

FAIRR Policy White Paper

# Aligning agricultural finance with the Paris Agreement: Implications for public and private finance

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# Background to the topic

The Paris Agreement is an international treaty on climate change, adopted by 196 Parties at COP 21 in Paris, December 2015, that entered into force in November 2016<sup>1</sup>. Governments have committed under Article 2.1c of the Paris Agreement to **“making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”**. This has implications for financial stakeholders and investors in the agriculture and food sector as we will seek to explore in this paper.

The agriculture and food sector is particularly vulnerable to climate change, but it also harnesses the potential to contribute to climate change mitigation. Studies have found that natural climate solutions can provide over one-third (37%) of the cost-effective climate mitigation needed between now and 2030 to stabilize warming to below 2°C. However, a large portion of reforestation mitigation potential depends on the efficiency of production or dietary shifts to reduce beef consumption<sup>2</sup>. Another recent study found that shifts in global food production to plant-based diets by 2050 could lead to sequestration of 332–547 GtCO<sub>2</sub> as land could be made available for ecosystem restoration, equivalent to 99–163% of the carbon budget. This is consistent with a 66% chance of limiting warming to 1.5°C – which is approximately 9–16 years of global fossil fuel emissions<sup>3</sup>.

## What is Article 2.1c of the Paris Agreement?

Governments have committed under Article 2.1c of the Paris Agreement to **“making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”**.





Under the United Nations Framework Convention on Climate Change (UNFCCC), governments have now established a 'Standing Committee on Finance' to assist functions concerning the Financial Mechanism of the Convention and to serve the Paris Agreement. According to an analysis by the Standing Committee on Finance, governments as well as private sector investors have been scaling up finance to address climate change. Climate finance flows increased by 17% in the period 2015–2016 compared with the period 2013–2014 and the high-bound global climate finance estimates increasing from US\$584 billion in 2014 to US\$681 billion in 2016, on a comparable basis, largely made up of investments into renewable energy<sup>4</sup>. Whilst data on the energy transition is more widely available, high-quality data on private investments towards climate change in other sectors such as agriculture are currently missing<sup>5</sup>. However, the quality of data has been improving, and the next report will aim to look more closely at the consistency of finance flows according to Article 2.1c of the Paris Agreement<sup>6</sup>. The enhanced transparency framework under the Paris Agreement also has relevance for agricultural finance flows, as it includes provisions for better data disclosure, including on areas such as deforestation<sup>7</sup>.

This policy paper will seek to summarise the state of play with regards to the implementation of the finance goal of the Paris Climate Agreement (known as 'Article 2.1c') in the agriculture sector. In terms of public finance flows to agriculture, the paper will summarise existing available data and research with a particular focus on subsidies and taxation, before covering existing work under the PRI's Inevitable Policy Response. This includes the likely future policy responses in the agriculture and food sector, as well as including emerging topics under consideration by policymakers, such as a potential 'livestock levy'. The alignment of flows of public finance with climate goals also has implications for investors, companies and farmers. In terms of private finance flows to agriculture, the paper will explain how actions and coalitions led by other private actors, including investors, banks, and corporates, contribute to alignment. FAIRR's own research contributes to this by providing data to investors on the climate and deforestation risks at major protein producers, and by enabling investors to conduct climate stress testing of their portfolio.

## Section 1

# Aligning public agricultural finance flows with the Paris climate goals

Climate change has implications for companies, producers and farmers in the agriculture and food sector in terms of direct and indirect physical risks, as well as transition and liability risks<sup>9</sup>. Notably, 14.5% of anthropogenic greenhouse gas emissions come from livestock supply chains, according to the Intergovernmental Panel on Climate Change (IPCC). Furthermore, 70–80% of all global agricultural land is used for pasture and growing crops for animal feed<sup>9</sup>. Animal agriculture systems will suffer increased costs of water, feed, and infrastructure damage due to extreme weather events. These costs are already being felt. Climate change has reduced Australian farms' average annual profitability by 22% over the last 20 years.<sup>10</sup>

There are a range of mechanisms and policy levers through which governments and regulators may align public finance with the Paris climate goals, as well as affecting the flows of private finance to agriculture. According to Whitley et al (2018) this toolkit includes financial policies and regulations, fiscal policy levers, public finance and information instruments<sup>11</sup>. For the purposes of this policy paper we will focus on fiscal policy levers (with a focus on subsidies and taxation), and financial policies as well as exploring the implications of the integration of agriculture into other climate change policy levers. However, whilst the scope of this policy paper is limited, further work could potentially focus on analysing other policy instruments such as information instruments.



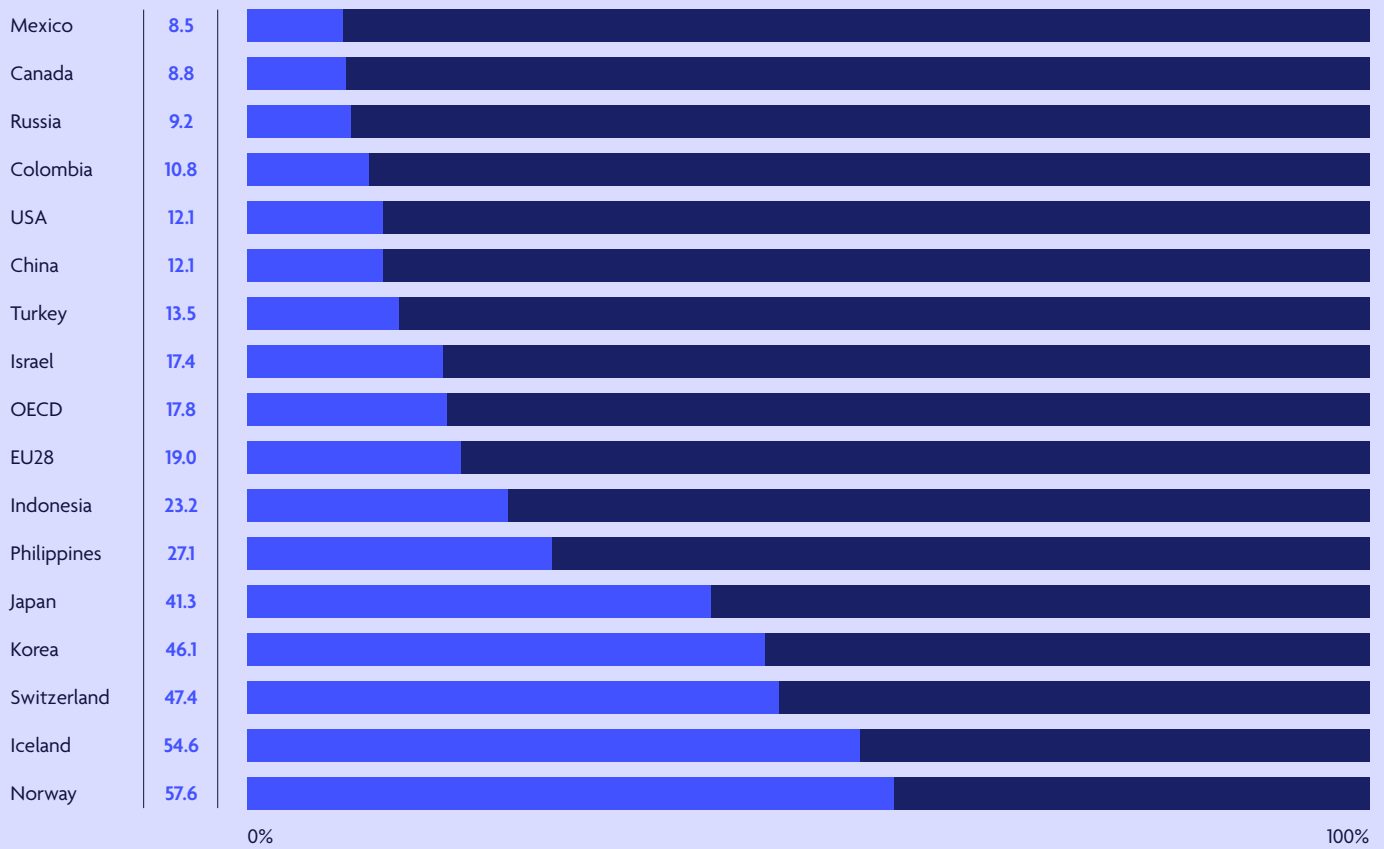


Fig 1: Producer support as a % of gross farm receipts in 2019 (Source: OECD, 2021)<sup>12</sup>

## Subsidies

In many countries, current agricultural production is supported by public funding, for example according to the data from OECD (above) support for agriculture made up 18% of total farm receipts in OECD countries in 2019.

In terms of **subsidies**, there are a range of agricultural subsidies which go towards high-emitting agricultural systems, including industrial livestock farming. These subsidies may be reformed in coming decades under efforts to align public finance with the goals of the Paris Climate Agreement. At a global level, research by the World Bank shows that countries that produce two-thirds of the world’s agricultural output provided US\$600 billion per year in agricultural financial support on average from 2014 to 2016<sup>13</sup>. However, the research found that only a modest portion of programs support environmental objectives, and even fewer support climate change mitigation. For example, out of US\$300 billion in direct spending, only 9 percent explicitly supports conservation<sup>14</sup>. Notably, from a product perspective, rice, maize, pig meat, beef and veal, and milk products account

for roughly three-quarters of total commodity transfers<sup>15</sup>. Reviews of the literature have found that support coupled to production or input use, as well as support in countries with high emission intensities, is particularly harmful for the environment<sup>16</sup>. Similarly, on biodiversity loss, the Paulson Institute<sup>17</sup> estimated that government subsidies that are harmful to biodiversity outweigh the total current positive biodiversity finance flows for biodiversity by at least a factor of four. They argue that the global biodiversity conservation gap will not be closed unless there are significant efforts to reform harmful subsidies.

Research suggests that current EU agricultural subsidies are not aligned with climate or biodiversity objectives. Research by the NGO Greenpeace has highlighted that in the EU, between €28.5–€32.6 billion goes towards livestock farms or producing fodder for livestock. This amounts to 69-79% of CAP direct payments – amounting to between 18% and 20% of the EU’s total annual budget<sup>18</sup>. Environmental advocates have therefore

# US taxpayers spent US\$38 billion per year to subsidise meat and dairy, with less than 1% of that being spend on fruits and vegetables.

called on the EU to reform the Common Agricultural Policy (CAP) to align with other EU objectives such as the 'Green Deal'<sup>19</sup>, and analysis has been conducted by the European Commission on the linkages between the CAP reform and Green Deal, including the Farm to Fork Strategy<sup>20</sup>. Similar inconsistencies currently exist in other jurisdictions. In the US, according to one analysis from 2013, US taxpayers spent US\$38 billion per year to subsidise meat and dairy, with less than 1% of that being spend on fruits and vegetables<sup>21</sup>. As noted in the section below, these subsidies have price impacts by potentially hindering efforts to incorporate externalities into the pricing of agricultural products. The Global Panel on Agriculture and Food Systems for Nutrition (2020) found that repurposing global agricultural subsidies would lead to reductions in GHG emissions from agricultural production, whilst diets and health would also be positively impacted, with an estimated 600,000 fewer diet-related deaths per year and an increase in consumption of nutrient-rich foods.<sup>22</sup>

With regards to international multilateral and bilateral flows of public finance to agriculture in developing countries, it is notable that agriculture is a small fraction of total flows of multilateral climate finance. In 2019, around 4% (US\$1.7 billion) of the mitigation finance from the multilateral development banks (MDBs) went to the agriculture, aquaculture, forestry and land-use sector<sup>23</sup>. However, research has recently found that the International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD) alone provided US\$2.6 billion for pig, poultry and beef farming, as well as dairy and meat processing, in the past 10 years<sup>24</sup>. The climate change emergency, as well as deforestation, biodiversity and health impacts, may mean that public institutions will face future calls to phase out subsidies to intensive livestock production, and instead realign lending with lower-carbon agricultural production. Such efforts to reform subsidies will have to consider the need to transition rural livelihoods to more sustainable production, as well as the need to build stakeholder coalitions to support reforms<sup>25</sup>.

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## Taxation and pricing

In terms of **taxation and pricing**, the agricultural sector is being gradually integrated into carbon pricing and emission reduction schemes. FAIRR research indicates that discussions on a 'meat tax' are increasingly entering political rhetoric. In November 2019, the Dutch Finance Minister Menno Snel committed to a study into 'fair meat prices' in preparation for fiscal reforms in 2021. The announcement came after the TAPP (True Animal Protein Price) Coalition presented research in the Dutch parliament<sup>26</sup>. In addition, there is mounting evidence associating high meat consumption with a number of health risks, and Oxford University research found that a 'health tax' on red and processed meat could "prevent more than 220,000 deaths and save over US\$40 billion in healthcare costs every year"<sup>27</sup>.

In addition, the agriculture sector is due to be incorporated into emission trading schemes. New Zealand is set to become the first nation in the world to include agriculture into an emissions pricing scheme, with an emissions pricing system being applied to livestock emissions at a farm level from 2025<sup>28</sup>.

As noted in the previous section, agricultural subsidies to high carbon foods remain. This may alter the retail price of these commodities in contrast to a level of pricing that would reflect market and environmental costs. In the US, the average retail price of a burger would be more than doubled by including the hidden expenses of health care, subsidies, and environmental losses<sup>29</sup>. Thus, in contrast to efforts towards carbon pricing, such subsidies can act as a form of negative carbon pricing<sup>30</sup>.

# In the UK, the Committee on Climate Change has recommended that the Government act to reduce consumption of the most carbon-intensive foods.

## Financial policies and regulations

With regards to **financial policies and regulations**, green finance regulation has been developing over time, and the EU's Taxonomy Regulation (EU) 2020/852, creates a classification system to help investors more easily recognise "sustainable" products which will also have implications for agricultural finance<sup>31</sup>. However, it is notable that with regards to the agriculture sector, the side-effects of antibiotic use in the livestock sector are currently not part of the taxonomy criteria, and animal welfare is also not included, although these are recommended in the Annex to be integrated in future<sup>32</sup>. Trade agreements are also increasingly important for aligning finance flows with the Paris agreement. This includes forthcoming updates to trade agreements to integrate climate change priorities, as well as leveraging agreements such as the European Union (EU)-Mercosur Trade Agreement to achieve compliance with the Paris Agreement<sup>33</sup>.

Moreover, mandated climate-related financial disclosure will also have implications for agricultural finance flows. For example, climate-related disclosure by companies in the meat and dairy sector may be lagging behind that of other sectors. In a recent assessment of the world's largest listed meat companies – itemised in the Collier FAIRR Protein Producer Index – only two (Tyson Foods and Marfrig), 5% of the firms assessed, publicly disclosed a climate-related scenario analysis<sup>34</sup>. This was despite the analysis being recommended by the Task Force on Climate-Related Financial Disclosures (TCFD). By comparison, in the energy sector, 23% of oil and gas, mining and utility companies<sup>35</sup> have undertaken this sort of climate scenario analysis (see further analysis in the next section). The integration of climate scenario analysis by central banks and financial supervisors also has implications for the agriculture and food sector. The Network for Greening the Financial System (NGFS) has noted that agriculture, forestry and land use play an important role in reducing emissions. The scenario for an orderly transition to 2°C shows that the agriculture forestry and land use (AFOLU) sector goes from net positive to net negative CO<sub>2</sub> emissions by 2060, with 4Gt CO<sub>2</sub> equivalent per year set to be absorbed from the atmosphere (e.g. by afforestation)<sup>36</sup>.

In terms of **future implications**, food and agriculture is also gradually being integrated into general climate change policymaking and target-setting (including carbon pricing schemes). The PRI's Inevitable Policy Response (IPR) projects that climate policies will fully incorporate land-use by 2030, with international payments playing a supporting role to national policies; as well as reduction of ruminant meat consumption of 75% by 2050 against the baseline<sup>37</sup>. Furthermore, the longer the delay, the more disorderly, disruptive and abrupt the policy will inevitably be<sup>38</sup>. As an example, in the UK, the Committee on Climate Change has recommended that the Government act to reduce consumption of the most carbon-intensive foods – including reducing the consumption of beef, lamb and dairy by at least 20% per person, well within current healthy eating guidelines<sup>39</sup>.

The direct transition risks include expected advances in regulation, including international carbon pricing and markets, the impacts of Paris NDCs, deforestation and biodiversity commitments, and changing consumer preferences. For instance, the Collier FAIRR Climate Risk Tool shows that by 2025, substitution away from cattle toward poultry is expected as a result of rising beef prices and shifting diets<sup>40</sup>. Indirect risks also threaten protein market valuation, including unsustainable land use and technological/innovation advancements in alternative proteins that will increasingly threaten conventional meat supply chains.



## Section 2

# Aligning private agricultural finance flows with the Paris climate goals

Institutional investors and other financial actors are increasingly working to align their portfolios with Paris Agreement goals, as well as engaging as shareholders to drive the requisite climate action in their portfolio companies. Tools, frameworks, research and collaborative investor initiatives exist to enable investors to understand the individual and aggregate climate impacts of their portfolios.

The industry-led **Taskforce on Climate-related Financial Disclosures (TCFD)** has laid out a framework to help public companies, banks, investors and other organizations more effectively disclose climate-related risks. However, the agriculture sector has not scored highly for coverage and quality of climate risk disclosures<sup>41</sup>. Similarly, FAIRR's research<sup>42</sup> indicates that most meat and dairy protein producers are not recognizing or effectively managing climate risks (as described in further detail below).

Investor initiatives related to agricultural finance include those centered specifically on key environmental risks, such as the deforestation-focused PRI-Ceres investor initiative for sustainable forests. Specialist research provided by Planet Tracker, Chain Reaction Research, and other advisors further explores and quantifies ESG risks including deforestation and alignment with climate goals. In the agricultural sector, FAIRR, which is supported by investors with over US\$30 trillion in collective assets under management, plays a role in providing key research and data. The Collier FAIRR Climate Risk Tool provides climate stress testing of animal agriculture holdings (see below) as well as facilitates effective engagements with companies across the animal agriculture supply chain, directly contributing to the alignment of existing private financing.

Actions and coalitions led by other private institutions, such as banks, and corporates across the AFOLU sector populate the broader ecosystem of efforts to align private sector finance with Paris goals. These include the Soft Commodities Compact of the Banking Environment Initiative and the Consumer Goods Forum; the Consumer Goods Forum's Forest Positive Coalition of Action; and the One Planet Business for Biodiversity (OP2B) coalition.<sup>43,44,45</sup>

## Data on alignment of private agricultural finance: The Collier FAIRR Protein Producer Index

The TCFD provides information for financial-sector actors on the disclosures and reporting to identify climate-related financial risks. However, according to FAIRR's research<sup>46</sup> most protein producers are not recognizing or effectively managing climate risks. In fact, the world's protein producers are worth around US\$1.3 trillion. In 2020, out of the 60 largest protein producers (worth over US\$336 billion), only 7 (20%) have GHG emissions reduction targets covering their Scope 3 emissions.<sup>47</sup> This is shown in Fig 2. Moreover, in 2020 only 25% of these companies are disclosing their Scope 1, 2 and 3 greenhouse gas emissions (representing US\$73.2 billion or 22% of total market capitalisation). This has increased from just 6% (US\$16.5 billion) of the largest protein producers by market capitalization disclosing their greenhouse gas emissions in 2018 (Fig 2a). This means that in 2018, 93% (n = 56) of the world's 60 largest meat and dairy companies were not disclosing their Scope 3 greenhouse gas emissions.

The FAIRR Initiative's flagship Collier FAIRR Protein Producer Index is the world's only ESG benchmark of leading global protein producers. The assessment covers 10 risk and opportunity areas, including greenhouse gas emissions, deforestation and biodiversity, water use and scarcity, and waste and pollution. The index highlights that the outsized volume of emissions generated by livestock means companies engaged in factory farming are vulnerable to transition and physical risks. These include future taxes, changes to subsidy regimes, carbon pricing, and extreme weather events such as stress and water shortages. For deforestation and biodiversity, livestock farming (specifically beef) is the leading driver of deforestation in the Amazon and globally.<sup>48</sup> Heightened scrutiny on company performance is an established reputational risk that can result in shareholder divestment, targeted civil society campaigns and consumer boycotts. For example, Nordea Asset Management (€230 billion AUM) announced its divestment of holdings in Brazilian producer JBS in July 2020.<sup>49</sup> 47 of 60 (78%) of companies in the Collier FAIRR Protein Producer Index assessment ranked as High Risk for greenhouse gas emissions. This means that they have poor disclosure across critical emissions reporting requirements, including Scope 1, 2 and 3 inventories and target setting, demonstration of emissions reductions, and TCFD-aligned scenario analysis<sup>50</sup>.

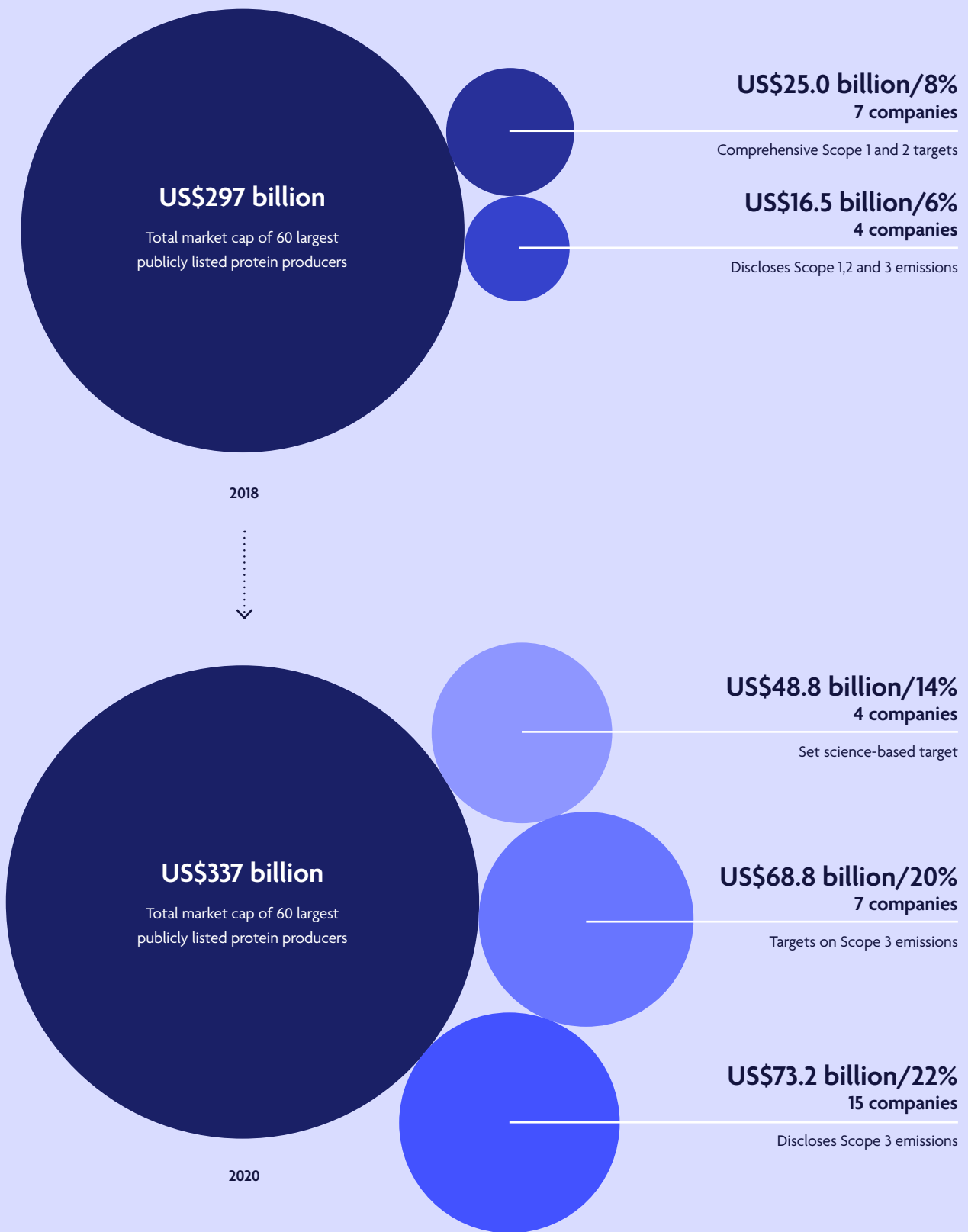


Fig 2: Emission Disclosure and Targets by the 60 Largest Publicly Listed Protein Producers in 2018 (Source: FAIRR, 2018)<sup>51</sup> and 2020 (Source: FAIRR, 2020)  
 Sum of market capitalisation October 2018 and October 2020, USD billions, n=60

# The FAIRR Climate Risk Tool enables investors to assess the potential downside risks and upside opportunities related to animal protein companies in their portfolios in a 2°C warming scenario.

None of the 60 companies assessed has set a Science-Based Target consistent with the reductions required to limit warming to 1.5°C, clearly demonstrating the current lack of alignment of the animal agricultural sector with Paris goals. The Collier FAIRR Protein Producer Index is the only data source providing this information for investors and other stakeholders, enabling clear understanding of progress implementing Article 2.1c within the agriculture sector.

## Using scenario analysis to help manage the risks posed by a changing climate

Animal agriculture is a key contributor to GHG emissions and it's particularly exposed to physical and transition climate risks. While these risks are not priced into today's markets, they are growing in severity. Increasingly forceful policy responses and market re-pricing are likely over the next decade. Investors failing to account for these risks will misallocate capital and investment by overpaying for assets expected to underperform financially.<sup>52,53</sup>

Sector and individual company performance will be determined by the ability to preempt changes to carbon policy and shifts in consumer preferences away from conventional animal proteins. In addition, physical risks, such as extreme weather events and temperature increases are already affecting agricultural productivity. These risks will gradually, but continuously, worsen. As an example, extreme temperatures under climate change are predicted to reduce average yields for several of the United States' major crops<sup>54</sup>. Meanwhile, consumer preferences may change, with the UK, for example, seeing growth in sales of plant-based products of 40% between 2014 and 2019 due to the rising popularity of flexitarian diets<sup>55</sup>.

The Collier FAIRR Climate Risk Tool enables investors to assess the potential downside risks and upside opportunities related to animal protein companies in their portfolios in a 2°C warming scenario. It is designed as a first step to enhance forward-looking analysis in the absence of widespread scenario analysis by companies in the sector.<sup>56</sup> The tool enables investors to understand how climate risks will impact profitability. This in turn informs investment decision-making and engagements, providing scenarios by which companies may begin, or fail, to align their operations with climate goals.<sup>57</sup> Forward-looking analysis is therefore critical for investors to be able to anticipate the potential trajectories of their portfolio companies and whether further investment and/or action is required to align their operations with Paris Agreement goals.

These tools and analysis reinforce the argument that asset owners should engage with their asset managers and service providers to understand how they're integrating agricultural climate risk into their portfolio analysis, construction and strategy, to align investments in this sector with Paris climate goals. For example, asset owners may want to use specific transition pathways for a 1.5°C or 2°C scenario as a basis to understand managers' risk mitigation strategies and the timing of transition for their exposed protein holdings (or the assets in the protein universe). Furthermore, they may want to review asset allocation strategies and consider implications for both passive and active mandates.

The private sector is increasingly engaging with capital market stakeholders to minimize the disruption from a disorderly transition to a low-carbon economy, thus aligning private finance with Paris goals. Investors are now demanding robust data and research, such as the Collier FAIRR Climate Risk Tool, to inform their investment decision-making and ensure that their investment assets are shielded from the increasingly severe risks in the meat sector. Or, in some cases, investors are already transitioning out of carbon-risky investments to those that provide more resilient operating models.

Case study

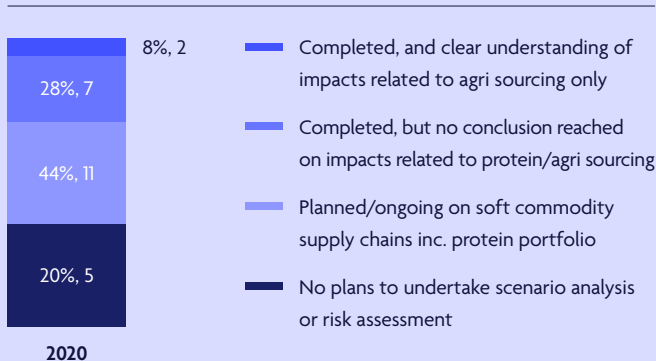
# Investor engagements to align private finance: The case of FAIRR’s Sustainable Protein engagement



FAIRR’s collaborative investor engagements form part of the broader active ownership movement by which institutional investors seek to align existing private finance with low emissions trajectories and climate-resilient development. Key to such engagement is the assessment of company disclosure and performance on climate. This enables investors to engage in meaningful dialogues with companies about the climate resilience of their operations. FAIRR’s Sustainable Proteins engagement evaluates how 25 global food manufacturers and retailers recognise their contribution to climate change, and exposure to climate risk by assessing their exposure to animal protein in their product portfolios and supply chains. In 2020, 87% of companies that had conducted TCFD-linked scenario analysis on agricultural sourcing and/or quantified Scope 3 emissions publicly recognised the significant impacts associated with their animal agriculture portfolios – demonstrating the importance of data and disclosure.<sup>58</sup>

FAIRR found that in 2020, 9 of the 25 companies had completed a scenario analysis or risk assessment on their soft commodity supply chains. However, meaningful disclosure on the findings of scenario analysis remains a challenge. Where companies had completed scenario analysis, they reported only high-level detail on identified impacts and how these alter strategies. Two (8%) of companies had completed a TCFD aligned scenario analysis with a clear understanding of impacts in relation to their agricultural sourcing (Fig 3).

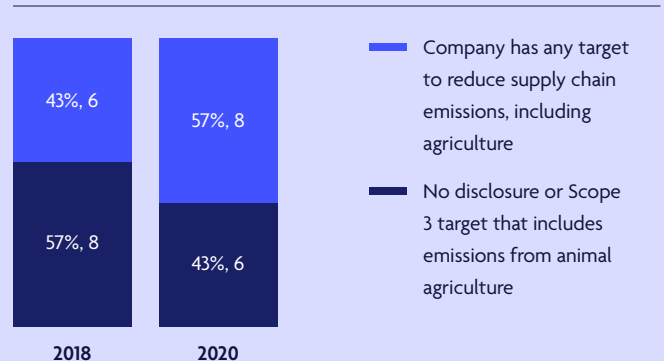
**Fig 3: Completion of TCFD-Aligned Scenario Analysis by 25 Global Food Retailers and Manufacturers**  
n=25, FAIRR Sustainable Proteins Engagement, 2020



Food companies continue to progress on setting Scope 3 emissions reductions targets and reporting segmented emissions data. FAIRR’s Sustainable Proteins engagement demonstrates this progress to investors, showing in 2020 that 8 of the 14 companies (57%) in the original cohort of companies set Science Based Scope 3 targets that include emissions from animal agriculture (up from 43% in 2018), as shown in Fig 4.

However, this does not unequivocally demonstrate that companies are effectively aligning their strategies with Paris goals. For example, of the companies that had set Scope 3 targets in 2020, most did not provide full disclosure – that is, disclosing their baseline year, target year, percentage reduction target, and baseline emissions data to enable investors to accurately benchmark peers. As new investor tools develop, there will be further opportunity to meaningfully assess these targets. For instance, the Science-Based Targets Initiative (SBTi) has developed a Temperature Ratings Methodology for converting all emissions targets into a temperature framework. This enables an understanding of whether a target is consistent with the reductions required to limit warming to 1.5 degrees above pre-industrial levels. At present, corporate ambition on target setting also varies in ambition in terms of the target temperature, i.e. some companies only focus on the less acceptable 2 degrees pathway.

**Fig 4: Scope 3 Target-Setting by 14 Global Food Retailers and Manufacturers<sup>59</sup>**  
n=14, FAIRR Sustainable Proteins Engagement, 2018 and 2020



# Conclusions and future implications

Climate change is a dynamic policy area, and whilst it is unclear exactly which policy options will be taken forward, policymakers have already begun to implement efforts to **“making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”**. These efforts are likely to increasingly affect the food and agriculture sectors. As noted by the UN PRI, an early policy response is set to result in a more orderly and manageable transition than a delayed response that is introduced abruptly<sup>60</sup>.

In this first part of this paper we summarised fiscal policies, with a focus on subsidies and taxation, as well as financial regulations that will need to be reformed or tied to climate-related targets in order to achieve the global climate goals. Secondly, we reviewed the actions by private financial actors, finding that investors face both physical and transition risks resulting from legislation that will affect the profitability of carbon-intensive agriculture. FAIRR is helping animal protein producers and investors assess and manage their risks, and will thereby play an important part in aligning climate finance to the Paris goals.

Finally, it is important to note that scientists warn that the world soon faces significant disruption to natural ecosystems due to currently identified tipping points in the climate system. These disruptions pose a particular risk to agriculture and food systems, which could trigger abrupt changes. Agricultural climate-related tipping points include changes to the monsoon season in India or West Africa, or a die-off of global coral reefs<sup>61</sup> as rising temperatures push warm water corals beyond tolerable levels of thermal stress. Coral reef die-off has a real economic impact and poses a threat to the ocean economy; the economic value of goods and services from coral reefs exceeding US\$375 billion annually<sup>62</sup>.

A growing body of academic and practitioner work shows two key findings: unmanaged climate change generates significant value at risk for investors, and incorporating climate factors can improve return<sup>63</sup>. Investors are increasingly exploring ways to meaningfully decarbonize their agriculture portfolios – however, systems-wide shifts, including policy changes, are needed for these sectors to transition to net-zero emissions. It’s still unclear whether policy action will be taken soon enough to avoid significant disruption to food systems and shocks to producers from the physical impacts of climate change. However, as required under the Paris Climate Agreement’s Article 2.1c, policymakers are expected to ensure financial flows are ‘consistent’ with the goals. Thus, we can expect further action by policymakers to implement this goal, as the Paris Climate Agreement moves into its implementation phase.

## Endnotes

- 1 <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- 2 <https://www.pnas.org/content/114/44/11645>
- 3 <https://www.nature.com/articles/s41893-020-00603-4?proof=t>
- 4 <https://unfccc.int/sites/default/files/resource/51904%20-%20UNFCCC%20BA%202018%20-%20Summary%20Final.pdf>
- 5 <https://unfccc.int/sites/default/files/resource/51904%20-%20UNFCCC%20BA%202018%20-%20Summary%20Final.pdf>
- 6 <https://unfccc.int/topics/climate-finance/workstreams/transparency-of-support-ex-post/biennial-assessment-and-overview-of-climate-finance-flows-background>
- 7 <http://www.fao.org/in-action/boosting-transparency-forest-data/news/detail/ru/c/1298773/>
- 8 A definition of these terms can be found on the following link: <https://www.bankofengland.co.uk/knowledgebank/climate-change-what-are-the-risks-to-financial-stability>
- 9 <https://www.fairr.org/article/managing-environmental-risks-in-meat-and-dairy-supply-chains/>
- 10 <https://www.fairr.org/research/climate-risk/>
- 11 <https://www.odi.org/publications/11253-making-finance-consistent-climate-goals-insights-operationalising-article-21c-unfccc-paris-agreement>
- 12 <https://data.oecd.org/agrpolicy/agricultural-support.htm>
- 13 <https://openknowledge.worldbank.org/handle/10986/33677>
- 14 <https://openknowledge.worldbank.org/handle/10986/33677>
- 15 <https://hoffmanncentre.chathamhouse.org/article/subsidies-and-sustainable-agriculture/>
- 16 Locke and Lowe (2021). Reducing Greenhouse Gas Emissions in Agriculture: Repurposing Public Support: Background Paper, Overseas Development Institute (Forthcoming)
- 17 [https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE\\_Full-Report\\_Final-with-endorsements\\_101420.pdf](https://www.paulsoninstitute.org/wp-content/uploads/2020/10/FINANCING-NATURE_Full-Report_Final-with-endorsements_101420.pdf)
- 18 <https://www.greenpeace.org/eu-unit/issues/nature-food/1803/feeding-problem-dangerous-intensification-animal-farming/>
- 19 <https://ieep.eu/publications/aligning-the-post-2020-common-agricultural-policy-with-the-european-green-deal>
- 20 [https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/sustainability\\_and\\_natural\\_resources/documents/analysis-of-links-between-cap-and-green-deal\\_en.pdf](https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/sustainability_and_natural_resources/documents/analysis-of-links-between-cap-and-green-deal_en.pdf)
- 21 <https://meatonomics.com/2013/08/22/meatonomics-index/>
- 22 Global Panel on Agriculture and Food Systems for Nutrition, *Future Food Systems: For people, our planet, and prosperity*, September 2020. [https://www.glopan.org/wp-content/uploads/2020/11/Foresight-2\\_WEB\\_2Nov.pdf](https://www.glopan.org/wp-content/uploads/2020/11/Foresight-2_WEB_2Nov.pdf)
- 23 <https://www.ebrd.com/2019-joint-report-on-mdb-s-climate-finance>
- 24 <https://www.thebureauinvestigates.com/stories/2020-07-02/development-banks-fund-industrial-farms-around-the-world>
- 25 Locke and Lowe (2021). Reducing Greenhouse Gas Emissions in Agriculture: Repurposing Public Support: Background Paper, Overseas Development Institute (Forthcoming)
- 26 <https://www.fairr.org/article/the-livestock-levy-progress-report/>
- 27 <https://www.oxfordmartin.ox.ac.uk/news/health-meat-tax/>
- 28 <https://www.mpi.govt.nz/funding-rural-support/environment-and-natural-resources/climate-change-primary-industries/>
- 29 <https://www.imf.org/external/pubs/ft/fandd/2019/12/farming-food-and-climate-change-batini.htm>
- 30 <https://www.e3g.org/publications/negative-carbon-pricing-a-shadow-price-we-need-to-know-blog/>
- 31 [https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities\\_en](https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en)
- 32 [https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy-annexes\\_en](https://ec.europa.eu/info/files/200309-sustainable-finance-teg-final-report-taxonomy-annexes_en)
- 33 [https://www.europarl.europa.eu/RegData/etudes/ATAG/2019/642231/EPRS\\_ATA\(2019\)642231\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/ATAG/2019/642231/EPRS_ATA(2019)642231_EN.pdf)
- 34 <https://www.ft.com/content/101c7334-63aa-11ea-a6cd-df28cc3c6a68>
- 35 <https://www.ssga.com/content/dam/ssmp/library-content/products/esg/climate-disclosure-assessment.pdf>
- 36 [https://www.ngfs.net/sites/default/files/medias/documents/820184\\_ngfs\\_scenarios\\_final\\_version\\_v6.pdf](https://www.ngfs.net/sites/default/files/medias/documents/820184_ngfs_scenarios_final_version_v6.pdf)
- 37 <https://www.unpri.org/inevitable-policy-response/forecast-policy-scenario-macroeconomic-results/4879.article>
- 38 <https://www.unpri.org/inevitable-policy-response/the-inevitable-policy-response-preparing-investors-for-an-abrupt-transition/5304.article>
- 39 <https://www.theccc.org.uk/publication/land-use-policies-for-a-net-zero-uk/>
- 40 <https://www.fairr.org/article/new-financial-modelling-on-climate-shows-billions-of-dollars-at-risk-in-the-meat-sector/>
- 41 [https://www.ey.com/en\\_gl/climate-change-sustainability-services/how-the-agriculture-sector-adopted-climate-related-disclosures](https://www.ey.com/en_gl/climate-change-sustainability-services/how-the-agriculture-sector-adopted-climate-related-disclosures)
- 42 The Index methodology evaluates company management of emissions and emissions reduction: whether companies have comprehensive Scope 1, 2 and 3 targets; actions taken to reduce emissions; emissions disclosure and reporting; and TCFD compliance.
- 43 <https://www.cisl.cam.ac.uk/business-action/sustainable-finance/banking-environment-initiative/pdfs/the-bei-and-cgfs-soft-commodities-compact.pdf>
- 44 <https://www.theconsumergoodsforum.com/environmental-sustainability/forest-positive/about/>
- 45 <https://op2b.org/>
- 46 The Index methodology evaluates company management of emissions and emissions reduction: whether companies have comprehensive Scope 1, 2 and 3 targets; actions taken to reduce emissions; emissions disclosure and reporting; and TCFD compliance.
- 47 Only companies with targets for Scope 1, 2 and 3 emissions have been counted. Within this, all targets are included, regardless of the scope of their coverage (i.e. proportion of companies' operating geographies and total emissions), or their robustness and ambition. Only 4 companies have emissions targets approved by the Science Based Targets initiative, widely acknowledged as the leading evidence-based methodology for setting reductions targets. In addition, a number of company targets evaluated in 2020 expired in the calendar year, and these companies may no longer have targets for the coming years. Lack of disclosure is considered as a lack of target.
- 48 According to research by the World Resources Institute, for the year 2018 just over half of total deforestation was deforestation for pasture. Globally, deforestation for cattle accounts for 36 percent of all agriculture-linked loss of tree cover: <https://research.wri.org/gfr/forest-extent-indicators/deforestation-agriculture>.
- 49 <https://www.theguardian.com/environment/2020/jul/28/investors-drop-brazil-meat-giant-jbs>. See also <https://mailchi.mp/chainreactionresearch.com/the-chain-nordea-divestment-of-jbs-sends-signal-to-brazilian-meatpacking-industry?e=bb70780c51>
- 50 <https://www.fairr.org/index/>
- 51 To note that Scope 3 emissions targets were not assessed in 2018 due to the low number of Scope 3 targets.
- 52 Planet Tracker August 2020, <https://planet-tracker.org/hall-of-flame-argentinias-debt-restructuring-negotiators-advised-to-factor-escalating-drought-and-wildfire-costs/>
- 53 Chain Reaction Research January 2021, <https://chainreactionresearch.com/wp-content/uploads/2021/01/Chain-Reaction-Research-Applies-TCFD-aligned-Framework-to-Assess-Deforestation-Risks.pdf>.
- 54 <https://www.nature.com/articles/s41467-020-18725-w>
- 55 <https://www.mintel.com/press-centre/food-and-drink/plant-based-push-uk-sales-of-meat-free-foods-shoot-up-40-between-2014-19>
- 56 Data from the FAIRR Index show that only 2 (3%) of the 60 leading protein producers have undertaken climate scenario analysis], compared to 23% of companies in the oil, gas and utility sectors.
- 57 FAIRR identifies seven direct risks that impact the profitability of the meat sector, all of which are costly and complex challenges: the growth of meat substitutions; a CO<sub>2</sub> price or tax on meat; increased veterinary costs; a CO<sub>2</sub> price on electricity; increased feed costs due to volatile crop yields; increased electricity costs and increased mortality rates in livestock due to heat stress. The Climate Risk Tool models future company profitability according to two elements: the climate impacts a company faces, and its ability to mitigate those impacts. The model projects three outcomes in line with three pathways companies can take to 2050, exploring regressive, progressive, and market-aligned responses to mitigating climate risk impacts. FAIRR's model projects a carbon tax on meat in line with the IEA World Energy Outlook for carbon taxes based; on policies to which governments have already committed.
- 58 FAIRR Initiative, 2020. <https://www.fairr.org/sustainable-proteins/summary-of-findings/materiality-strategy/>
- 59 In Fig 4, due to changes in the companies included in the Sustainable Proteins engagement between 2018 and 2020, a subset of 14 companies has been selected show progress since 2018 for a consistent cohort. Following these 14 companies since 2018 shows a modest increase of 2 that have set Scope 3 targets including animal agriculture in the period.
- 60 <https://www.unpri.org/inevitable-policy-response/the-inevitable-policy-response-preparing-investors-for-an-abrupt-transition/5304.article>
- 61 <https://www.carbonbrief.org/explainer-nine-tipping-points-that-could-be-triggered-by-climate-change>
- 62 <https://www.frontiersin.org/articles/10.3389/fmars.2017.00158/full>
- 63 <https://www.unpri.org/download?ac=9452>

## About FAIRR

Established by the Jeremy Collier Foundation, the FAIRR Initiative is a collaborative investor network that raises awareness of the material ESG risks and opportunities caused by intensive livestock production.

FAIRR helps investors identify and prioritise these factors through cutting-edge research that investors can integrate into their investment decision-making and active stewardship processes.

FAIRR also runs collaborative investor engagements with global food companies to improve performance on selected ESG issues in intensive livestock production.

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