

# Climate Transition Proteins: Flavour of the Future

OCTOBER 2022



## DEFINING ALTERNATIVE PROTEINS

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**Plant-based:** analogues that directly substitute animal-derived products (i.e., meat, seafood, eggs, or dairy) or animal-derived ingredients (e.g., fat, whey protein, vitamin sources, gelatine) using plant-based technologies. It also includes plant-based whole food proteins and fats (e.g., legumes, pulses, wholegrains, nuts).

**Cultivated** genuine animal protein produced by harvesting animal cells directly in a lab. The process uses a bioreactor (or “cultivator”) to enable cell growth that replicates the cell tissue structure of different cuts of meat or other animal proteins accurately.

**Insect-based:** edible insects are insect species used for human consumption, pet food or animal feed. There are more than 2,000 known edible insects. These can be eaten whole (fresh or dried) or as an ingredient (powdered) in processed food products.

**Fermented:** protein is produced via the cultivation of microbial organisms. This can be for the purpose of processing an entire foodstuff, and to utilise more of the organism itself as a primary source of protein, or as food ingredients, whereby specialised ingredients such as flavourings, enzymes, proteins and fats can be derived for the incorporation into plant-based products or cultivated meat. Like some plant-based analogues, fermented proteins aim to mimic animal proteins. The alternative protein industry uses fermentation in three primary ways:

- Precision fermentation (the process used to produce insulin for diabetics) – uses microorganisms to produce specific ingredients, such as proteins, enzymes, flavour molecules, vitamins, pigments, and fats.
- Biomass fermentation (used, for example, by Quorn or ENOUGH to grow fungi) – uses microorganisms with high protein content and rapid reproduction capabilities to produce protein in large volumes.
- Traditional fermentation (used for tempeh) – microbial anaerobic digestion, mainly used to improve the function or flavour of alternative proteins.

Increasingly, rather than being viewed as distinct categories, platforms can overlap in **hybrid** products, which are those that contain ingredients from two or more food technologies (e.g., plant-based meat with fermentation-enabled fat).

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## ABOUT THIS REPORT

This is the public version of the report, for non-members of the FAIRR initiative. Join the FAIRR Investor Network to read the redacted sections, and get access to a wide range of thematic reports, data and tools.

This report is a progress update on FAIRR's Sustainable Proteins collaborative investor engagement targeting 23 global food companies and supported by 84 investors with almost \$23 trillion in combined assets.

## INTRODUCTION

Climate change poses the most significant global challenge for humanity with impacts being seen and felt in communities around the world. Simultaneously, financial markets are facing new challenges, which disrupt business as usual. Volatile energy prices and high inflation threaten food security and require governments, financial markets and corporates to think outside the box and use any climate mitigation and adaptation tool at hand. Against this backdrop, the imminent threat posed by and to our food system has begun to materialise, especially in the protein sector. Hence, the alternative protein sector has been increasingly in the spotlight, with interest from investors, consumers, governments and corporates steadily ramping up. Protein diversification presents an attractive opportunity to achieve sustainability targets and decouple growth from environmental impacts for two reasons.

Firstly, the commercial opportunity is clear. This report showcases strong growth forecasts for the alternative protein sector, aggregates relevant public and private investments to date and highlights advances in price parity. It also outlines the behavioural trends supporting a dietary transition, including nutrition. This is all relevant for global food companies, such as those targeted by the Sustainable Proteins engagement, since companies can take advantage of the high-growth sector to generate value.

Secondly, diversification offers an opportunity to mitigate financial and climate change risks. Sustainable proteins have considerable carbon abatement potential and result in lower environmental impacts than animal proteins, thus contributing to long-term emission reduction targets and wider environmental goals. For global food companies, portfolio diversification represents an effective climate mitigation tool to tackle supply chain emissions meaningfully.

Following a six-year collaborative engagement facilitated by the FAIRR Initiative, there has been notable progress in the diversification of product portfolios among target companies. Despite this, the lack of clear and widely-accepted definitions for sustainable proteins is hampering the pace of change. Therefore, FAIRR is introducing an umbrella term, “**Climate Transition Proteins**”, to provide the industry with a spectrum of sub-categories with lower environmental impact, which companies can use to demonstrate more accurately their portfolio transition. The collaborative engagement also identified measuring portfolio transition as a hurdle. Hence, the development of two sector-specific disclosure guidance tools to enable comparable metric disclosure for companies and investors, the “**Alternative Proteins ESG Reporting Frameworks**”.



## Ripe for the taking: better proteins for people and the planet

Interest in food technologies has surged in the past few years, especially since the collaborative engagement was launched in 2016. Investor awareness and understanding of the ESG risks and opportunities of animal agriculture have amplified, along with public interest and corporate support for the dietary transition and climate transition opportunities, all of which have fuelled a much-needed food system shakeup.

Risks relating to the animal agriculture sector are now high on many investors' agendas, evidenced by the increase of the FAIRR investor network reaching more than 350 members with \$68 trillion assets under management. High exposure to animal-derived supply chains translates into vulnerability and financially material investment risks. Hence, investors are looking for:

- Future-proof businesses that are resilient, adaptable, and profitable in the long term.
- Business models that take advantage of the diversification opportunity, catering for future demand and accelerating the transition to nutritious and sustainable diets.
- Science-based decarbonisation targets that are aligned with the Paris Agreement. These targets should incorporate coherent quantitative milestones, such as interim and long-term climate mitigation goals.

Since the launch of FAIRR Initiative's Sustainable Proteins engagement, plant-based foods have seen a dramatic increase in popularity. To illustrate, just before the launch, Google's search engine tracked interest in plant-based foods at 12 out of 100. After six years of engagement, plant-based web searches increased in frequency by 383%. Interest from internet users is particularly high in three of FAIRR's largest member-represented countries – the United States, the United Kingdom, and Canada.<sup>1</sup> Plant-based diets and veganism have seen similar increases in visibility amongst search engine users, suggesting that public awareness is rising.

Figure 1  
Interest for plant-based foods over time, according to internet searches



Note: Numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means that there was not enough data for this term.

Source: Google Trends, (2022). Interest over Time. Available from: <https://trends.google.com/trends/explore?date=2016-09-01%202022-09-15&q=plant%20based%20food>

Companies in FAIRR's collaborative engagement have also increased the frequency of plant-based terminology in their financial and sustainability reporting. The sole term 'plant-based' is leading the way, appearing more than 150 times throughout company reports; 'vegan' is also growing in exposure, while 'alternative proteins' remains a less commonly used term.

Media and news outlets have been perpetuating plant-based interest. In the past year, the Financial Times published 356 articles relating to veganism, alternative proteins, and plant-based diets. As conversations shift, plant-based verbiage is increasing its presence in the public sphere, and the media reflects this growing interest.

# STATE OF THE MARKET: ALTERNATIVE PROTEIN SECTOR

## The promising investment opportunity

Alternative proteins present a unique investment opportunity, combining environmental stewardship with financial return. As companies and investors begin to recognise the high risk associated with conventional animal agriculture, the alternative protein industry has become an attractive – and profitable – replacement. The sector has shown steady growth over the past few years. In 2021, global plant-based meat sales surpassed \$5 billion, and plant-based milk sales were just shy of \$18 billion for the first time,<sup>2</sup> meeting pre-COVID market estimates. The country with the largest alternative market is the US, where plant-based milk holds 16% of the market share while plant-based meat holds 1.4%.<sup>3</sup>

**The growth potential of alternative proteins, combined with the increased risk associated with conventional animal proteins, makes alternatives a promising opportunity for investors**

## Future growth trajectory

Many organisations forecast further potential market growth under various scenarios. Within the medium to long term, leading consultancies and data providers predict a significant market share for this sector. For example, AT Kearney and Statista report that alternative proteins could have a long-term global meat market penetration of 60% in a best-case scenario (Figure 2).<sup>4,5</sup> In this scenario, alternative proteins could generate \$1.1 trillion in annual sales by 2040. Even in its lowest growth model, Credit Suisse forecasts that alternative proteins could account for at least 25% of the market by 2050, with a value of \$555 billion.<sup>6</sup>

As price parity improves and advances in taste and nutrition materialise, consumer interest will continue to increase. Additional manufacturing enhancements and a transition into larger-scale production over the next decade will provide the foundation for consistent, rapid growth. Despite discrepancies in market share predictions, experts agree that alternative proteins are here to stay, and their share of the protein market will increase rapidly.

The growth potential of alternative proteins, combined with the increased risk associated with conventional animal proteins, makes alternatives a promising opportunity for investors and companies.

Figure 2  
**Growth scenarios for the global alternative protein market**



Note: H stands for high-growth scenario, L is low-growth scenario, the remaining are base case scenarios  
Source: FAIRR (2022)

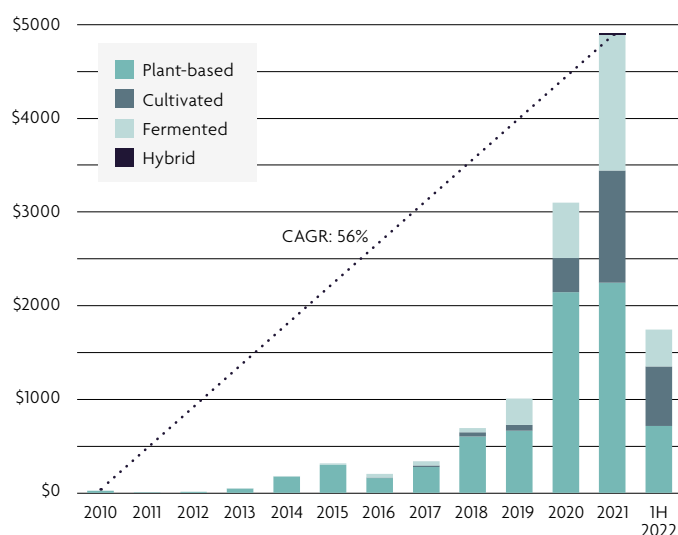
## Private investments: Steady growth over time

### View over the last decade

Innovation in food technology continues to grow exponentially, with a Compound Annual Growth Rate (CAGR) of 56% over a 12-year period. In 2021, the global market for alternative proteins continued to grow, despite uncertainty caused by the pandemic coupled with a shift from restaurants to home-based meals. 2021 investment significantly overtook that of 2020, increasing 58% year-over-year and reaching almost \$5 billion (Figure 3).

Plant-based alternatives are more widely recognised as the conventional substitute for animal-derived products, relative to other food technologies. 2021, however, saw cultivated and fermented technologies attract more capital, together accounting for more than half of total investments. Investments into cultivated foods rose from \$366 million to \$1.2 billion (+228%), while fermentation-enabled foods increased from \$587 million to \$1.5 billion (+147%). Plant-based was the most invested single food technology platform, reaching \$2.2 billion in 2021, but recorded the smallest percentage increase (4.5%).

Figure 3  
Private investments into alternative protein sector between 2010 and 1H22, by technology type

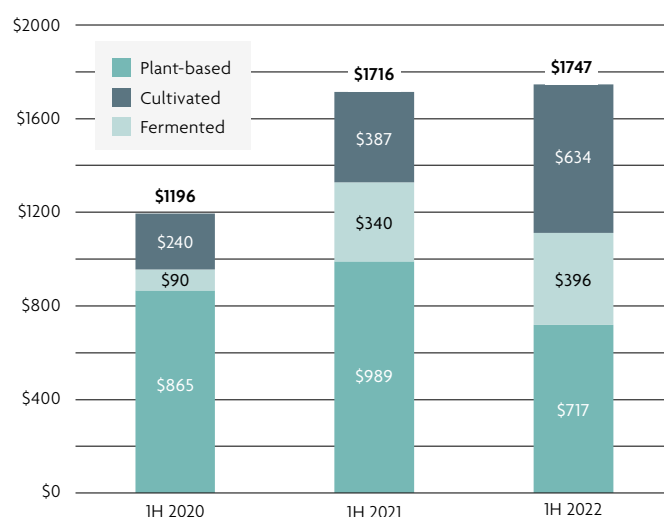


Note: Sum of private investments in USD (millions) for each year. Colour indicates technology type.  
Source: the GFI (2010-2019 and 2022) and FAIRR (2020 and 2021)

### First half of the year analysis

Alternative protein companies raised \$1.7 billion in the first half of 2022 (1H 2022), demonstrating a stable growth rate (2%) compared to 1H 2021. As the second quarter of 2022 (2Q 2022) ended, investments into the sector reached \$833 million, approximately 9% below the \$914 million raised in 1Q 2022. Even with the current geopolitical and market volatility context, there has not been a significant investment regression, with this slowing of investment mirroring private investment across other industries. For the first time, investment in cultivated technologies in 2Q 2022 exceeded those from plant-based, with \$500 million and \$237 million raised, respectively; these investments were spearheaded by \$400 million into Upside Foods, a US-based cultivated meat company. Top investments in 1Q 2022 were, on average, larger than those in 2Q 2022, with five companies raising more than \$100 million per deal, compared to an average of \$40 million in 2Q 2022.

Figure 4  
First half of the year (1H) investments into alternative protein technologies from 2020 to 2022



Note: Sum of private investments in USD (millions) for each first half of the year. Colour indicates technology type.  
Source: FAIRR (2020 - 2021) and the GFI (2022)

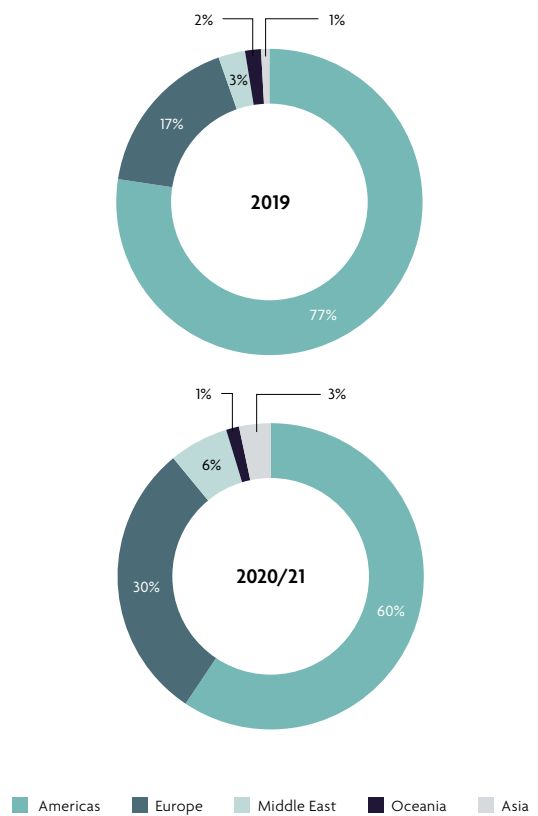
CASE STUDIES

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**Private investments by region**

The geographical allocation of investments into the alternative protein sector has shifted during the last two years. In 2019, 77% of total investments were directed to start-ups based in the Americas. In 2020 and 2021, this decreased to 60%. Investments in Europe – the second largest investment region – increased from 17% in 2019 to 30% in 2020 and 2021. The Middle East occupies the third place, at 6% in 2020 and 2021, increasing from 3% in 2019.

Figure 5  
**Breakdown of private investment into alternative proteins by continent in 2019 and 2020/21**



Source: FAIRR (2022)

Even though the business case for alternative proteins has never been as clear, further private investments are necessary to scale the industry to reach the enabling environment required for systemic change in food and agriculture.

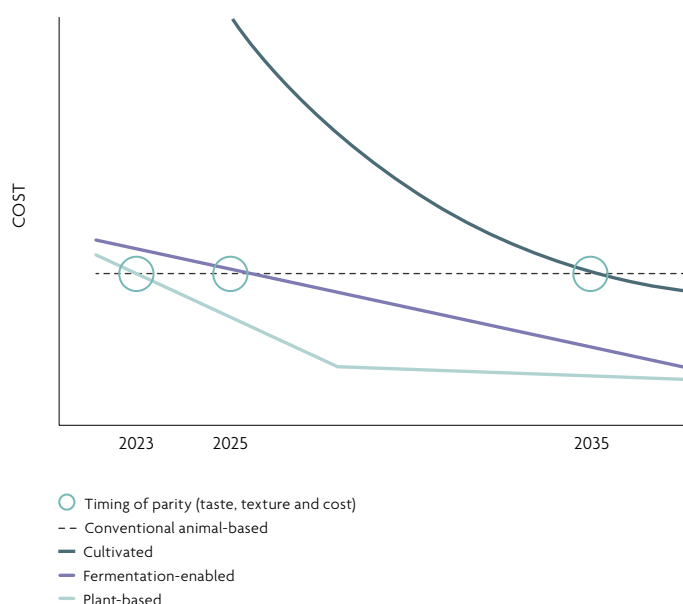


## The race to price parity

The cost of living is rising around the world. For instance, the UK is currently experiencing its highest inflation rate since 1982.<sup>12</sup> The food sector is bearing the burden of this, with rising costs and supply chain difficulties affecting prices and leading to a 13.1% inflationary increase as of August 2022.<sup>13</sup>

One of the most significant barriers to alternative protein expansion is price parity. Despite recent reductions in the cost of certain plant-based brands,<sup>14</sup> a significant gap remains between conventional brands and plant-based substitutes. Nonetheless, rising inflation has seen the price of meat increase at a higher rate than alternative proteins,<sup>15</sup> potentially opening the door to price parity sooner than expected. The Boston Consulting Group (Figure 6) predicts that plant-based products could reach parity in taste, texture and cost by 2023,<sup>16</sup> with brands like Oatly and Impossible Foods leading the way.

Figure 6  
**Relative timing of alternative protein cost parity with similar taste and texture to conventional animal-based proteins**



Source: Boston Consulting Group, (2022). The Untapped Climate Opportunity in Alternative Proteins.

The higher price point of direct substitutes has been a deterrent for consumers who are unwilling to pay a premium. It is, therefore, important to incorporate plant-based, protein-rich wholefoods as part of the mix. Pantry staples like legumes, beans and pulses have long been regarded as a low-cost protein sources. Consumers in inflationary markets could thus decrease expenses by replacing meat with plant-based whole food proteins, nuts, fruits and vegetables.

As economies of scale take over, products that mimic meat and dairy are expected to become significantly more affordable than their animal-derived counterparts. This is most apparent in the price changes for milk and dairy alternatives. In 2019, oat milk was priced at almost 2.5 times higher than that of dairy milk,<sup>17</sup> but has seen a dramatic price reduction in 2022. Oatly Original oat milk now retails at £1.40 per litre,<sup>18</sup> while whole dairy milk costs £1.25 per litre,<sup>19</sup> representing a 238% drop in the price of oat milk since 2019 and (according to the UK government) a 60% increase in the price of dairy milk from 2019 to 2022.<sup>20</sup> Against this backdrop price parity is materialising. At the beginning of October, Bloomberg reported that in the UK, alternative milk from soya, almond and oat are, on average, cheaper than cow's dairy milk.<sup>21</sup>

## CASE STUDIES

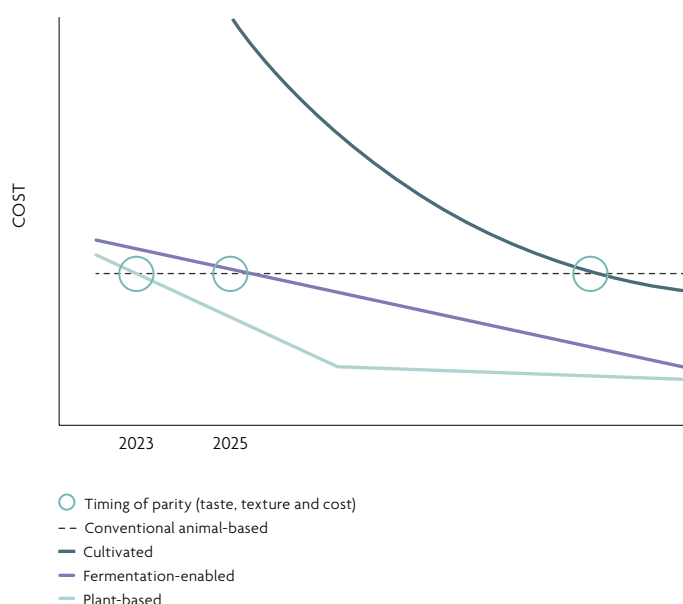
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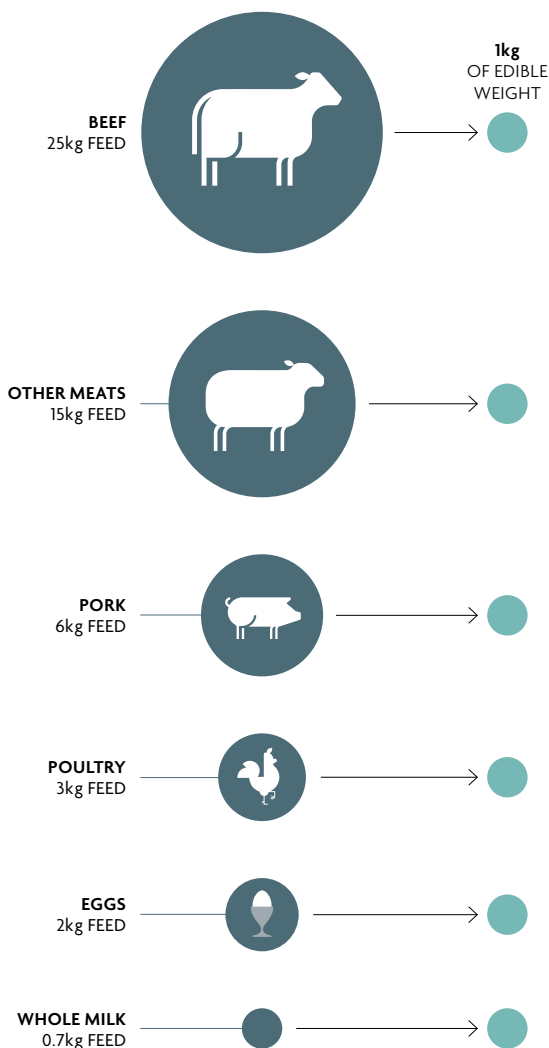
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## Addressing food security concerns with protein diversification

Globally, over 70% of livestock is housed on industrial farms. Their feed primarily consists of grain crops or legumes, like soy-based feeds, which are grown in vast monocultures. Meat and dairy are more resource-intensive than alternatives, especially with respect to feedstock, water and land use.<sup>22</sup> Animals are also inefficient sources of protein relative to plant-based foods.<sup>23</sup>

Figure 7

### Feed conversion ratio: the dry matter of feed per 1kg of edible weight



Note: Other meats, which forms 6.6% of all meats produced in 2011, is based on sheep and goat meat (65% by mass of 'other meat' in 2011), but includes other sources of meats (e.g. horse, rabbit and camelids). Source: P. Alexander, et al. (2016). Human appropriation of land for food: The role of diet. <https://doi.org/10.1016/j.gloenvcha.2016.09.005>

A major opportunity exists to increase food security and reduce food waste by shifting inputs from animal feed to human-edible crops.<sup>24</sup> Reducing industrial animal farming, and thus animal feed requirements, releases arable land that can be used for diverse crops for human consumption.<sup>25</sup> Eliminating animals also shortens the supply chain and reduces transportation needs, building resilience in the food system. To illustrate, locally sourced diverse whole food proteins for human consumption can build resilience to climate-related physical and transition risks (Figure 7) by making more efficient use of inputs. The FAIRR Sustainable Proteins collaborative engagement encourages companies to reduce their exposure to animal-derived products and increase sustainable sourcing practices across all proteins, enabling a dietary transition.

An effective dietary transition involves a diverse range of plant-based proteins, such as pea or oat-based proteins, rather than the current over-reliance on a limited number of crops.<sup>26</sup> Diversity in crop production spreads risks; if one crop fails (e.g., due to a disease), there are reliable alternatives, hence, creating food security and increasing the resilience of farmers' livelihoods. Additionally diverse crop rotations or simultaneously planting multiple crops per field enable biodiversity to thrive and the ecosystem to be resilient. A diverse range of plant-based protein crops can increase local sourcing of produce; instead of feeding South American soybeans to livestock in Europe, for example, producers can utilise more regional or national crops for plant-based protein products.

Shifting to plant-based alternatives also reduces the risk of antimicrobial resistance (AMR). Currently, 70% of total antibiotics consumed worldwide are used for livestock,<sup>27</sup> hence reducing reliance would also decrease the risk linked with the overuse of antibiotics in the animal agriculture sector.<sup>28</sup> Moreover, climate change impacts will increase the animal agriculture sector's costs relating to energy, cattle mortality (e.g., from heat stress), veterinary needs, animal feed, and a potential carbon tax<sup>29</sup>, as well as costs resulting from animal diseases (e.g., zoonotic pathogens) like avian viral infections and African Swine Fever.

Within an effective dietary transition there is still space for some animal-derived products. The aim is not to end animal agriculture entirely, but to scale down current volumes in line with a 1.5-degree trajectory, while addressing the environmental and social issues associated with intensive animal agriculture.



### Capitalising on consumer preferences

Global trends data suggest consumers are drawn to plant-based items for different reasons depending on the regions in which they reside. For example, consumers in the US are primarily motivated by health. US sales of plant-based products have increased by 6.2%, which is three times faster than total food retail sales.<sup>30</sup> Also, US consumer awareness of the health risks linked to red meat consumption increased as more studies show a high correlation with type 2 diabetes, coronary heart disease, stroke, and certain cancers.<sup>31</sup> Similarly, in Germany and Spain, consumers have a strong interest in healthy diets, but are also heavily influenced by animal welfare.<sup>32</sup> Environmental concerns are common across all countries surveyed, though they typically rank below health concerns.

Understanding the differences in market demand, especially how consumer preferences vary across geographies, is essential to developing a successful plant-based consumer engagement campaign. As such, companies logically need to tailor their approach to appeal to different target consumers. It is also important to understand how consumer preferences translate into actual in-store sales. Companies must combine research on consumer preferences with purchasing data to create audience-specific engagement strategies that incentivise plant-based products.

### CASE STUDIES

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### Nutritional advancements are inconsistent

The shift to more nutritious portfolios continues. Companies in the engagement are increasingly integrating nutrition priorities in new product development and simultaneously improving the nutritional profile of existing meat and dairy alternatives. Initial developments of meat and dairy substitutes – such as plant-based ice cream, burgers and sausages – focused primarily on taste and texture, appealing to consumers' preferences and convenience. However, consumers and governments are now applying pressure for alternative proteins to provide comparable – if not more – nutrients than animal-derived products. The following voluntary initiatives to incorporate nutrition into plant-based products are the most popular:

- Reformulating products to limit fat, salt, sugar (HFSS) and calorie contents. Compared to animal-derived products, however, plant-based meat alternatives still require a reduction of sodium levels.
- Fortifying nutrient density with micronutrients.
- Increasing fibre content as well as fruit and vegetable content.
- Making product labels easier to understand and adding fewer unnecessary chemical ingredients, such as additives, emulsifiers, and colourants.
- Promoting whole food proteins and limiting the level of processing of plant-based alternatives to avoid these falling into the ultra-processed foods category.
- Using nutritional profiling systems (NPS) and setting nutrition targets based on these metrics.

Progress on nutrition integration varies significantly. Leading companies are going beyond indulgence, developing products with a focus on nutritional value as well as taste. The laggards are still focused on winning market share by focusing on taste and overall desirability. Comparable measures for the nutritional content of alternative proteins – similar to those for animal-based proteins – are essential. Efforts within this area have been inconsistent, resulting in variable nutritional profiles for alternative proteins. To illustrate, a consumer can now easily compare the nutritional value of a chicken breast across producers or retailers. However, for plant-based chicken there is currently no baseline or minimum nutritional content to compare products across brands.



## CASE STUDIES

## SHOWCASING PLANT-BASED PORTFOLIOS COMBINING NUTRITION AND SUSTAINABILITY

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# EVOLUTION OF PORTFOLIO DIVERSIFICATION METRICS

## Heterogeneous metrics from engagement companies

Companies in the engagement are increasingly building internal capabilities and systems to track relevant, meaningful metrics. Positively, the number of companies establishing formal metrics in this area has increased to nine in 2022 (Table 1) from zero in 2019.

Table 1  
**Summary of metrics being developed and reported by companies**

Company	Metric	Latest figure
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However, these heterogeneous metrics do not allow for comparability between companies; hence the importance of sector-specific frameworks that guide relevant disclosure.

## Alternative protein-specific disclosure guidance

Rising consumer demand and investment have brought increased scrutiny to the sector, including concerns over transparency, energy intensity, nutrition and food safety. Stakeholders are considering the sustainability of the alternative protein industry and what the material ESG risks and opportunities are. The increasing pressure for measurable answers to these questions has resulted in the need for alternative protein-specific ESG disclosures to assess industry participants.

In response, FAIRR and the Good Food Institute (GFI) have collaborated to produce two first-of-their-kind frameworks, providing investors with insights into the most material ESG risks and opportunities, and enabling comparability. More than 50 stakeholders were involved in developing the frameworks to assure the materiality of the proposed metrics. The **Alternative Proteins ESG Reporting Frameworks** are designed to catalyse sector transparency. They offer disclosure guidance to help companies navigate the risks and opportunities and are intended to inform strategy at the company level. The Specialised Framework is for companies that solely have alternative proteins, while the Diversified Framework is for companies that produce and retail alternative proteins in addition to other products.

For more information on alternative protein ESG disclosure, see the **Alternative Proteins Framework – FAIRR**



### Global disclosure standards levelling up

Alternative proteins are also making considerable progress within sustainability frameworks, such as the Sustainability Accounting Standards Board (SASB) standards, now governed by the International Sustainability Standards Board (ISSB). Following extensive consultation periods, the SASB framework proposed the inclusion of alternative protein metrics. In June 2022, SASB published proposed metrics. These draft metrics aim to capture risks and opportunities associated with companies' management of alternative protein products. This project has now been transferred to the ISSB and awaits completion.<sup>36</sup>

Standard	Disclosure Topic	Metrics <sup>37</sup>
Meat, Poultry & Dairy and Processed Foods	Product innovation	<ul style="list-style-type: none"> <li>Revenue from (1) conventional animal products and (2) alternative protein products</li> <li>Total amount spent on protein diversification</li> <li>Discussion of strategy to diversify protein product</li> </ul>
Food Retailers & Distributors	Portfolio diversification	<ul style="list-style-type: none"> <li>Revenue from (1) conventional animal products and (2) alternative protein products from (a) private-label products and (b) non-private-label products</li> <li>Total number of (1) conventional animal products and (2) alternative protein products sold</li> <li>Discussion of strategy to diversify protein products</li> </ul>



# POLICY AND REGULATION: A DIVERSE LANDSCAPE

Based on public data collected and assessed, this section outlines the countries that have been identified as best placed to support the national development of the alternative protein sector and are more open to becoming alternative protein hubs. The country analysis is based on the following factors, further detailed in this section.

1. **The development of frameworks for cultivated products**
2. **Public investment into food technology**
3. **Dietary guidelines in line with health and sustainability**
4. **Labelling regulation for plant-based products**

## Alternative protein frontrunners: country analysis

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## Other frontrunners

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## Cultivated meat regulation on the move

Although investment in this area has increased substantially over the past few years, regulatory updates have been much slower to follow, with only Singapore approving cultivated meat for public sale. In general, cultivated meat regulatory approval falls under the “novel foods” category, which, according to the European Food Safety Authority (EFSA), covers any food that was not consumed “significantly” before 1997.<sup>54</sup> Over the past year, countries have begun to develop clearer regulatory frameworks and application processes for cultivated meat and other alternative proteins, including the US, South Korea and Israel.<sup>55, 56</sup> <sup>57</sup> Alternative proteins are also increasingly being discussed in the UK, with the UK’s Research Institute (UKRI) releasing an alternative protein roadmap in June 2022, as well as committing to invest £120 million in research across the food system.<sup>58</sup>

For cultivated meat, there has been regulatory approval mainly for private tastings, such as in the UK,<sup>59</sup> Netherlands and Israel.<sup>60, 61</sup> Singapore is the only country that has approved its sale.<sup>62</sup> Nevertheless, there is movement in the space, with the EU announcing it expects cultivated meat to be available for public purchase by mid-2024.<sup>63</sup>

Other countries have now opened up their application process for regulatory approval of cultivated meat. For example, GOOD Meat<sup>i</sup> is wagering on impending regulatory approval for its cultivated meat to be sold in the US, where it is currently constructing the world’s largest bioreactors, expected to become operational by 2024.<sup>64</sup> According to US regulators, although cultivated meat is considered safe, there are unanswered questions about how often the bioreactors should be cleaned and how the meat should be transported and stored, which has led to approval delays.<sup>65</sup>

Governments have increasingly invested public money into R&D of cultivation methods, including in Japan, the US and the UK. Japan’s Health, Labour and Welfare Ministry has set up a team of researchers to investigate potential health risks from cultivated meat and to consider what regulations will be needed.<sup>66</sup> In the US, the Department of Agriculture (USDA) launched the National Institute for Cellular Agriculture.<sup>67</sup> The UK saw a mixed response to its recent National Food Strategy, which mentioned alternative proteins, yet it did not touch on the future of regulatory approval for cultivated meat. This left UK-based cultivated meat companies calling for the government to support the sector more robustly with regulatory approval, pointing to the potential for a sustainable staple food source.<sup>68</sup>

Overall, developments in the regulatory space for cultivated meat are positive but slow. Companies lack clear government strategy and timelines for approval. Ongoing deliberations around food safety, consumer acceptance, government funding for R&D, and labelling of cultivated meat products present significant milestones to overcome. In particular, the labelling of alternative proteins, including cultivated meats, faces significant hurdles and opposition from conventional meat and dairy organisations and animal protein companies. In a fast-changing regulatory space, clarity, consumer acceptance, and clear milestones are critical to ensuring countries do not fall behind in the race to approval.

### Spotlight: China

Recent inclusions of cultivated meat and other synthetic proteins in multiple government plans can be seen as major milestones for the alternative protein industry in China. During a Chinese People’s Political Consultative Conference meeting in March 2022, President Xi Jinping mentioned the role of alternative proteins in ensuring national food security.<sup>69</sup> The Ministry of Agriculture and Rural Affairs’ 14th Five-Year Plan for Agriculture, published in January 2022, mentions cultivated meat, synthetic egg cream, and functional recombinant protein cultivation as types of “cutting edge and cross integrated technology” to produce “future food”<sup>70</sup>. The recent Five-Year Plan for the Bioeconomy also includes a proposal to develop biotechnology and support alternative protein R&D, with the aim of reducing pressures on natural resources created by conventional animal farming.<sup>71</sup>

For more information on China’s animal agriculture sector, see **Transforming Animal Agriculture in China – FAIRR**

<sup>i</sup> Selling cultivated chicken to consumers in Singapore since December 2020.

Table 2

**Summary of regulatory status update: cultivated meat**

Non-exhaustive data and correct as of 1 September 2022

Country	Latest Regulatory Update	Summary of the regulatory update	Status
<p>Members only content. Login at <a href="https://fairr.org/sustainable-proteins">fairr.org/sustainable-proteins</a> to access full report.</p>			

**KEY** (Status)

Open to applications,  
approval



Open to applications, no  
approval so far but expected  
in the medium term



Open to applications, no  
approval so far but expected  
in the long term



Framework under  
development



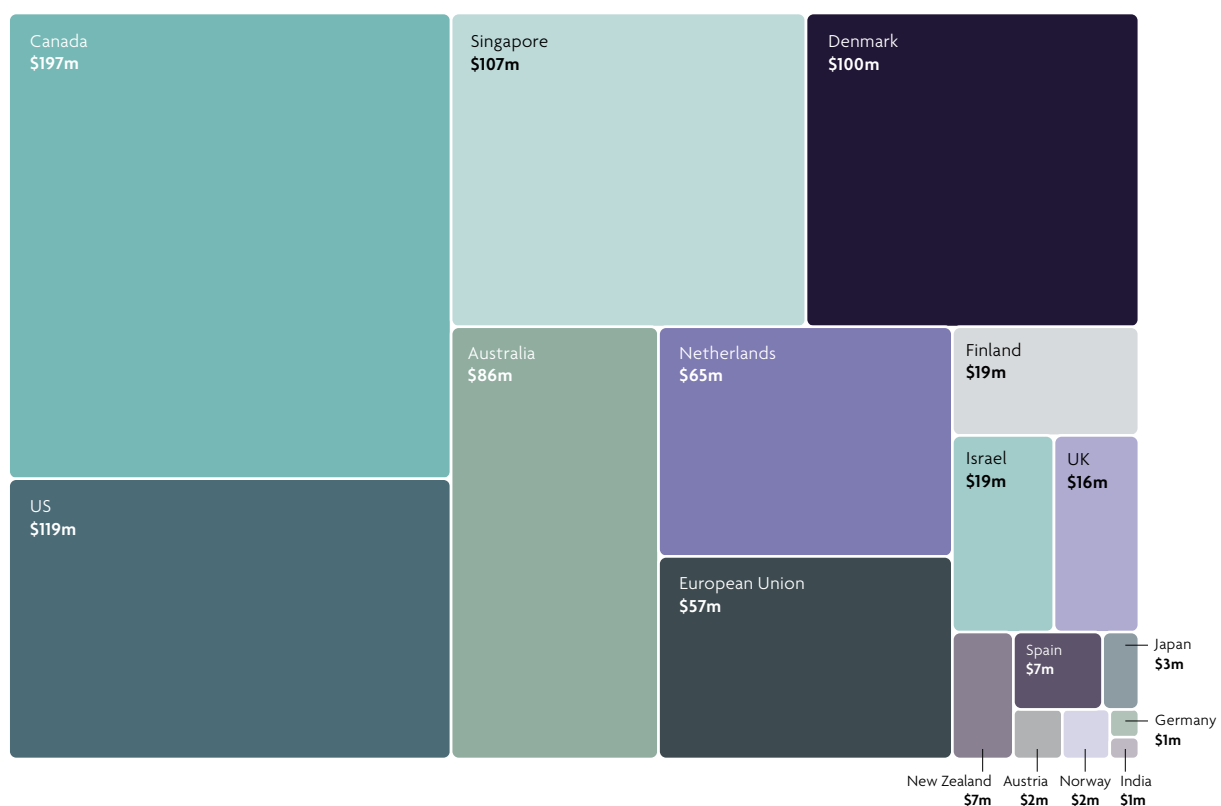
Early stage

## Public investment into food technology

Public investment into alternatives has increased significantly in recent years (Figure 8). Rising consumer demand for alternative proteins helps to mitigate pressing health, environmental, and animal welfare concerns. This has triggered developments in the policy sphere. Globally, governments have increased public investment into alternative proteins, suggesting that policymakers are beginning to view “future foods” as an important part of national food security, food sovereignty, public health and environmental health. The market share of alternative meat substitutes is currently around 1% compared to the rest of the protein market,<sup>99</sup> and it is projected to rise further. More

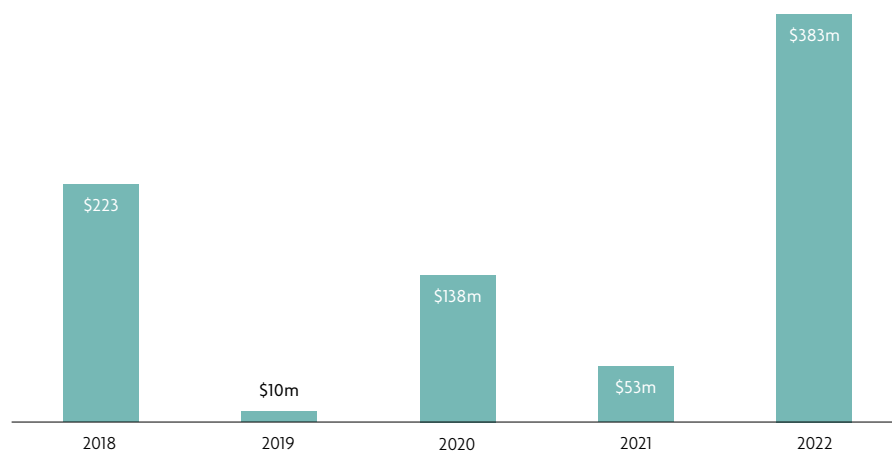
investment is needed to further accelerate the development of food technology, and government investment will be an essential element to help build investor confidence in the space. Over the past year, a number of countries have made significant investments in the alternative protein sector. Canada continues to lead the way, with \$197 million invested thus far. The US is just behind, with \$119 million invested in 2022 alone, mostly for plant-based ingredients in schools. Investment from governments into alternatives demonstrates a growing interest in dietary mitigation options that tackle both dietary inequalities and the climate impacts of animal protein reliant diets.

Figure 8  
Total government investments in alternative proteins based on public information, in USD (millions)



Source: FAIRR (2022)

Figure 9  
Total government investments in alternative proteins based on public information, in USD (millions)



Source: FAIRR (2022)

## Dietary guidelines misaligned with the Paris Agreement

Currently, no country-specific Food Based Dietary Guidelines (FBDGs) provide environmentally sustainable and healthy guidance or are aligned with the Paris Agreement.<sup>100</sup> Research suggests the most efficient approach to reducing the environmental impacts of diets is to reduce the consumption of animal-derived foods, particularly red meat and dairy.<sup>101</sup> Figure 10 illustrates the lack of nutritional and sustainability feasibility of most countries' food dietary guidelines. It depicts the hypothetical ecological footprint measured by how many planet Earths we would need to support food demand if a country's FBDG were replicated globally. Policymakers around the world need to improve FBDGs to address environmental and health risks related to current diets and to align them to their Nationally Determined Contributions (NDCs)<sup>ii</sup> and their legal commitment to the Paris Agreement.<sup>102</sup>

Figure 10

**Number of planet Earths needed to provide sufficient food if all countries globally adopt the FBDGs used by the countries listed**



ii The Paris Agreement requests each country to outline and communicate their post-2020 climate actions, NDC determine the efforts by each country to reduce national emissions and adapt to the impacts of climate change (UNFCCC, 2022).

## Labelling regulations becoming an obstacle

The past year has seen alternative proteins rise up the political agenda. Lobbying groups, consumers and policymakers are debating the labelling criteria for alternative proteins, and whether such alternatives can associate themselves with terminology previously reserved for use by conventional animal proteins. Terms like “meaty”, “sausage” and “dairy” are amongst those up for debate, with discussion, criticism and prohibitions across the globe.

The health benefits of plant-based proteins are also under scrutiny. In the UK, in early 2022, a **Tesco** advert suggesting alternative proteins are healthier for people, the planet and animals was banned.<sup>103</sup> Health is a key component in discussions around novel foods, such as alternative proteins, and efforts are being made to ensure that international food guidance – the Codex Alimentarius – is future proof.<sup>104</sup> The Codex Alimentarius is a collection of international guidelines and standards designed to protect the health of consumers and ensure fair practices in the food trade. Instruments like this are critical for maintaining food safety globally, but they must also remain flexible to incorporate new foods, including alternative proteins.

Proponents of the backlash against labelling freedoms for plant-based products argue the need to reduce consumer confusion around whether a product is sourced from animals or plants. Government opinion, however, is divided. Proposals for bans on using specific terminology for the plant-based sector have been rejected in Spain and Japan.<sup>105,106</sup> The EU also voted against a ban on labelling ‘veggie burgers’ as such in 2020.<sup>107</sup> Moreover, studies have questioned whether existing labels are indeed a source of confusion. Six country-specific studies, including US,<sup>108</sup> EU,<sup>109</sup> Netherlands,<sup>110</sup> and Australia,<sup>111</sup> suggest that omitting words traditionally associated with animal products from the names of plant-based products actually causes consumers to be significantly more confused.<sup>112</sup> Labelling bans are expected to apply to fermented and cultivated products, representing a further obstacle for start-ups and established companies investing in developing and commercialising their product portfolios.

Table 3

**Summary of labelling regulatory updates/bans in affected countries**

Non-exhaustive data, the purpose is to showcase some examples of restrictive labelling regulation, correct as of 1 September 2022.

Region	Updated	Status
<p>Members only content. Login at <a href="https://faiir.org/sustainable-proteins">faiir.org/sustainable-proteins</a> to access full report.</p>		

For more information on animal agriculture policy, see FAIRR's policy workstream **Policy – FAIRR**

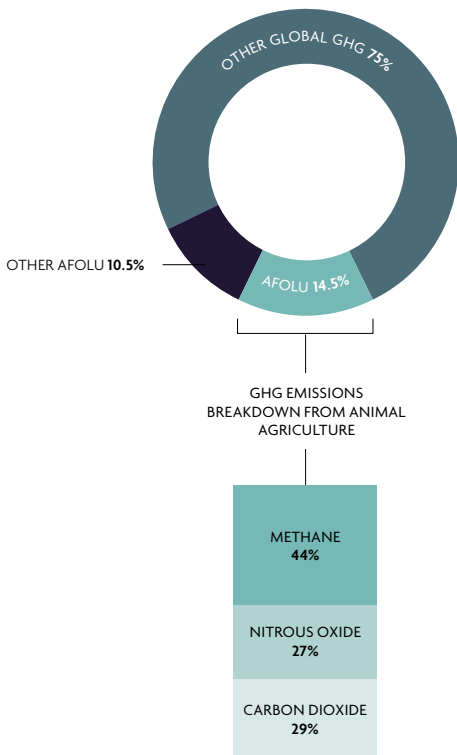
# SUSTAINABLE PROTEINS AS A CLIMATE MITIGATION TOOL

## Diagnosing the problem

Animal agriculture is responsible for over 60% of the agriculture, forestry and land use (AFOLU) sector’s global greenhouse gas (GHG) emissions and contributes to approximately 15% of all GHG emissions worldwide. Moreover, most livestock emissions come from gases with a much higher global warming potential than carbon dioxide. Although shorter-lived, methane and nitrous oxide, caused by enteric fermentation,<sup>iii</sup> manure management and fertiliser use, are 27 and 273 times stronger, respectively (Figure 11).<sup>130</sup> Therefore, addressing how and where we source proteins is key to reducing AFOLU emissions.

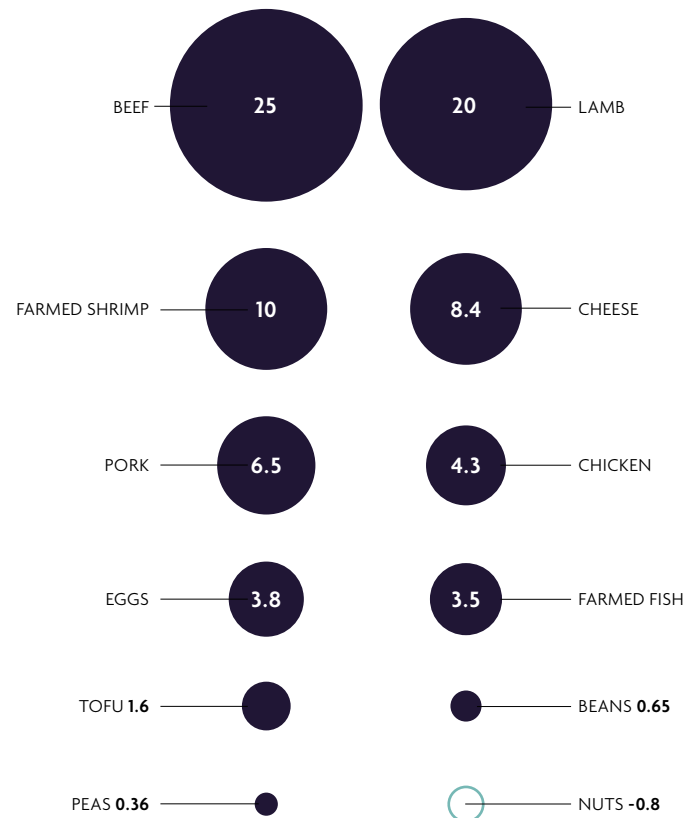
Data indicates that we require a significant shift in the food system to remain within planetary boundaries – particularly those relating to biochemical flows (nitrogen and phosphorus cycles), freshwater use, land-system change, climate change, and biodiversity loss.<sup>131,132</sup> Hence, a dietary shift is necessary to mitigate animal agriculture emissions and align with a 1.5 warming trajectory. Figure 13 demonstrates the potential mitigation benefit of different protein choices, showing the significant carbon footprint variations in a range of animal and plant-derived proteins based on terrain, climate, production and farming methods.<sup>133</sup>

Figure 11  
Global GHG emissions linked to AFOLU and breakdown from animal agriculture



Source: FAIRR (2022)

Figure 12  
Average carbon footprint of protein-rich foods, in kg CO<sub>2</sub>e/q



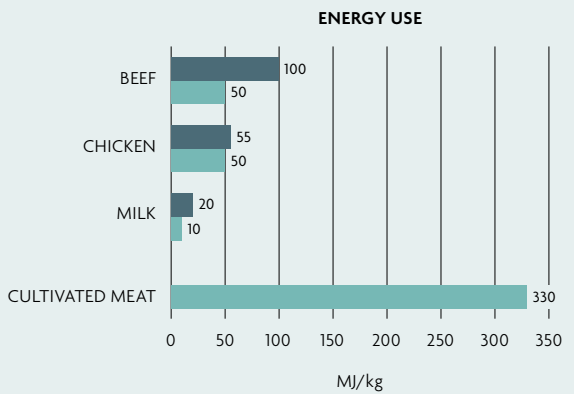
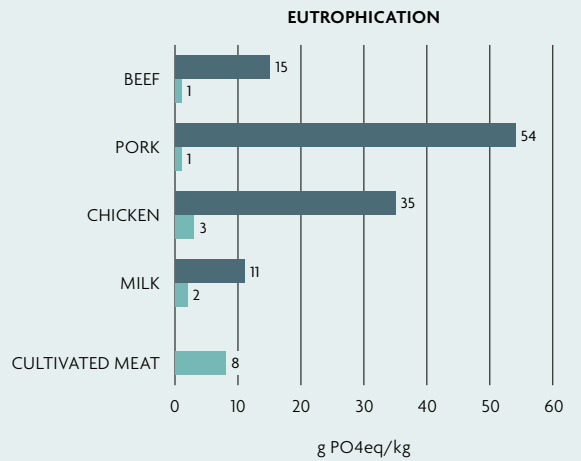
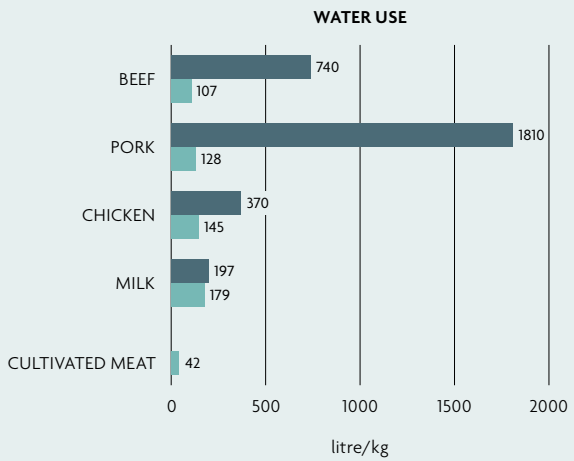
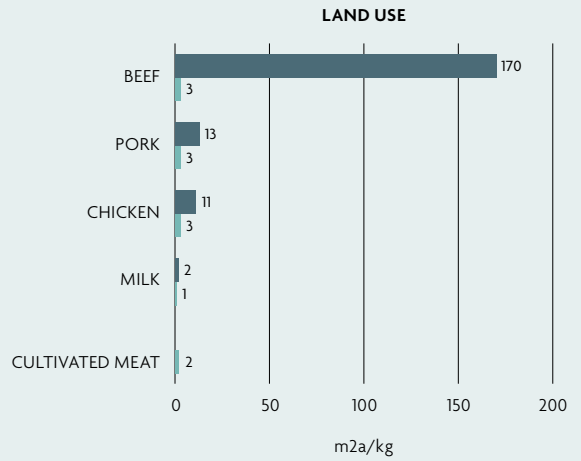
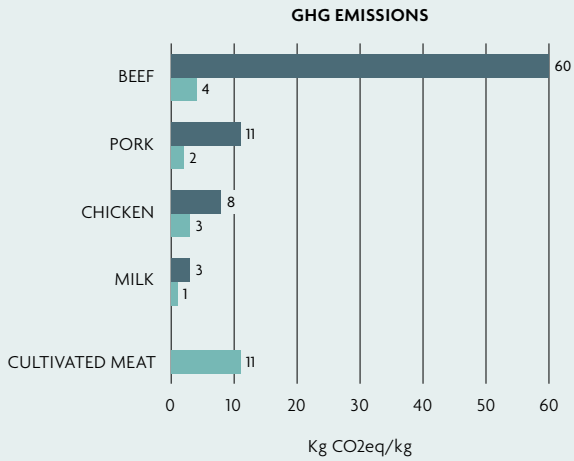
Note: Many nut producers are carbon-negative—even after accounting for other emissions and transport. This is because today, tree nuts are expanding onto cropland, removing CO<sub>2</sub> from the air. Source: Our World in Data (2020) Less meat is nearly always better than sustainable meat, to reduce your carbon footprint. Available from: <https://ourworldindata.org/less-meat-or-sustainable-meat>

iii Fermentation that takes place in the digestive systems of animal, in particular, ruminants

Figure 13

**Environmental impacts of alternative proteins compared to the average animal-based counterparts**

■ Animal-derived protein  
■ Alternative protein



Notes: Alternative protein figures for beef, pork, chicken and milk refer to plant-based alternatives. All figures are for 1kg/1L of product. Energy use of plant-based chicken has been assumed as the same as a plant-based burger. Pork and plant-based pork are excluded from energy use figures, due to lack of comparable data.

Source: FAIRR (2022)





## A dual-approach to mitigate environmental impacts for a 1.5-degree world

Sustainable proteins incorporate alternative proteins (plant-based, cultivated, fermented) in addition to sustainably sourced animal-derived proteins. Sustainable proteins are an untapped climate mitigation tool that, in two ways, have the potential to reduce negative environmental impacts. Firstly, they can lessen animal agriculture exposure. Secondly, by incorporating sustainability improvements in animal-derived proteins.

### Significant abatement potential from substituting animal agriculture

Sustainable proteins present a solution to address the disproportionate environmental impact of animal agriculture. Plant-based and cultivated meat products perform demonstrably better on GHG emissions, on average, they have 74% lower GHG intensity as well as other environmental factors such as water use, land use, energy use and eutrophication potential<sup>iv</sup> (Figure 14).

Beef has the most significant climate impact, considering GHG emissions, land use and energy use. Thus, the mitigation potential of alternative proteins is the highest when replacing cattle largely due to enteric emissions<sup>134</sup> and the land required for grazing. The mitigation potential also persists when substituting pork and, to a lesser degree, poultry. The latter two have environmental impacts across GHG emissions, land use, and energy that are more comparable to alternative proteins.<sup>135</sup> However, while intensive farming practices may reduce GHG emissions and land conversion, these practices also pose risks such as biodiversity loss from poor manure management, antibiotic overuse, animal welfare issues and disease spread.<sup>136</sup>

In addition, animal products require more resources than their alternatives: the animal agriculture sector uses an estimated 41% of total agricultural water to cultivate and process animal feed crops.<sup>137</sup> Intensive farming also has much greater eutrophication potential – a potentially harmful process of the enrichment of bodies of water with nitrogen and phosphorus, which can lead to oxygen depletion – than alternative proteins. Eutrophication potential is often used as a measure of biodiversity impact.

So while shifting to lower-impact animal proteins, like poultry, is still beneficial, substantially integrating alternative proteins into diets will almost always be a better option due to the broader environmental and social impacts linked to animal agriculture.

<sup>iv</sup> Eutrophication: adding too many nutrients to water bodies, resulting in inhospitable plant growth (e.g., harmful algal bloom) that remove oxygen from the water and kill fish and other animals (Cambridge dictionary, 2022).

### Benefits and limitations of more sustainable animal farming

Increasingly, farmers, corporates and governments are looking to animal farming practices that have a lower impact, such as regenerative agriculture. Initial findings are promising, one study suggests that beef reared using regenerative practices can capture more GHG emissions over an animal's life than are produced.<sup>138</sup> However, most of these schemes are still in the pilot phase, so climate mitigation potential and large-scale feasibility have not been evidenced. In addition, broader environmental impacts are only starting to be included in Life Cycle Assessments.

A 2022 report by the Centre for Innovation and Excellence in Livestock (CIEL) shows that with a 100% adoption rate of the most impactful mitigation tools available to animal farmers today, the UK would only achieve a 23% reduction in agricultural emissions. The report states that **“much more innovation, adoption and the realisation of carbon capture is needed to contribute to the UK goal of net-zero by 2050.”**<sup>139</sup>

Therefore, current data does not support that sustainable sourcing practices alone would provide the mitigation needed for a 1.5-degree trajectory.

For more information on the Environmental, Social and Governance (ESG) risks of animal agriculture, see the **Coller FAIRR Protein Producer Index | FAIRR**.

**“We are committed to supporting the global goal of achieving net-zero emissions by 2050 or sooner. With food systems currently accounting for around a third of global greenhouse gas emissions, the development of more sustainable diets will play a crucial role in achieving the goals of the Paris Agreement. As investors we recognise the risks facing our current food system, and alternative proteins present a crucial opportunity in the transition to a more resilient food future, enabling us to achieve food and nutrition security goals.”**

**Karen Lockridge**

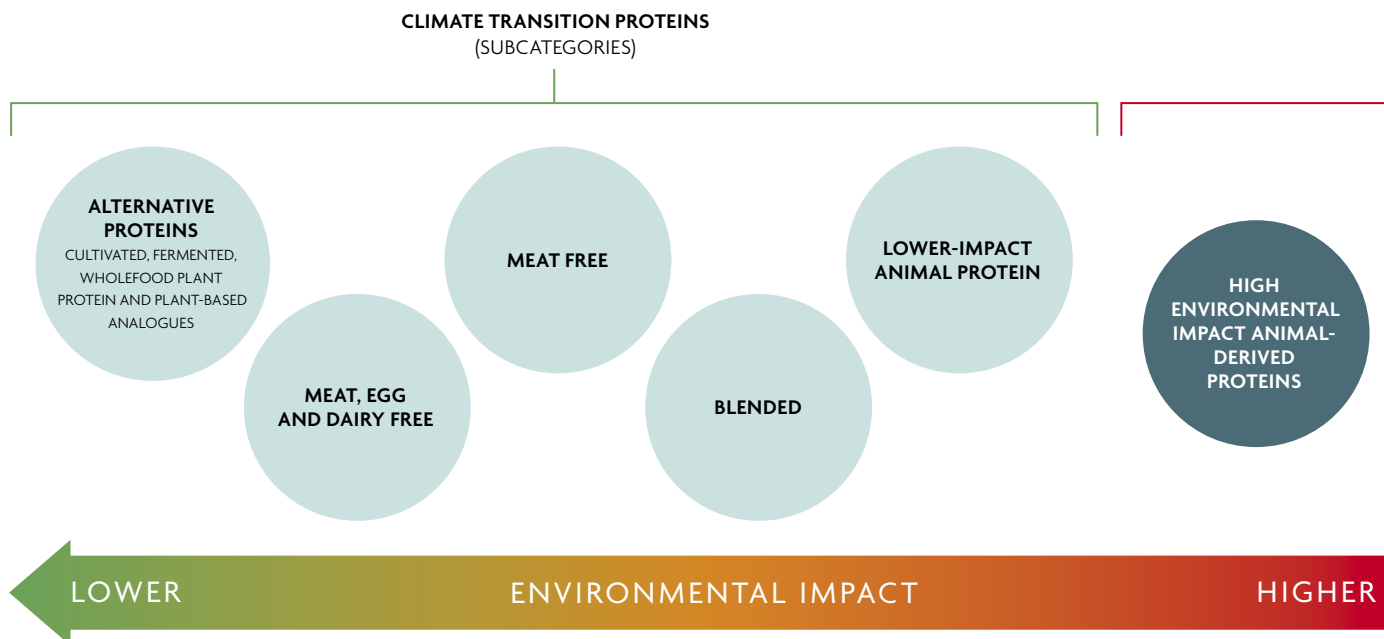
Director, ESG Investing, Canada Post Corporation Pension Plan

## New umbrella term: Climate Transition Proteins

After six years of engaging with food retailers and manufacturers on the issue of sustainable proteins, FAIRR and investor signatories identified the lack of industry-standard categorisations as a major hurdle. The lack of clarity around which foods can be considered part of the protein transition has also affected company disclosure. A key challenge is defining the universe of sustainable proteins in their product portfolio and reporting against it. For investors, this creates a challenge with comparability, given the significant variation in metrics disclosed by companies. Companies are hesitant to publicly disclose the baseline and metrics of their sustainable protein portfolio or set protein diversification targets due to the absence of clear definitions and categorisations.

To address these challenges, FAIRR proposes using “**Climate Transition Proteins**” as an umbrella term to categorise foods across all the stages of the protein diversification spectrum (Figure 14). These are then ranked according to their environmental impact. FAIRR hopes this categorisation empowers companies to disclose their protein exposure more accurately and incentivises portfolio transition acceleration. As a result, investors will be able to compare and track progress, by having a more holistic understanding of the companies’ portfolio composition and how these are changing over time. The Climate Transition Proteins term will be used in future phases of the collaborative engagement. FAIRR will continue to develop the term and familiarise the industry with it.

Figure 14  
Climate Transition Proteins categories



Source: FAIRR (2022)

For more information about the umbrella term, including the rationale, sub-categories’ definitions and recommendations, see the [Climate Transition Proteins | FAIRR](#)



## Keeping up with climate target standards

### Interim targets

The Science Based Targets Initiative (SBTi) is the industry standard through which companies can publish carbon targets and receive official approval. Since its creation in 2015, its target-setting process has evolved to match scientific developments. At present, an ambitious SBTi-approved target covers the emissions of the entire value chain (Scope 3) and aligns with a warming trajectory of 1.5-degrees.



1.5-degree alignment means to limit warming to 1.5 degrees below pre-industrial levels, currently the most ambitious warming trajectory.



Well-below 2-degrees equates to a 50% probability of limiting warming to 1.75°C



2-degree will limit warming to 2 degrees below pre-industrial levels. The SBTi is no longer accepting targets aligned to well-below 2 or 2 degrees.

Previously, the SBTi's best practice guidance asked companies to set reduction targets that equated to an overall 1.23% annual absolute emissions reduction. In light of increasing climate urgency, this metric has been revised to a 4.2% absolute yearly reduction, reflecting a more aggressive carbon reduction strategy that translates to 4x the reduction in emissions. This only applies to companies setting targets for the first time or re-evaluating existing targets, so the impact on companies' existing targets and action pathways is still unclear.

### Net-zero targets

The validity of net-zero targets is widely debated, with many questioning the effectiveness behind seemingly unattainable long-term goals. Critics likened the initial setting of these targets to greenwashing, since many companies did not provide clear pathways of action through which to achieve their net-zero ambitions and allowed for significant offsetting. The SBTi has combatted this lack of credibility by introducing a science-based net-zero framework and target-setting practice, enabling companies to commit to actionable long-term carbon reduction plans.

The SBTi Net-Zero Standard encourages companies to commit to solid emission cuts and near- and long-term targets. It states that companies should not make net-zero claims until long-term targets are met. It also stipulates that companies should go beyond the value chain by including investments that help mitigate climate change elsewhere.

The SBTi standards state that the amount of offsetting in the immediate term should be the peak level. Companies' net-zero pathways rely to different extents on offsetting. However, offsetting is not seen as a credible form of climate mitigation for a number of reasons; firstly, payments for offsets do not guarantee the same volume of emissions is abated. Secondly, many methods of offsetting are not permanent, and finally, emissions reductions in one location may lead to higher emissions elsewhere.<sup>140</sup> It is concerning that most companies with net-zero targets in the engagement have not disclosed whether they will rely on offsetting and to what extent.

## Sector-specific targets

The SBTi has recently introduced sector guidance to allow companies to set 1.5-degree aligned targets specific to their sector decarbonisation path. Companies in the food sector will now be setting science-based targets via the Forest, Land and Agriculture (FLAG) guidance, which addresses the lack of standards for targets incorporating land-related GHG emissions and removals. FLAG targets will be an additional component to the current SBTi process; companies will have two sets of targets, one for their land-related emissions and one for all others.

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Companies can take a sector- or commodity-based approach and must set a zero-deforestation target. The target date must not be later than 2025 and the recommended cut-off date is 2020.

### Sector approach

intended for diversified companies. Requires absolute emissions reduction of 30% by 2030 across all scopes. This significant reduction is likely to incentivise companies to prioritise protein diversification as a climate mitigation tool.

### Commodity-based approach

intended for specialised companies such as producers. Companies can set intensity-based reduction targets for individual commodities, if at least 10% of the companies' total gross emissions are from one of the ten commodities.<sup>v</sup>

<sup>v</sup> Beef, chicken, dairy, corn/maize, palm oil, pork, rice, soy, wheat, and timber and wood fibre.

## FAIRR VIEW

### Concerns about FLAG targets

The FAIRR Initiative has concerns that FLAG targets will not be stringent enough to bring about the emissions reductions necessary to decarbonise in line with a 1.5-degree trajectory:

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For more information on FAIRR's view of SBTi's FLAG Guidance, see [Science Based Targets in Agriculture Must Drive Robust Transition | FAIRR BLOG](#)

## 2022 ENGAGEMENT RESULTS AND ANALYSIS

### FAIRR Initiative Sustainable Proteins Engagement – Phase 6

#### Engagement objective

FAIRR's collaborative engagement on sustainable proteins is the first and largest global investor engagement focused on encouraging global food companies to systematically transition product portfolios. Its objective is to encourage target companies to:

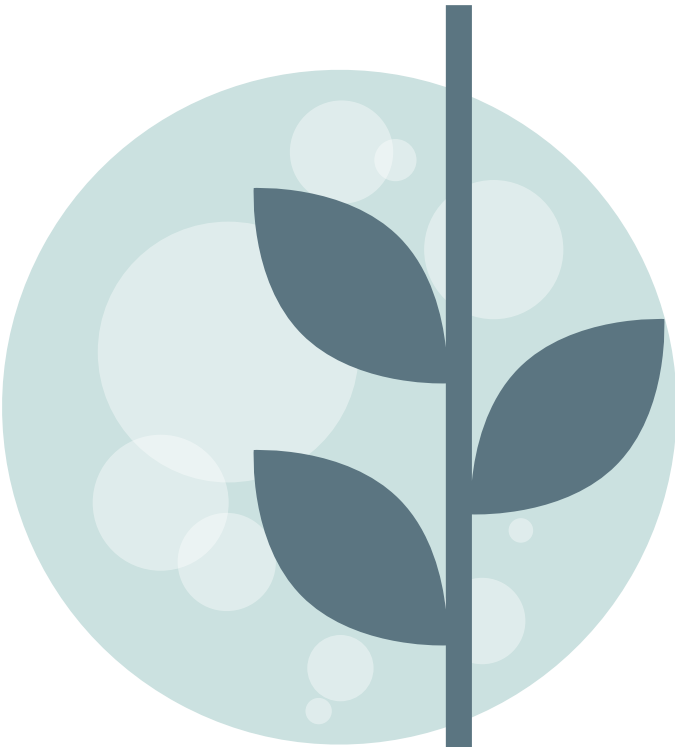
- Set timebound commitments to grow the share of sustainable and nutritious plant-based and alternative proteins and ingredients in product portfolios, enabling consumers to transition to sustainable and healthy diets that do not involve the excess consumption of animal-based products.
- Support and enable a dietary transition towards fewer, higher-quality animal-based products, while building sustainable food systems.
- Take a comprehensive, global, evidence-based approach to protein diversification, supported by metrics reported publicly every year.

FAIRR's collaborative engagement aligns with the long-term recommendations of the EAT-Lancet Commission, which recommends a macronutrient intake split of 60% plant-based protein sources and 40% animal-derived (including meat, fish and eggs). On average, the Commission advises doubling the consumption of legumes and nuts alongside a greater than 50% reduction in global consumption of red meat, mainly from wealthy countries.<sup>144</sup>

The FAIRR Initiative engages key players in the food and beverage supply chain to support the necessary systemic change in food systems. The target companies for the sustainable proteins engagement are food retailers and manufacturers able to facilitate the dietary shift by influencing their global supply chains and shifting consumer behaviour.

Following six years of engagement with the target companies, alongside investor signatories, FAIRR has backed a cohort of corporate leaders that can ignite the industry transition, paving the way for other companies. FAIRR has highlighted best practices and has become a knowledge-sharing platform for portfolio diversification. The collaborative engagement has acted as a catalyst for leading companies to take action on a challenging topic that was not previously a corporate sustainability priority. Today, portfolio diversification is recognised as a material business issue. Supporting the underlying dietary transition that involves portfolio diversification has also had broader industry impacts; since the 23 target companies have a significant share in operating markets and global supply chains. The expectation is for peers to align with best practices and foster a sustainable, nutritious and just global food system transition.

**FAIRR's collaborative engagement aligns with the long-term recommendations of the EAT-Lancet Commission, which recommends a macronutrient intake split of 60% plant-based protein sources and 40% animal-derived (including meat, fish and eggs).**





## The outcome: progress and trends

### Portfolio diversification targets and metrics on the rise

In February 2022, the FAIRR Initiative convened a technical roundtable with companies, investors and subject matter experts to answer how to measure portfolio diversification in practice. The findings of the roundtable informed the collaborative engagement with the target companies and the development of the term Climate Transition Proteins.

For the notes of the technical roundtable, see [Engagement Resources](#)

The engagement asks companies to set protein diversification targets and disclose metrics to measure progress against targets.

- Positively, the number of companies setting targets continues to increase. In 2022, 35% of the engagement companies have committed to increasing the volume or sales of meat and/or dairy alternatives (Table 5). This figure is up from 28% in 2021 and 0% in 2019.
- Likewise, as companies are increasingly investing in building internal capabilities and systems to track data, more of them are disclosing metrics. In 2022, 39% of engagement companies (Table 1) reported at least one metric showcasing how their product portfolio is shifting. This number is up from 32% in 2021 and 0% in 2019.

### Inadequate pace of progress

When assessing the company's progress since Phase 5 and FAIRR's view on their trajectory for the next 12-18 months, FAIRR found that 48% of companies have a neutral outlook. Almost half of the companies are on track to maintain their score, rather than accelerate improvement. This is setting an insufficient pace to achieve the systematic change required.

FAIRR considers a range of levers as progress drivers, including setting Science Based Targets initiative (SBTi) approved targets, developing consumer engagement strategies, expanding sustainable protein portfolio, conducting Task Force on Climate-Related Financial Disclosures (TCFD) aligned scenario analysis, and disclosing Scope 3 emissions through annual reports or CDP questionnaires. More detail on this can be found in the section *Defining Pioneer Level and identifying Best in Class Examples*.

**“AFOLU mitigation measures have been well understood for decades but deployment remains slow, and emissions trends indicate unsatisfactory progress”**

IPCC AR6, 2022<sup>145</sup>

## Integrating portfolio diversification within net-zero narratives

The pathway to decarbonisation requires a multi-faceted climate mitigation strategy, including both interim and long-term GHG emission reduction targets. Part of the goal of the engagement was once to encourage companies to commit to setting carbon reduction targets. The goal has now evolved to push companies to demonstrate they have robust action plans to reach these Scope 3 and net-zero goals and link portfolio diversification to them.

### Largest footprint sits in animal agricultural supply chains

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to access full report.

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to access full report.

Table 4

**Summary of interim and long-term emission targets of companies in the engagement**

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**[fairr.org/sustainable-proteins](https://fairr.org/sustainable-proteins)**  
to access full report.



## Defining pioneer level and identifying best in class examples

Systemic change does not happen overnight, and longer-term engagement is critical to keep momentum. In the following six sections, FAIRR defines pioneer level practices, and identifies companies with current best practices as well as laggards. The pioneer level is aspirational and outlines expectations for companies; few companies have reached the pioneer level in each section, and no company is a pioneer in all the areas assessed.

### 1. Investor engagement

#### PIONEER LEVEL

Engagement with investors through the coalition on portfolio diversification, provides adequate feedback to letters and questions and shows openness to transition its portfolio and share knowledge to advance the industry. Participates in knowledge-sharing industry activities on the topic, such as the technical roundtables facilitated by the FAIRR Initiative.

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LAGGARDS: **Costco, Grupo Nutresa, Coles,** and **Amazon** declined the engagement dialogue with investors and the FAIRR Initiative.

**“FAIRR’s sustainable proteins engagement, now in its sixth year, has acted as a catalyst for collective change within the food sector. There is strength in numbers and, as one of 84 investors involved, we have witnessed first-hand the value of collaboration. By engaging with 23 large market players all at once, the engagement has been successful in putting climate transition proteins on people’s plates at scale. The results demonstrate the effectiveness of the collaborative approach, and the six phases have allowed us to drive real-world outcomes and ultimately support a sustainable, nutritious, and just transition of the global food system.”**

**Lorna Lucet**

ESG Analyst, Head of Consumer, Amundi

### 2. Materiality

#### PIONEER LEVEL

Modelling the implications of growing animal protein exposure on its business and sustainability strategy; this includes conducting a scenario analysis that:

- Aligns with TCFD recommendations
- Covers the risks and opportunities of animal agricultural supply chains
- Publicly discloses results, including impacts on animal agriculture
- Publishes climate mitigation and adaptation needs and a clear strategy to address and integrate the results into the overall climate strategy

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LAGGARDS: **Amazon** is the only company that does not appear to have immediate plans to carry out scenario analysis that includes animal proteins, despite the growth of its food retail business. **Costco** stated it was planning to conduct a climate risk assessment but there is no evidence of progress nor disclosure on whether it would cover animal agriculture.

### 3. Portfolio diversification: strategy and tracking

#### PIONEER LEVEL

Explicit board-level support to undertake a protein transition. Set a business-wide timebound quantitative target to diversify the product portfolio by increasing the proportion of nutritious and sustainable alternative proteins and plant-based foods while reducing exposure to animal-derived products/ingredients. The target and definitions used should be disclosed publicly, and the diversification strategy must support a Just Transition of the stakeholders involved.

Tracking and reporting progress against commitments with relevant formal metrics that showcase the transition towards lower-impact ingredients and products. Disclosure of portfolio diversification metrics in the annual report. For example:

- % of sales from animal-derived protein/dairy products vs plant-based or alternative products.
- % of proteins sourced that are animal-based vs plant-based or alternative for the entire business or within specific and relevant brands/business lines/categories.
- % of products within each relevant brand/business line/category that are plant-based or alternative proteins.
- % of sales within each relevant brand/business line/category derived from products that are plant-based or alternative proteins.

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**LAGGARDS:** **Saputo** does not acknowledge high animal protein exposure as a material risk for its business, despite 94% of its revenues depending on dairy. It does not yet recognise the need to transition to sustainable protein sources, and it has been slow in adopting robust, sustainable sourcing policies for dairy. **Costco** and **Amazon** do not acknowledge their increasing exposure to animal-derived supply chains as a material business risk.

#### 4. Scope 3 emissions linked to animal agriculture: strategy and tracking

##### PIONEER LEVEL

Sustainable sourcing programmes are in place to reduce the environmental impacts (i.e. GHG emissions, water scarcity & use, deforestation & biodiversity loss, waste & pollution) of animal and alternative ingredients, including science-based targets. These targets cover Scope 3 emissions and have the following characteristics:

- include interim and long-term targets
- aligned with a warming trajectory of less than 1.5°C by 2100
- reduction target year in line with Paris Agreement
- cover the vast majority of emissions, including agriculture supply chains
- long-term net-zero target includes Scope 3 emissions
- target results in absolute emission reductions over time, decoupling growth from environmental impacts

Consistent and standard GHG emissions reporting that enables Year-on-Year (YoY) comparison. In addition, annual reporting of absolute emissions linked to animal agriculture with a transparent data collection system.

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**LAGGARDS: Amazon, Costco, Coles, Grupo Nutresa, Kroger, and Saputo** do not have a Scope 3 target and offer limited information about their Scope 3 emissions related to animal agriculture. They do not appear to have plans to address this in the near future. Laggards are defined as such as they solely rely on third-party certification as a sustainable sourcing programme. This is insufficient, given that certifications are typically a pay-and-display model, and data quality and availability are often poor. For example, for seafood certifications, the issue of resource exploitation persists as fishing volumes do not decrease due to certification; instead, those companies that purchase certified catch take a larger share of the well-managed stocks.

#### 5. Development of a sustainable protein product portfolio

##### PIONEER LEVEL

Incorporation of nutrition and a holistic approach to product portfolio expansion, which includes the following.

- reformulation programmes to limit or eliminate animal-derived ingredients
- inorganic (M&A) and organic growth of the product line
- internal resources being allocated in R&D to increase the offer
- products in underserved food and beverage categories

An active R&D or product development programme on plant-based and alternative proteins. Evidence of using multiple strategies to expand its product portfolio and engage consumers on the benefits of plant-based diets, supported by a growing share of alternative/plant-based foods and protein products across the business.

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**LAGGARDS: Costco** does not have a plant-based range, and there is no evidence of the company increasing its alternative portfolio by, for example, dedicating human and economic resourcing or expanding its portfolio across categories and reformulating products focused on nutrition and sustainability.

## 6. Consumer engagement to accelerate the dietary transition

### PIONEER LEVEL

A defined alternative and plant-based product strategy for merchandising and marketing campaigns. This includes a marketing budget with sales targets, which measures the success of initiatives driving sales increases. A strategic, evidence-based marketing approach promotes products that resonate most with the target market and facilitates behaviour change.

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**LAGGARDS:** **Costco, Walmart** and **Hershey** perform the weakest. The widest gap is around tracking and reporting metrics for plant-based and alternative protein products, including marketing spend (relative to overall marketing spend) and other relevant consumer engagement metrics within specific brands or business lines. These companies are not encouraging consumer uptake of sustainable proteins through consumer engagement initiatives.

“Our active engagement in FAIRR is underpinned by our recognition of the dual value proposition of positive environmental and health implications and consumer interest. The transition to sustainable proteins has several positive aspects such as health, animal welfare and reduced environmental impact. This is also reflected in consumer sentiment and companies need to understand the specific preferences of sales markets to effectively capitalise on this trend. Developing and delivering strategic and evidence-based consumer engagement campaigns is key to capturing the opportunity of growth presented by a well-marketed portfolio of diverse protein products.”

#### Marcus Wilert

Vice President, Responsible Investment,  
Columbia Threadneedle Management Limited

Impact examples from the 6-year collaborative engagement

PHASE 1  
BASELINE STATUS

AHOLD DELHAIZE	NESTLÉ	UNILEVER	WALMART
Ahold Delhaize did not have a commitment to diversify protein sources, and it did not dedicate internal R&D resources to the development of alternative proteins.	Nestlé did not disclose the percentage of total R&D spent on plant-based innovation nor metrics to track its plant-based sales.	Unilever had no commitments related to portfolio diversification and did not seek to reformulate existing product ranges to reduce animal protein content.	Walmart did not track and disclose metrics on its protein portfolio.

FAIRR encouraged the companies to improve public disclosure on their long-term approach to transitioning protein portfolios and asked companies to make timebound commitments to support and enable a dietary transition toward alternative proteins and plant-based foods.

PHASE 6  
THE OUTCOME

Two brands made public commitments to enable dietary transition; Delhaize is to double its offering from 400 to 800 plant-based SKUs by 2025, and Albert Heijn set a target to have customers consume 60% of their protein from plant-based sources by 2030 (currently 30% is from plant-based).	Plant-based sales increased to 0.92% in 2021, with the company dedicating 10% of its R&D resources towards plant-based product innovation and significant Capex investments to scale production.	The company announced a target to generate \$1.2 billion from plant-based foods by 2027 and reports strong double-figure growth. It reformulates products to reduce animal-derived ingredients, such as switching milk powder with alternative milk.	Walmart is now tracking granular metrics on its protein sales that would enable the company to provide a breakdown of its plant-based vs animal exposure, however, it is unlikely to do so in the short term.
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Recommendations to improve further

FOLLOW-UP

Members only content. Login at [fairr.org/sustainable-proteins](https://fairr.org/sustainable-proteins) to access full report.

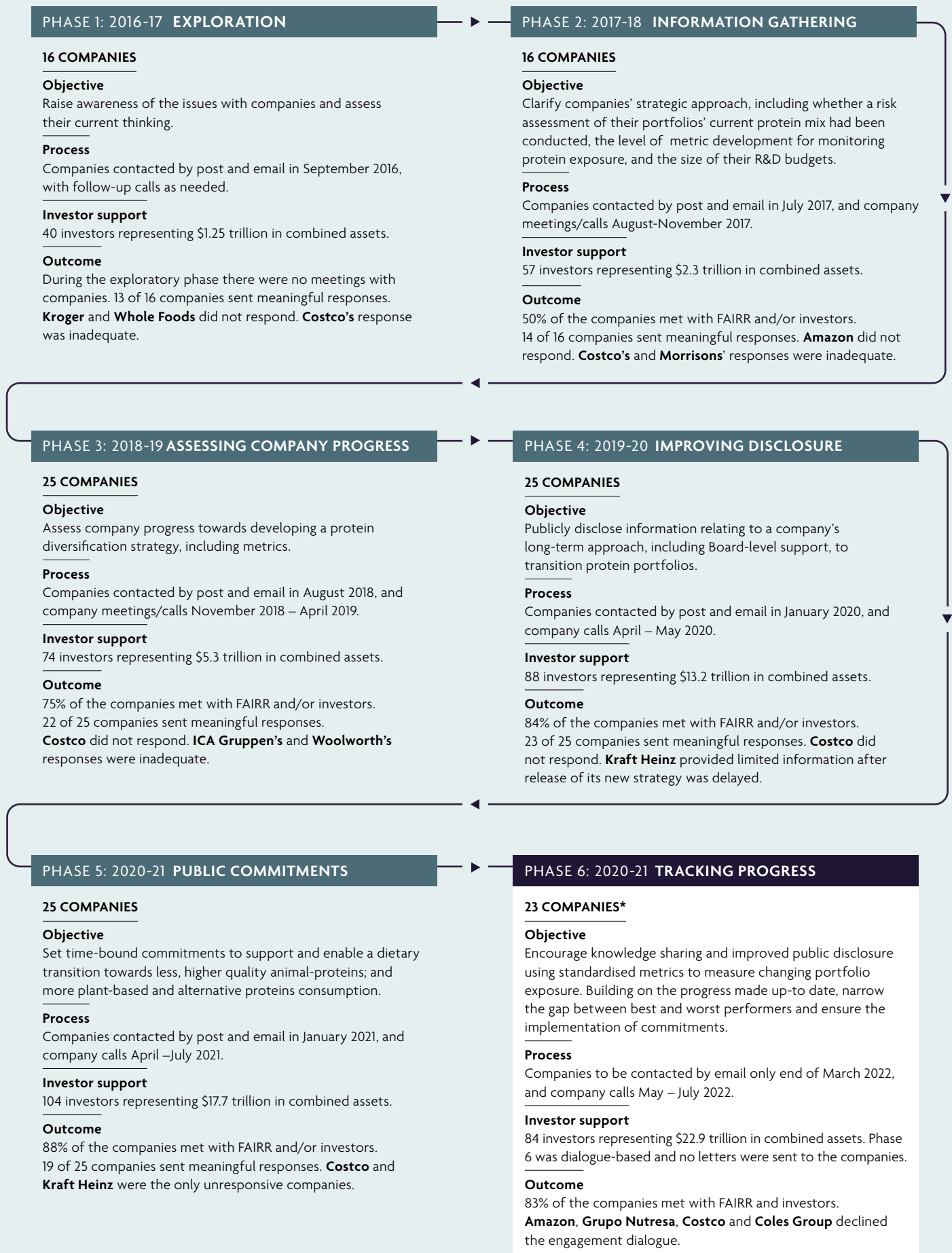
“Our family of great local brands is deeply committed to sourcing responsibly and helping customers make more healthy and sustainable choices, not only for themselves, but also for the world around them. Our company is guided by our healthier people and healthier planet strategy, which includes the promotion of alternative proteins and plant-based foods. We aim to work together with our investors in the challenge of building a more sustainable food sector and are thankful to FAIRR and all the investors involved for their continued dialogue.”

**Imke van Gasselt**  
Vice President Health and Sustainable Diets, Ahold Delhaize

“Over the last few years, FAIRR has been a supportive partner and advisor on Unilever’s plant-based journey in Nutrition and in Ice Cream. We have accelerated our portfolio shift and innovations to plant-based, as well as setting an annual €1 billion sales target from plant-based foods by 2027. As one of the largest food companies in the world, we believe we can and must help redesign the global food system by diversifying food consumption towards a more balanced, plant-based diet that supports human and planetary health.”

**Hanneke Faber**  
President Nutrition, Unilever

Table 6 Summary of company engagement



# MEASURING INDIVIDUAL COMPANY PROGRESS

## Methodology for Qualitative Assessment

**FAIRR’s evaluation framework** evaluates companies in six assessment categories: materiality, strategy, product expansion, consumer engagement, tracking & reporting, and investor engagement. The categories are designed to track a company’s approach to mitigating supply chain risks in animal protein commodities. They also measure how the company drives growth and builds climate-aligned portfolios by expanding alternative proteins and plant-based foods through product development and consumer engagement.

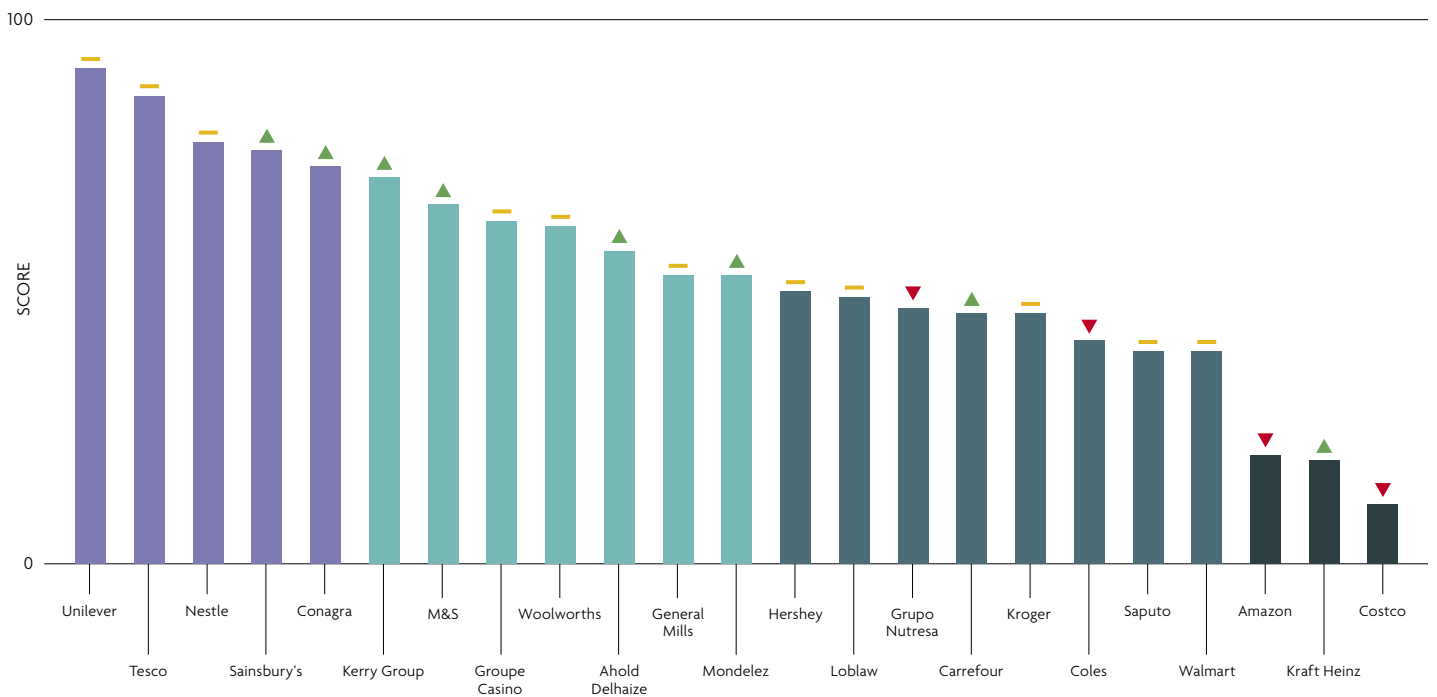
## Overview of FAIRR’s evaluation framework

In 2021 (Phase 5), companies were benchmarked and scored based on performance against each of the categories, up to a maximum of 100 points. Based on their score, they were categorised across five levels to indicate how prepared they were to undertake a protein diversification strategy: Inactive, Reactive, Active, Proactive, and Pioneer.

MATERIALITY	STRATEGY	PRODUCT PORTFOLIO
<p>Company acknowledges high animal protein exposure as a material risk, and recognises its role in supporting a transition to healthy and sustainable diets.</p> <p>Scenario analysis on soft commodity supply chains completed, including protein, with a clear understanding of impacts and adaptation requirements.</p>	<p>Time-bound commitment(s) in place to transition all relevant segments to lower-impact ingredients and product options.</p> <p>Percentage based absolute emission or science-based target for Scope 3 greenhouse gas emissions.</p>	<p>Evidence demonstrating:</p> <ul style="list-style-type: none"> <li>• Dedicated human and economic resourcing to support innovation.</li> <li>• Portfolio expansion across categories.</li> <li>• Reformulation efforts across categories.</li> </ul>

CONSUMER ENGAGEMENT	TRACKING & REPORTING	INVESTOR ENGAGEMENT
<p>Evidence demonstrating:</p> <ul style="list-style-type: none"> <li>• Campaigns and promotion of health and sustainability dimensions of product choice.</li> <li>• Product placement, signage, merchandising strategies.</li> </ul>	<p>Company discloses formal metrics in annual public reporting on:</p> <ul style="list-style-type: none"> <li>• Protein exposure.</li> <li>• Scope 3 greenhouse gas emissions linked to animal agriculture.</li> </ul>	<p>Company demonstrates high level of engagement with investor coalition on the issue of sustainable proteins.</p>

Figure 15  
2021 Scores and 2022 Outlooks



Source: FAIRR (2022)

### 2022 Qualitative Assessment (Phase 6)

FAIRR assessed companies on the same six assessment categories as in previous years; however, instead of quantitatively scoring, FAIRR performed a qualitative assessment and assigned a forward-looking outlook for each company. The outlook reflects a company's progress since Phase 5 and FAIRR's view on its expected trajectory for the next 12-18 months. It is based on public disclosure, third-party data, and information shared during the collaborative engagement dialogues. For each company, FAIRR provides individual signals for the six assessment categories, and the overall outlook is formed by aggregating the six signals. The outlook can be positive, neutral or negative.

**Click here** to access the interactive company benchmark and company outlooks. Company assessments and key recommendations are members only content. Login at [fairr.org/sustainable-proteins](https://fairr.org/sustainable-proteins) to access assessments and meeting notes from the engagement dialogue.

### Definitions of outlook:

- ▲ **Positive:** There is evidence that the company has achieved significant progress and will continue with an upwards trajectory. Progress is enough that the baseline score of Phase 5 would significantly increase, as two or more assessment categories have positive signals. To score a positive outlook, a company requires two net positive signals (i.e., it could have one negative (-1) signal and three positive (+3) signals, resulting in two positive signals).
- **Neutral:** The company is on track, with no material change leading to a significant score increase or decrease against the evaluation framework.
- ▼ **Negative:** There has been detracting change since Phase 5 or lack of speed of necessary progress to maintain the baseline score. Evidence or lack thereof shows that the company is on a downwards trajectory which would lead to a material score decrease. Negative signals outweigh positive signals.



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