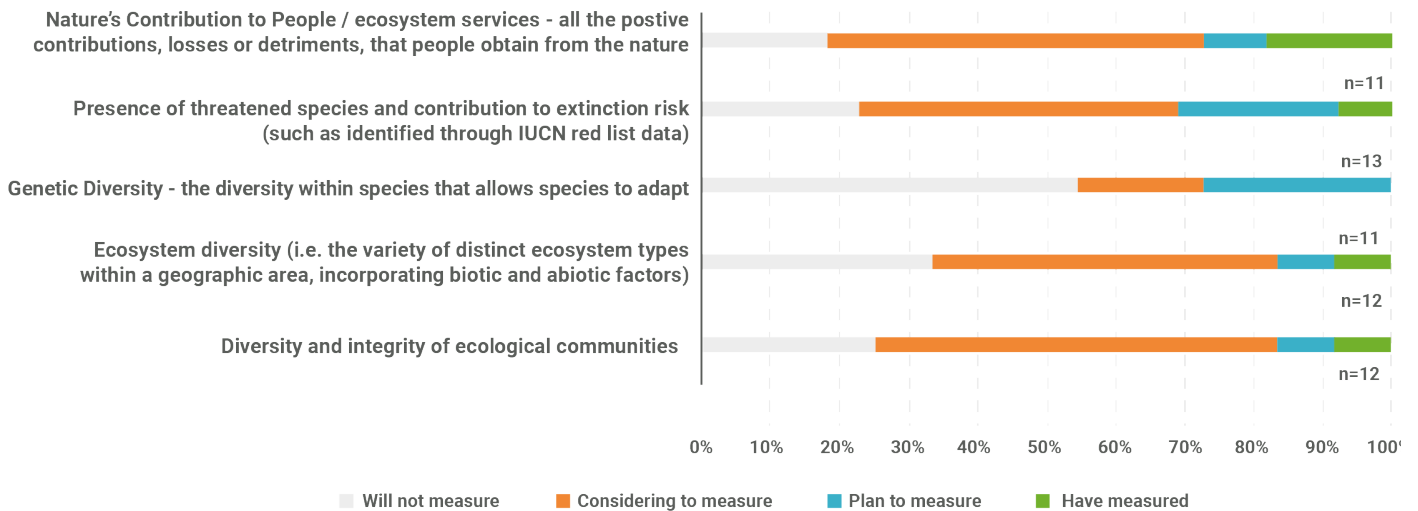


Please identify which tools or approaches you have used or are considering to measure biodiversity?

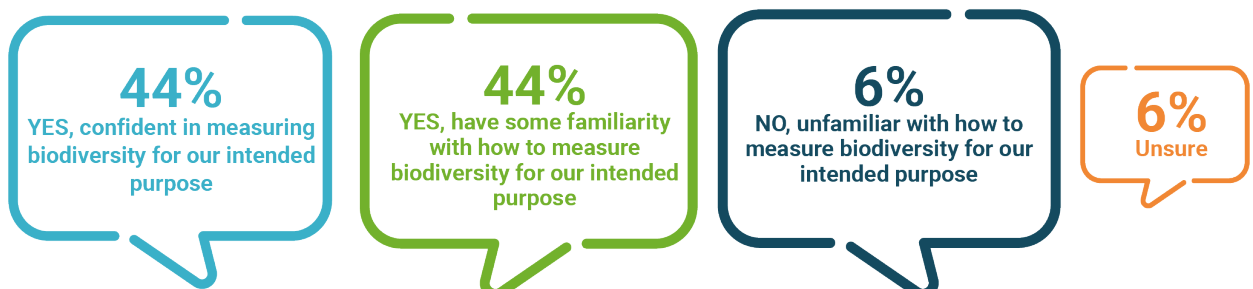
Please identify which tools or approaches you have used or are considering to measure biodiversity? (Cumulative answers) (N=16)



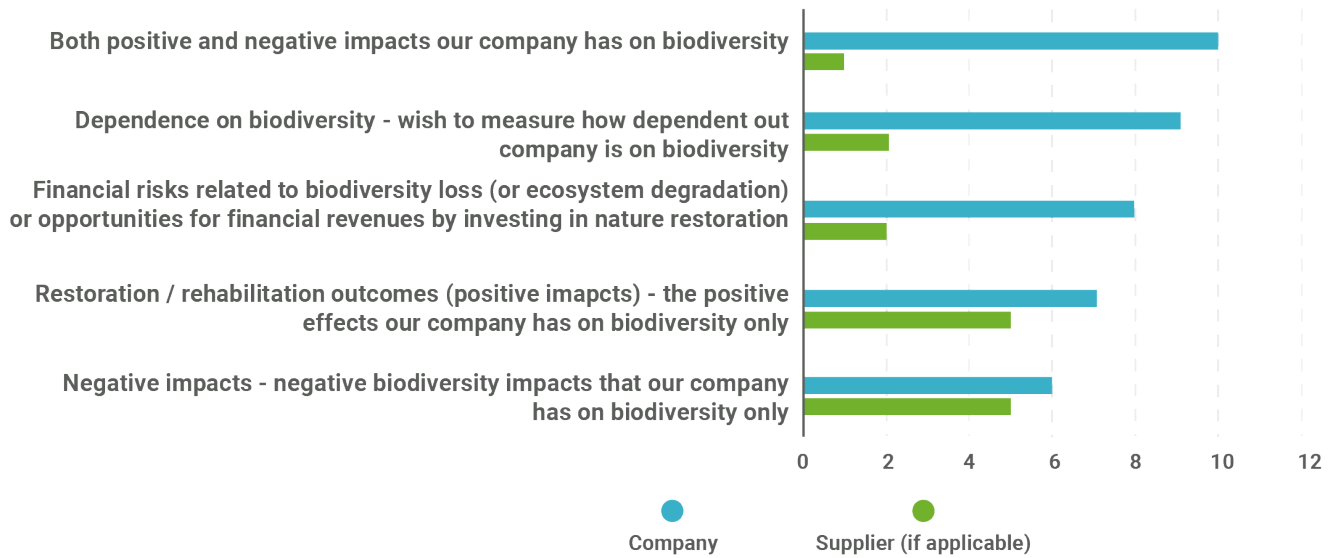
What aspects of biodiversity have you considered or measured in the past, and which would you like to measure in the future?



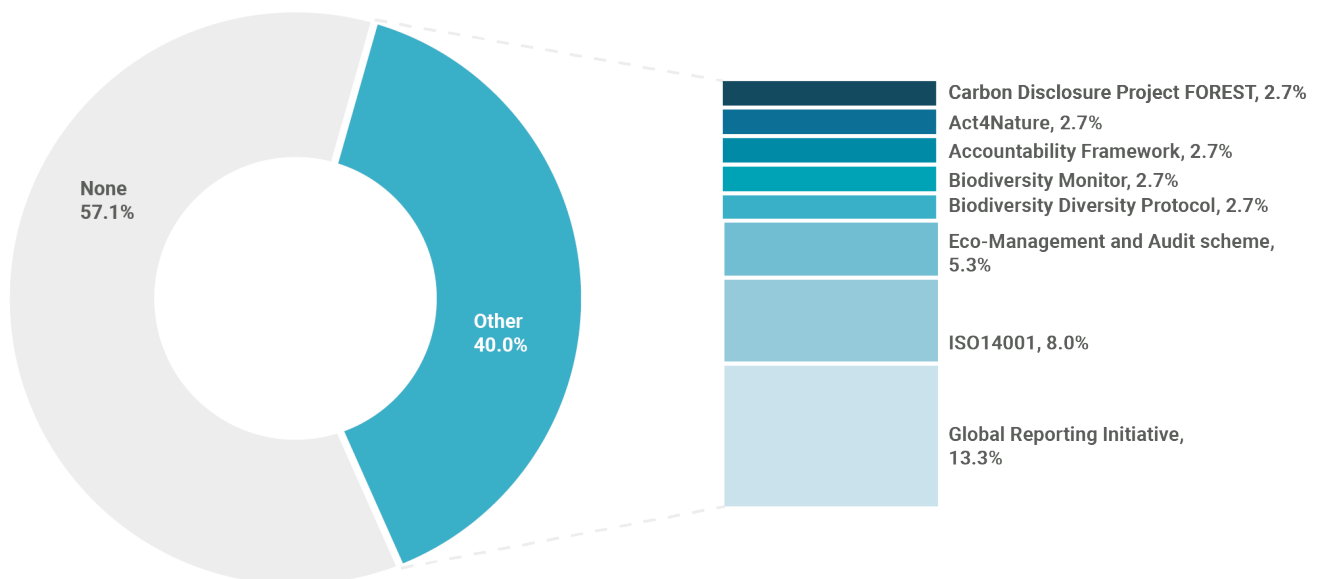
Biodiversity can be measured with a variety of approaches that serve different business applications. Are you familiar with and understand how to measure biodiversity for your intended purpose? (n = 16)



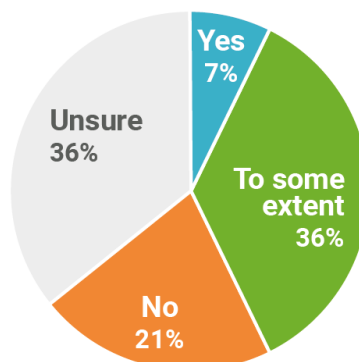
What is important to your company and/or your supplier to measure and understand about biodiversity? (n = 14)



What disclosure initiatives or frameworks does your company use to report on biodiversity? (n = 14)



If you have measured biodiversity before, are the measurement approaches that are currently available suitable for setting and tracking progress towards company or global targets? (n = 14)





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