![FAIRR - A COLLER INITIATIVE]

SUMMARY REPORT

Coller FAIRR
Protein Producer Index

Launched 11 November 2020

Greenhouse gases

Water scarcity

Deforestation

Sustainable proteins

Working conditions

Food safety

Antibiotics

Animal welfare

Waste & pollution

Coller FAIRR Protein Producer Index

The FAIRR Initiative has developed an Index to assess 60 of the largest, listed global meat, dairy and aquaculture companies against ten environmental, social and governance factors (ESG), all of which are aligned with the Sustainable Development Goals (SDGs). This third edition of the Coller FAIRR Index is designed to be an informative resource for institutional investors, to help them factor the risks and opportunities surrounding the animal protein sector into their investment decisions and engagement strategies.

60
global companies

10
risk & opportunity factors

31
KPIs

SUSTAINABLE DEVELOPMENT GOALS

1 GREENHOUSE GAS EMISSIONS
Disproportionate amount of GHGs generated by livestock makes companies engaged in factory farming vulnerable to transition and physical risks.

13 CLIMATE ACTION

2 DEFORESTATION AND BIODIVERSITY LOSS
Global movements tracking forest loss target factory farming companies and can lead to shareholder divestment and / or weaken customer loyalty.

14 LIFE BELOW WATER *15 LIFE ON LAND*

3 WATER USE AND WATER SCARCITY
Beef, pork, dairy, and poultry companies consume large quantities of water both directly and indirectly via their purchase of animal feed.

6 CLEAN WATER AND SANITATION *15 LIFE ON LAND*

4 WASTE AND WATER POLLUTION
Companies are facing greater scrutiny about the impact of waste on surrounding communities and the environment, meaning potential fines and regulation.

3 GOOD HEALTH AND WELL-BEING *6 CLEAN WATER AND SANITATION*

5 ANTIBIOTICS
Drug-resistant infections are a serious public health threat which will likely impact productivity on a national scale.

3 GOOD HEALTH AND WELL-BEING

6 WORKING CONDITIONS
Failings in Health and Safety and the protection of workers rights have shown to impact productivity. Increased investor scrutiny and risk of litigation also weigh on financial risks.

8 DECENT WORK AND ECONOMIC GROWTH

7 ANIMAL WELFARE
Poor Animal Welfare presents operational and reputational risks for companies.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

8 FOOD SAFETY
A series of high profile food safety incidents in Meat and Dairy have focused consumer concerns on the threat of food contamination and foodborne illnesses.

2 ZERO HUNGER *3 GOOD HEALTH AND WELL-BEING*

9 GOVERNANCE
Sustainability Governance is an all-encompassing factor reflecting awareness of the materiality of ESG risks at executive and oversight levels of the materiality of ESG risks.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION *17 PARTNERSHIPS FOR THE GOALS*

10 SUSTAINABLE PROTEINS
Reduced reliance on animal protein sources is key to sustainable development.

3 GOOD HEALTH AND WELL-BEING *12 RESPONSIBLE CONSUMPTION AND PRODUCTION* *13 CLIMATE ACTION* *14 LIFE BELOW WATER* *15 LIFE ON LAND*

Foreword

The COVID-19 pandemic poses severe challenges to the global animal protein sector, pushing an already under pressure Meat and Dairy industry to a tipping point, and causing many investors to lose their appetite for the sector unless standards on sustainability are raised.

At the heart of the COVID-19 crisis, the sector has faced hundreds of factory farming closures and new measures to prevent future zoonotic outbreaks. It also faces enormous downside risk from climate change. With September 2020 being the warmest month on record. These twin crises put pressure on a supply chain already cracking from fundamental constraints around land, water and antibiotics use.

With this as the backdrop, investors must ask, how well are the world's biggest meat, fish and dairy firms managing these sustainability risks and opportunities?

The Coller FAIRR Protein Producer Index's third edition again hands investors the tools to make informed decisions at a critical time for sustainable investment. Putting these factors for the first time at the top table of the financial community's agenda.

Signs of change

Progress on climate transparency has been made, with the findings in the Index showing a quarter of companies now disclose 'Scope 3' emissions, and seven companies now committed to a 'Science Based Target' for emissions reductions. In addition, 22 firms now meet best practice in terms of sustainable protein diversification, compared to fifteen last year and five in 2018. A highly significant trend among these traditional animal protein producers.

However, 86% of major Meat and Dairy suppliers still rank as 'high risk' on greenhouse gas emissions and more concerning for investors are the 35% of Index companies showing annual increases in emissions. This shows the urgent progress that still needs to be made.

Equally concerning is the finding that 42 companies (70%) rank as high risk for antibiotic stewardship, and that over half of Index firms (57%) rank as high risk on working conditions. To provide further robust scrutiny on this topic and help investors better understand the health and safety risks, FAIRR will be launching a stand-alone engagement on working conditions with eight companies from the Coller FAIRR Protein Producer Index.

An opportunity for a lasting, positive shift

If global animal agriculture was a country, it would be the second highest emitter of greenhouse gases. FAIRR's data shows three in four global Meat and Dairy giants are hiding the full extent of their climate emissions or failing to set meaningful targets to reduce them. Factory farms are undermining both the climate ambitions of high-street brands and the viability of the Paris Agreement.

However, whilst this landscape for investors remains challenging, for the factory farming industry, it presents the perfect storm for innovation. In fact, it is forcing them to make changes as investors watch closely to determine who fails to rise to the challenge and who takes full advantage of this opportunity.

Jeremy Coller
Founder, FAIRR and Chief Investment Officer, Coller Capital

About the Index

The scope of the Coller FAIRR Protein Producer Index focuses on listed companies primarily involved in breeding, processing, distributing and selling meat, dairy or aquaculture products. The 60 Index constituents have a combined market capitalisation of $338 billion, as of 30 August 2020.

Protein distribution of companies

The 60 companies analysed have material exposure to the five main animal protein categories: Beef, Dairy, Pork, Poultry & Eggs and Farmed Fish. The most popular protein produced is Poultry & Eggs, since 18 Index companies (30%) consider it Poultry & Eggs as their main protein category.
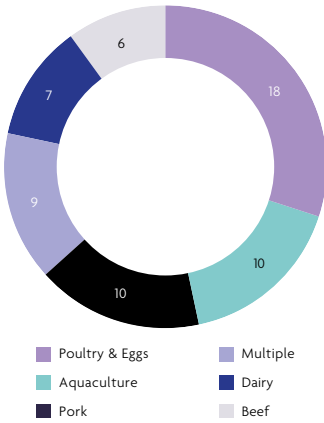
Revenues as a proportion of protein markets

The 60 protein producers have exposure to other product types alongside animal protein. However, the latter dominates their revenue generation. Of their combined $338 billion revenues, 89% is derived from producing and processing intensively farmed livestock and fish.

- Poultry & Eggs
- Multiple
- Aquaculture
- Dairy
- Pork
- Beef

- Animal protein
- Non protein
- Animal feed
- Alternative protein
- Non food
- Accounting treatment / Eliminations
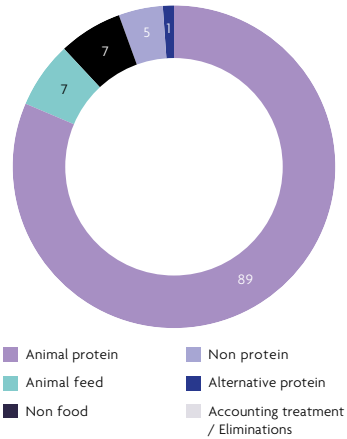
Regional distribution of 60 constituents

Almost half of the companies in the Index (47%) are headquartered in Asia. This constitutes $191 billion in market capitalisation and $155 billion in revenues.[1]

- Asia
- North America
- Europe and Russia
- Oceania
- Latin America
- Africa
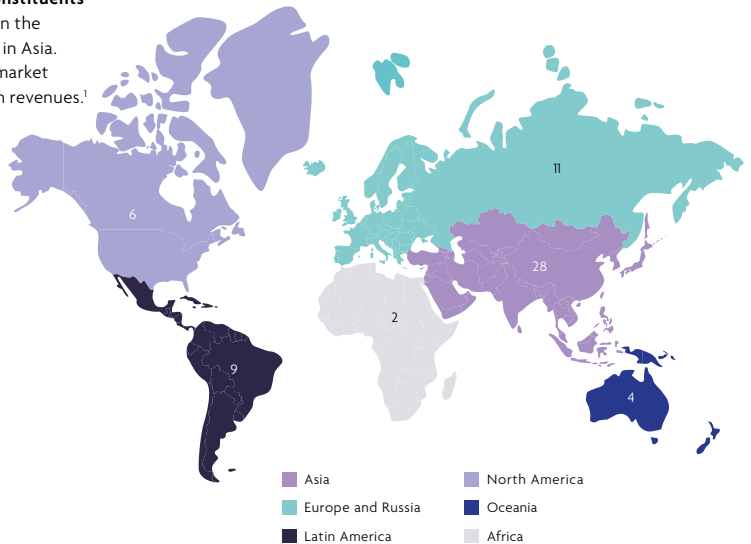
Coller FAIRR Protein Producer Index

We have assessed 60 of the world's largest animal protein producers and targeted companies that supply the biggest global food retailers.

These consumer-facing companies source their meat, fish and dairy from many of the companies in the Protein Producer Index and are therefore exposed to myriad ESG risks through their supply chains. Global food retailers will struggle to achieve many of their ESG-related goals (such as emission reduction targets, deforestation-free supply chain commitments, sourcing of antibiotic-free meats) without engagement and certification of their suppliers.

In this diagram, we highlight the client-supplier relationships between food retailers and the companies covered in the Coller FAIRR Protein Producer Index.

Bell Food Group AG
Mowi ASA
Thai Union Group PCL
Marfrig Global Foods SA
San Miguel Food and Beverage Inc
WH Group Ltd
Charoen Pokphand Foods PCL
RCL Foods Ltd/South Africa
Cal-Maine Foods Inc
Fujian Sunner Development Co Ltd
Minerva SA
NH Foods Ltd
Seaboard Corporation
New Hope Liuhe Co Ltd
Cranswick PLC
JBS S.A.
Hormel Foods Corp
Tyson Foods Inc
LDC SA
Sanderson Farms Inc

METRO
TESCO
H·E·B
Ahold Delhaize
Nestlé
Sainsbury's
co op
HelloFRESH
Iceland
COSTCO
Publix
M&S
Walmart
Carrefour
McDonald's
Yum!
Kroger
DARDEN
Brinker
Denny's

Links are non-exhaustive. Data source: Bloomberg.

What's new?

The Coller FAIRR Protein Producer Index continues to evolve to reflect the risks and opportunities of the changing animal protein sector. The latest edition of the Index offers new features to investors, accessible via an interactive online tool.

NEW FACTOR ASSESSED: GOVERNANCE

The Index includes a new Risk Factor for analysing company performance: Governance. This is a critical addition to help investors understand how companies assess the awareness of ESG risk at management and board level. This new factor includes key criteria on whether companies conduct a materiality assessment and whether governance structures are in place to mitigate and prevent against ESG-related risks.

A GREATER SENSITIVITY TO SUPPLY CHAIN PERFORMANCE

A large proportion of risk exposure for Index companies, and the companies they supply, occurs either upstream or downstream in their value chains. In the case of greenhouse gas emissions, it is estimated that on average large corporations' scope 3 emissions are 5.5 times greater than their Scope 1 and 2 emissions combined[2]. Therefore, this year's Index addresses whether protein producers have Scope 3 emissions targets in place to help institutional investors measure the performance of companies in the context of their wider supply chains, as well as their direct operations.

CONTROVERSY SCORE' INTRODUCED

FAIRR's new 'Controversy Score' helps investors gain insight in to the potential impact of 'controversial' events and announcements covered by information and news sources. The controversy score can be used as a reference signal of companies' adherence to their current ESG commitments (e.g. on product recalls or human rights abuses) or as a flag to potential recurring issues (e.g fish escapees) which may evolve in to more material financial risks.

This new AI-powered score will be updated quarterly.

Note: This score will not affect the companies' overall risk assessment score but are intended as a complement to the risk analysis.

The controversy score is the number of controversies normalised by company size

⚠ Lower 1/3 percentile

⚠ ⚠ Middle 1/3 percentile

⚠ ⚠ ⚠ Upper 1/3 percentile

Absence of detected controversies
(Note: This should not necessarily be construed as an absence of risk)

"The food sector is facing unprecedented challenges, including being impacted by climate change, COVID-19 and shifting consumer preferences. As investors, we need quality insights and accurate data to assess how ESG performance might affect companies in our portfolios. The Coller FAIRR Protein Producer Index is, therefore, a useful tool and at Invesco, this helps inform our ESG research and company engagement efforts."

Nikki Gwilliam-Beeharee, Director of ESG research at Invesco

Company Ranking: The Coller FAIRR Protein Producer Index

HIGH RISK

Companies that score under 31 in their overall Index score are categorised as 'HIGH RISK', meaning they have significant exposure to material ESG risks. This often indicates limited disclosure or commitments.

MEDIUM RISK

Companies that score between 31 and 60 in their overall Index score are categorised as 'MEDIUM RISK', meaning they have some exposure to material ESG risks. This often indicates basic risk management, with some performance disclosure and targets being in place across the Risk Factors.

LOW RISK

Companies that score 61 or higher in their overall Index score are categorised as 'LOW RISK', meaning they have lower exposure to material ESG risks. This often indicates moderate management of risk and moderate performance disclosure and targets in place.
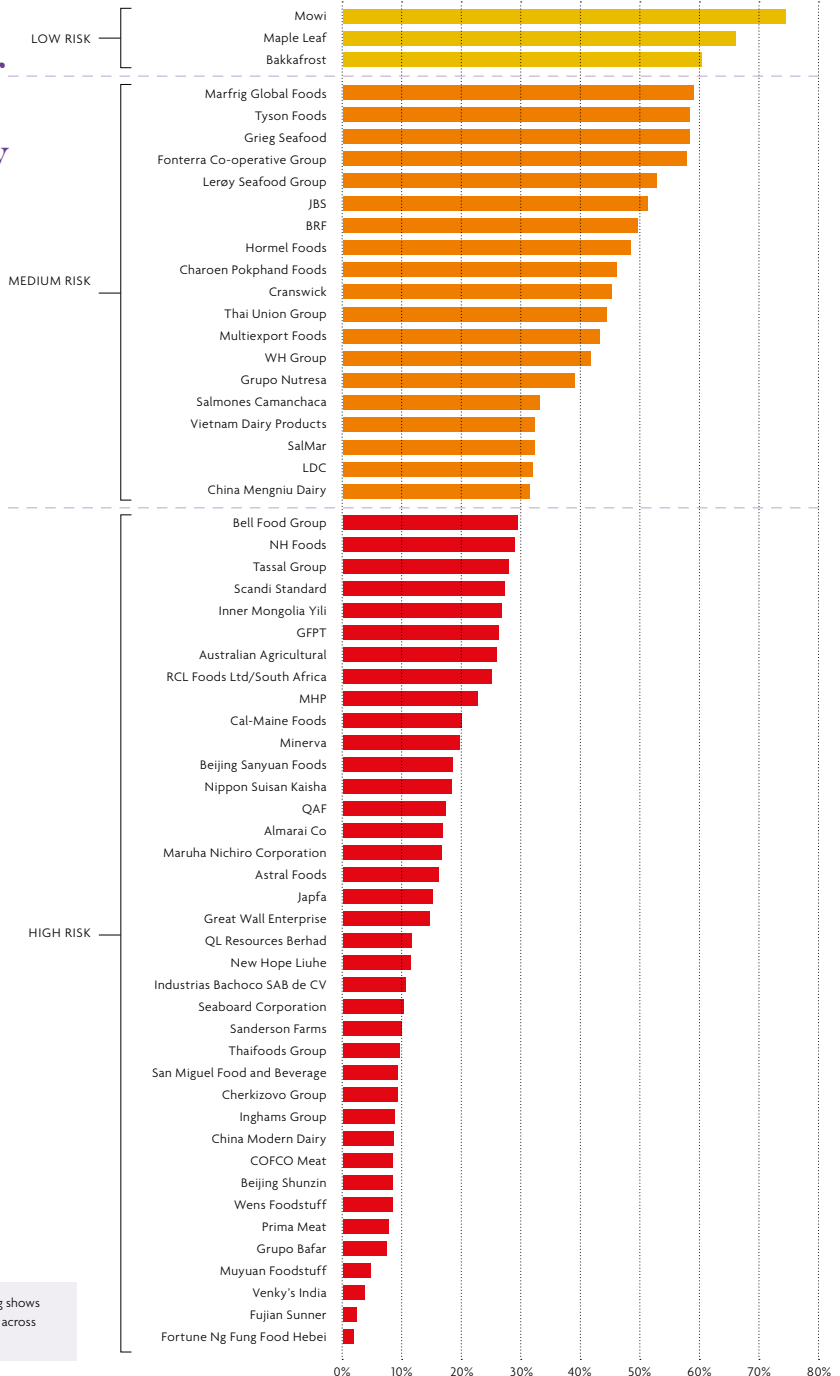
BEST PRACTICE

Companies that score 91 or higher in their overall Index Score are categorised as 'BEST PRACTICE', meaning they have minimal exposure to material ESG risks and exemplify a pathway towards mitigating risk. Note that no companies in the Index achieved a 'BEST PRACTICE' score.

Coller FAIRR Protein Producer Index: Company Ranking

TOTAL SCORE BY COMPANY

LOW RISK
- Mowi
- Maple Leaf
- Bakkafrost

MEDIUM RISK
- Marfrig Global Foods
- Tyson Foods
- Grieg Seafood
- Fonterra Co-operative Group
- Lerøy Seafood Group
- JBS
- BRF
- Hormel Foods
- Charoen Pokphand Foods
- Cranswick
- Thai Union Group
- Multiexport Foods
- WH Group
- Grupo Nutresa
- Salmones Camanchaca
- Vietnam Dairy Products
- SalMar
- LDC
- China Mengniu Dairy

HIGH RISK
- Bell Food Group
- NH Foods
- Tassal Group
- Scandi Standard
- Inner Mongolia Yili
- GFPT
- Australian Agricultural
- RCL Foods Ltd/South Africa
- MHP
- Cal-Maine Foods
- Minerva
- Beijing Sanyuan Foods
- Nippon Suisan Kaisha
- QAF
- Almarai Co
- Maruha Nichiro Corporation
- Astral Foods
- Japfa
- Great Wall Enterprise
- QL Resources Berhad
- New Hope Liuhe
- Industrias Bachoco SAB de CV
- Seaboard Corporation
- Sanderson Farms
- Thaifoods Group
- San Miguel Food and Beverage
- Cherkizovo Group
- Inghams Group
- China Modern Dairy
- COFCO Meat
- Beijing Shunzin
- Wens Foodstuff
- Prima Meat
- Grupo Bafar
- Muyuan Foodstuff
- Venky's India
- Fujian Sunner
- Fortune Ng Fung Food Hebei

0% 10% 20% 30% 40% 50% 60% 70% 80%

TOTAL SCORE: This ranking shows companies' average scores across all ten factors.

Key findings

This year's Index demonstrates that, once again, the vast majority of the companies have yet to meaningfully address even the most basic sustainability risks. Of the 60 companies covered by Index, 38 (valued at $165 billion) are ranked as 'High Risk', on average, across all of the 10 Risk and Opportunity Factors.

BEST PERFORMERS

Mowi and Bakkafrost are both aquaculture companies showing strong performance in Antibiotics. Maple Leaf benefits from its best practice score in the Sutainable Protein opportunity factor.
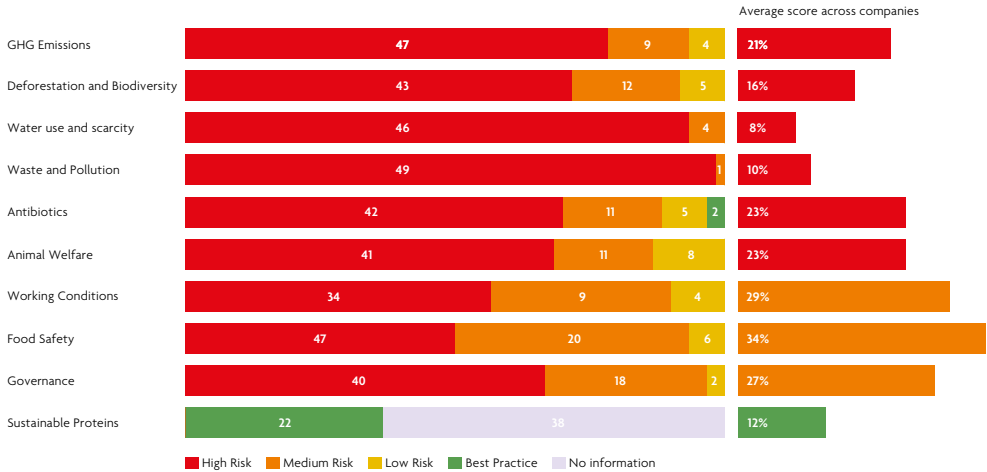
Mowi (Norway)
Maple Leaf Foods (Canada)
Bakkafrost (Faroe Islands)

WORST PERFORMERS

Fortune Ng Fung Food (Fucheng), Fujian Sunner and Venky's weak performance is linked to lack of disclosure on a large number of risk factors, notably GHG, Deforestation & Biodiversity and Antibiotics.

Fortune Ng Fung Food Hebei Co (China)
Fujian Sunner Development Co (China)
Venky's India (India)

Number of animal protein producers ranked as HIGH, MEDIUM, LOW RISK by Factor

Average score across companies

Factor	High Risk	Medium Risk	Low Risk	Best Practice	No information	Average score
GHG Emissions	47	9	4			21%
Deforestation and Biodiversity	43	12	5			16%
Water use and scarcity	46		4			8%
Waste and Pollution	49		1			10%
Antibiotics	42	11	5	2		23%
Animal Welfare	41	11	8			23%
Working Conditions	34	9	4			29%
Food Safety	47	20	6			34%
Governance	40	18	2			27%
Sustainable Proteins				22	38	12%

■ High Risk ■ Medium Risk ■ Low Risk ■ Best Practice ■ No information

Risk and Opportunity Factors

GREENHOUSE GAS EMISSIONS

Climate change is both a risk and a vulnerability for the livestock and farmed fish sectors, with livestock supply chains accounting for 14.5% of global anthropogenic greenhouse gas emissions[3]. Despite the sector being highly vulnerable to a changing climate, many protein producers are still failing to manage this risk.

- Of the 60 Index companies, 47 (over 75%) are classed as HIGH RISK on Greenhouse Gas Emissions. There are nine MEDIUM RISK companies, and only four LOW RISK companies.

- Of the 47 HIGH RISK companies in the GHG Emissions Risk actor, 25 are located in Asia, making it the highest-risk location for this factor. Latin America was the second-highest risk location with seven companies classed as HIGH RISK.

- The largest contributing protein for the companies ranked as HIGH RISK is Poultry & Eggs, a protein category that accounts for 18 of the 47 HIGH RISK companies.

- This year, three companies have announced or approved science-based targets (SBTs) for Scope 1, 2, and 3 emissions, **Mowi**, **Maple Leaf**, and **Grieg Seafood**. They join **Tyson**, which was the only company with SBTi-approved targets last year.

- Emissions disclosures remain high-level with only one quarter of the Index companies reporting their Scope 1, 2 and 3 emissions. In terms of Scope 3 emissions targets, 72% of the companies assessed have provided no disclosure.

STAGES OF CLIMATE TRANSITION

Of the 60 companies assessed in the Index, 35 have taken steps towards climate transition. The remaining 25 companies have yet to disclose any initiative that would place them on this pathway.

According to the Index, 17 companies have disclosed figures for Scope 1 and 2 emissions, while 22 companies have set targets. **WH Group** and **Yili Group**, however, do not disclose their emissions for Scope 1 and 2, despite having previously set targets.

Only 15 companies have disclosed their emissions for Scope 3 while just six companies have set a target. Of these six companies, two (**Tyson** and **WH Group**) have not disclosed emissions data for Scope 3, even though a target had previously been set.

Details of the Scope 3 targets set by **Fonterra** and the **WH Group** are shown below. As yet, this is the furthest that these two companies have come on the climate transition pathway.

SCOPE 3 TARGET				
Company	Geographic Scope	Base Year	Target Year	Reduction
Fonterra Co-operative Group Ltd	New Zealand only (88% of total raw milk collected)	Not stated	2030	Climate-neutral for one farm in New Zealand
WH Group Ltd	Smithfield Foods operations only	2010	2025	25% across entire U.S. supply chain

DEFORESTATION AND BIODIVERSITY LOSS

Livestock production is the greatest cause of habitat and forest loss. Cattle ranching is estimated to account for 80% of deforestation in the Amazon[4], much of which is illegal. Despite growing pressure on meat giants to address their deforestation footprint, there remains a lack of progress on halting deforestation amidst rapidly growing demand for soy and beef.

- 82% of land-based companies are ranked as HIGH RISK on Deforestation & Biodiversity Loss.

- Across all regions, the best performer is Oceania, with a score of 36%. Africa is the worst performer on Deforestation with a score of 0%, followed by Asia, which scores 1%. This indicates that companies in this region disclose almost no information on Deforestation and Biodiversity.

- Of the land-based proteins, Beef performs best on deforestation risks. Beef companies make up the lowest proportion of HIGH RISK companies and the highest proportion of LOW RISK companies.

- The worst performing protein category on Deforestation and Biodiversity is Dairy, for which all companies are categorised as HIGH RISK. Five of the Dairy companies score 0% on Deforestation & Biodiversity Loss overall.

- Only four (21%) of the 19 companies have conducted a Cattle Deforestation Risk Assessment and identified sourcing regions which include HIGH RISK locations.

Mitigating Factors

Mitigating Factors are scoring criteria within the Index methodology which reflect actions/policies that can contribute to mitigating the negative impacts of Index companies activities in this particular ESG factor.

LAND-BASED PROTEINS		
Deforestation KPI	**Mitigating Action**	**Number of Companies Disclosed**
Engagement, Monitoring, Traceability – Soy	Discusses innovations to move towards sustainable feed sources and/or discusses sustainable sourcing in other feed commodities	4
Engagement, Monitoring, Traceability – Cattle	Encourages or collaborates with suppliers to adopt innovative farming techniques	2

PURE AQUACULTURE		
Deforestation & Biodiversity KPI	**Mitigating Action**	**Number of Companies Disclosed**
Engagement, Monitoring, Traceability – Soy	Discusses innovations to move towards sustainable feed sources and/or discusses sustainable sourcing in other feed commodities	5
Ecosystem Impacts	Makes a commitment to reduce escapes for all species	6
Ecosystem Impacts	Discusses work to reduce biodiversity impacts	9

WATER USE AND SCARCITY

Water use in livestock production

Water use in feed farming
98% of the total volume of water for animal farming is used for feed production, which makes it highly vulnerable to droughts and other extreme weather events.

Water use in animal farming
Water use in animal farming is primarily for drinking, service water and feed mixing water.

Water use in direct operations
Water is used primarily in slaughtering and processing, for washing livestock, rinsing carcases, cleaning process equiment as well as any processing operations.

The water footprint for animal proteins is significantly larger than crops, with the average water footprint per calorie of beef being 20 times larger than that of cereals. Animal protein production is highly reliant on water availability for a wide range of operations including feed production, making water scarcity in a warmer world therefore a severe material risk to the future of animal agriculture.

- 46 companies are ranked HIGH RISK on the Water Use and Scarcity Risk Factor, 92% of the companies assessed on this factor.

- On average, companies in Asia, Africa and Europe & Russia all score as HIGH RISK on Water Use and Scarcity. Asia is the highest-risk region for Water Use and Scarcity by number of companies, representing up to 26 of the 46 HIGH RISK companies.

- When it comes to protein breakdown, the Poultry & Eggs protein category has the highest number of companies classed as HIGH RISK on Water Use and Scarcity, followed by Pork.

- On average, Index companies performed worst on the Water Use and Scarcity Risk Factor, with an average score of just 8%.

- Eight out of 50 Meat and Dairy companies provide no disclosure relating to water use and scarcity. Discussions around Water Use and Scarcity are high-level, and none of the Index companies has been assessed as LOW RISK or best practice.

- 15 companies demonstrate water risk awareness through qualitative discussions or by conducting a risk assessment in their owned facilities.

- The majority of companies provide no disclosure on Water Scarcity in both animal farming (76%) and feed farming (82%).

ANTIBIOTICS

Historically, protein producers have used antibiotics to help animals achieve higher slaughter weights, and as a preventative measure to help support against disease caused by unhygienic and crowded conditions in slaughterhouses. However, the threat posed by antimicrobial resistance to both animals and humans requires a shift away from a reliance on the routine use of antimicrobials in animal farming. From 2022, the European Union will ban the use of human antibiotics in veterinary medicine[5].

Average Score by Antibiotics Risk Factor KPIs
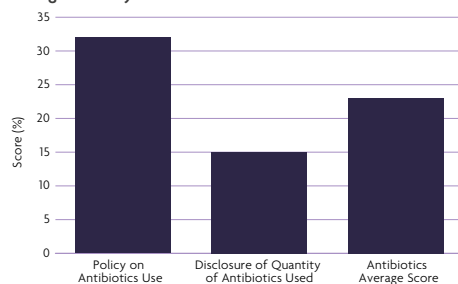
- 70% of Index companies, totalling $243.8 billion in market capital, are classed as HIGH RISK on Antibiotics. Of the companies who report having an antibiotic policy, only 27% (16 companies) in the Index state they do not use antibiotics routinely.

- Africa and Asia are the poorest performing regions on Antibiotics. All companies in Africa are ranked as HIGH RISK and 89% of Index companies in Asia are ranked as HIGH RISK.

- The best performing protein category is Aquaculture, of which 20% of companies are ranked as BEST PRACTICE and 30% are ranked as LOW RISK on Antibiotics. The poorest performing protein groups are Beef and Dairy. All companies which produce Beef or Dairy are ranked as HIGH RISK on Antibiotics.

- 65% of the Index companies do not disclose information on antibiotics usage. Only 23% of the Index (14 companies) disclose their quantity of antibiotics data publicly.

- There are two companies categorised as BEST PRACTICE on Antibiotics. These are **Bakkafrost** and **Mowi**. **Bakkafrost** has not used antibiotics since 2004 and it discloses how it has eliminated the need for antibiotics through the use of selective breeding programmes and vaccines. Although **Mowi** does use antibiotics in its operations, it is also classified as BEST PRACTICE due to its strong disclosure on antibiotics policy and the quantity of antibiotics it uses.

- A third of the companies in the Index have provided NO INFORMATION or discussion about their antibiotic usage.

WASTE AND POLLUTION

Intensive animal production is a key contributor to air, water and land pollution. This is often the result of synthetic fertiliser use and the improper disposal of manure, which can not only affect local water sources and ecosystems but also impact the health of local communities through groundwater contamination and air quality issues. Companies are under growing pressure to improve waste management practices and reduce pollution linked to fertiliser use and manure.

- On Waste and Pollution, **Fonterra** received the highest score across all companies. It scored 55% and is the only company to be classed as MEDIUM RISK. The remaining 49 companies were scored as HIGH RISK on this factor.

- With 26 companies ranked as HIGH RISK, Asia is the worst performing region. It is followed by Latin America (LATAM) with seven companies ranked as HIGH RISK.

- Regarding protein breakdown, Poultry & Eggs have the highest number of companies scoring HIGH RISK, with all 33 companies classed as such. The second largest protein group is Pork, with 26 companies all assessed as HIGH RISK.

- Waste is the second worst-performing Risk Factor after Water Use & Scarcity in the 2020 Index, with an average company score of 10%.

- Only 10% of Meat and Dairy companies have a sustainable agriculture policy addressing nutrient pollution in feed supply.

- Only 18% of Meat and Dairy companies have wastewater data in facilities audited by a third party.
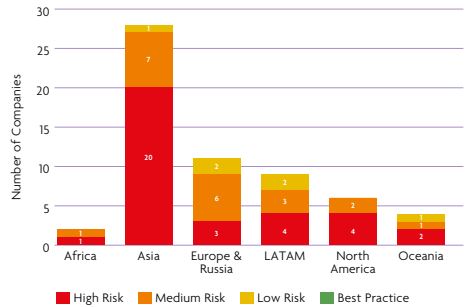
WORKING CONDITIONS

COVID-19 has placed the animal protein producers under a magnifying lens particularly with regard to the health and safety of their workers. Virus outbreaks in meat processing facilities have reached in to the tens of thousands, have caused severe supply chain disruption and have put workers and their communities a risk. Financial losses as a result of productivity loss and the need to 'depopulate' herds which were unable to make it to slaughter have been significant.

- Over half of the companies in the Index (57%) are categorised as HIGH RISK on Working Conditions. These companies constitute $163 billion in market capitalisation and $122 billion in revenues. There are no Index companies categorised as BEST PRACTICE on Working Conditions.

- Asia has the highest proportion of HIGH RISK companies in this factor, with 71% of Asian companies classed as HIGH RISK. There are 13 companies in the region that rank as HIGH RISK across all Working Conditions KPIs: Human Rights, Fair Working Conditions, Safety & Turnover Data and Freedom of Association. This is followed by North America, where two-thirds of companies are ranked as HIGH RISK.

- On average, Pork companies scored worst on this Risk Factor with an average score of 26%. Of all Pork companies, 62% ranked as HIGH RISK. Aquaculture has the lowest proportion of companies ranking as HIGH RISK, with two out of 10 companies ranking as such.

- 30% of companies evaluated by the Index provided zero disclosure on Human Rights.

- **Thai Union** is the best performing company, scoring 77% and ranking as LOW RISK. The worst performing company on Working Conditions was **Fortune Ng Fund Food Hebei Co**, which provided no disclosure on Working Conditions.

Regional Analysis by Risk Category

Chart — Number of Companies by region and risk category:

Region	High Risk	Medium Risk	Low Risk	Best Practice
Africa	1	1		
Asia	20	7	1	
Europe & Russia	3	6	2	
LATAM	4	3	2	
North America	4	2		
Oceania	2	1	1	

Legend: ■ High Risk ■ Medium Risk ■ Low Risk ■ Best Practice

ANIMAL WELFARE

Within intensive agriculture sector, Farm Animal Welfare is an increasingly important issue for food companies throughout the protein supply chain. For instance, over 230 US supermarkets, restaurants and food retailers are committed to cage-free egg supply chains following strong consumer pressure for change in the industry. A growing awareness of the importance of Animal Welfare has led to some improvements in recent years, though many animal protein companies still lag behind on this factor.

- On average, companies assessed perform poorly on Animal Welfare, with 41 companies categorised as HIGH RISK.

- Of the 41 HIGH RISK companies on Animal Welfare, 24 are located in Asia, making Asia the highest risk location for this Risk Factor.

- The largest contributing protein to HIGH RISK companies on Animal Welfare is Poultry & Eggs, where 13 companies are ranked as HIGH RISK on Animal Welfare, with companies such as **Fujian Sunner Development Co**, **QL Resources**, **RCL Foods**, and **Venky's** providing no disclosure at all on the Animal Welfare Risk Factor.

- The three best performers (**Fonterra**, **Cranswick** and **QAF**) have a LOW RISK score but a number of Index companies still have no disclosure on Animal Welfare metrics.

- Animal Welfare Policy is the best performing Animal Welfare KPI within this Risk Factor. There are four companies, **Cranswick**, **Fonterra**, **Maple Leaf** and **QAF**, that rank as BEST PRACTICE, indicating stringent Animal Welfare policy coverage.

- Only 20% of Meat and Dairy companies report annually on their progress of Animal Welfare metrics in their operations, indicating a lack of data monitoring.

FOOD SAFETY

The ability to provide safe food is fundamental to the business of food production and a critical factor in global food security. Food safety scandals and outbreaks of livestock pandemics, such as avian flu, can even have significant impacts on the value of the largest animal protein producers. For instance, the average cost of a recall to a food company is estimated at over $10 million. Food safety standards are also a key factor in generating consumer trust and brand loyalty around food companies.

- Food Safety is the best performing factor in the Index, with 43% of companies ranked as MEDIUM RISK.

- Asia has the largest number of HIGH RISK companies (57%). Only 2 companies, **Almarai** and **Thai Union** disclose that it expects suppliers to have Global Food Safety Initiative (GFSI) certification and only 4 companies disclose their frequency of their food safety audits.

- The Europe & Russia region has the lowest proportion (27%) of HIGH RISK companies. All companies in Europe & Russia disclose that they own facilities with a GFSI-recognised certification, yet the extent to which facilities are certified varies from partial to full certification.

- Beef is the protein group with the highest proportion of HIGH RISK companies, with two thirds of Beef companies ranked as HIGH RISK on Food Safety.

- 75% of companies disclose that their facilities have achieved certification recognised by the GFSI. Despite this, only eight companies state that 100% of their facilities are GFSI certified, and the majority are only partially certified.

- On the traceability front, only 23% of companies have implemented, or are in the process of developing, consumer-facing technology for food safety.

- Only three companies, **Cranswick**, **Bachoco** and **Marfrig** explicitly disclose that there were no recalls and market bans in the reporting year.

GOVERNANCE (NEW)

Governance is a new Risk Factor in the Index and key to evaluating how resilient companies are to ESG-related event risk. The COVID-19 pandemic and its repercussions across the animal protein industry have shed light on governance failings. In the face of new regulation, standards and changing consumer opinions, robust governance at the operational, Executive and Board level will be fundamental to building resilience and preserving growth in a post-COVID world.

In the Index, 67% of Index companies are ranked as HIGH RISK on sustainability governance.

- North America is the poorest performing region on this Risk Factor, largely driven by the lack of disclosure from **Cal-Maine Foods**, **Sanderson Farms** and **Seaboard Corporation**.

- Poultry & Egg-producing companies are the most exposed to governance risk, with 76% categorised as HIGH RISK.

- 10% of companies do not disclose any information at all on sustainability governance.

COMPANIES' STRATEGIC APPROACH

The Governance factor also looks at a company's ability to identify market shifts linked to sustainability and support strategic changes through innovation.

Mowi discusses its approach to improve its production of sustainable, healthy and safe seafood. Along with its SeaBOS collaboration, the company has an R&D programme with targets in 5 key areas: Fish Welfare, Footprint, New Growth, Production Efficiency, and Product Quality and Safety.

Baakafrost drives innovation to develop and grow the aquaculture industry. In this approach it mentions the need for innovation and research and development in order to meet consumer demands and capitalise on opportunities and sustainability. The company plans to do this through continued innovations from building its own biogas plant to have more circular solutions for waste management, to improving its water recirculation at hatcheries and developing the resilience of its Faroese salmon roe to improve health outcomes.

Both these companies disclose they used the Protein Producer Index to understand its benchmarking position on sustainability alongside Seafood Stewardhip Index, Sustainalytics, MSCI.

SUSTAINABLE PROTEINS

The alternative protein market is expected to grow to $17.9 billion by 2025 , with over $1.1 billion of venture investment flowing into alternative proteins in the first half of 2020, more than double last year's total investment ($534 million) .

FAIRR's Sustainable protein Hub has found that seven of 15 animal protein retailers now sell, or plan to sell plant-based meat alternatives on the meat aisle. Meat and dairy companies are increasingly transitioning towards alternative protein sources to move away from an overreliance on animal protein and its associated ESG risks.

- This year, 22 of 60 companies (37%) show evidence of sustainable protein diversification – an additional seven companies from 2019.

- 68% of Asian companies do not disclose any information on alternative proteins. Only one Asian company, **Thai Union** has created a venture fund to invest in alternative proteins.

- Although Dairy companies are the best performing protein group, Beef companies have seen the largest increase in their Sustainable Proteins Opportunity Factor by 10% from 2019. This has been driven by increased exposure by **Grupo Nutresa**, **JBS**, **Marfrig** and **NH Foods** which now have dedicated alternative protein brands.

- **Maple Leaf** is the leader in the Sustainable Proteins Opportunity Factor with a score of 100%. It is the only Index company that has set a target to diversify protein sources. It plans to achieve $3 billion in sales in the Plant Protein Group by 2029.

Companies' Strength of Exposure to Sustainable Proteins

There are 22 companies with exposure to alternative proteins, whereas there are 38 companies that do not disclose any information regarding their diversification of products to alternative protein sources. However, notable progress is being made.
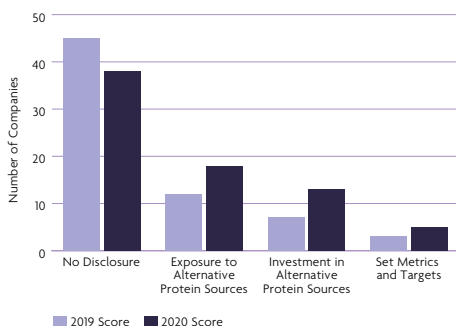
Special Reports

SPECIAL REGIONAL REPORT: BRAZIL

Over the past two decades, the Brazilian meat sector has grown to be an essential source of the country's fiscal revenues, foreign currency inflows and job creation. Brazil holds a large portion of the world's natural capital, on which its economy has become highly dependent. Therefore, it is not surprising that their meat sector has come under increased scrutiny; environmental, social governance (ESG) issues have been a key focus of investors' risk analysis of Brazilian companies.

This Special Report examines how Brazilian meat producers are currently managing ESG risks, the ongoing contribution of the meat sector to the Brazilian economy, Brazilian meat companies' dependence on international markets and the importance of Brazil's natural capital for cash flow generation in the livestock sector. In this analysis, we seek to explore animal agriculture's contribution to Brazil's economic development whilst emphasising the need to balance the environmental and social challenges exacerbated by the country's dependence on its depleting natural resources.

SPECIAL COMPANY REPORT: TYSON FOODS

The COVID-19 outbreak has exposed the underlying social risks that have long plagued the labour-intensive meat processing industry. With investors and regulators increasingly concerned by labour standards within meat supply chains, animal protein producers are facing negative impacts from litigation and market perception linked to working conditions, which could impact the cost of capital.

This Special Report delves into the working conditions of production processes within the meat sector and how failings in the management of social factors can have significant impacts on the operational performances. We use the example of **Tyson Foods** (TSN), one of the largest protein producers in the FAIRR Protein Producer Index, to highlight the importance of assessing labour-related issues in company risk assessments.

FAIRR will be launching a global collaborative investor engagement to strengthen labour standards and practices at 8 leading animal protein producers in the US, Brazil, Europe, and Asia, including Tyson. Corporate performance will be assessed annually following the Coller FAIRR Protein Producer Index methodology.

SPECIAL REPORT: GREENHOUSE GASES

There is an increasing demand for companies to report and address GHG emissions in their supply chains. Companies have begun to adopt GHG emissions targets as a means of demonstrating their commitments to tackling climate change. The Coller FAIRR Index has incorporated a new climate-related KPI into its assessment methodology which looks specifically at whether companies have conducted a climate-related scenario analysis in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

This Special Report examines the animal agriculture sector's progress on emissions reporting, climate scenario analysis and ambitions to set emission reduction targets. It explores the different stages of climate transition, the extent to which companies in the Index have set science-based targets, the leaders and laggards on emissions disclosure and best practices for undertaking scenario analysis on climate.

Science-based Targets

TARGETS SET									
Company	Target Classification	Science Based Target Scope 1 & 2			Geographic Scope	Science Based Target Scope 3			Geographic Scope
		Base Year	Target Year	Reduction		Base Year	Target Year	Reduction	
Grieg Seafood	Well below 2°C	2018	2030 2050	35% 100%	Universal	2018	2030 2050	35% 100%	Universal
Maple Leaf Foods	Well below 2°C	2018	2030	30%	Universal	2018	2030	30% per tonne of product produced	Universal
Mowi	Well below 2°C	2016	2030 2050	35% 72%	Universal	2018	2030 2050	35% 72%	Universal
Tyson Foods	2°C	2016	2030	30%	Universal	2016	2030	30% per ton of finished meat for the production of poultry, pork & beef	80% Scope 3 inventory

"There is enormous growth potential in Asia's animal protein sector but a failure to measure and manage sustainability risks from emissions to antibiotics is likely to ruin investors' appetite. The fact that nine of the bottom 10 performers in this Index are based in Asia is especially concerning. The global animal protein industry is at a crossroads. On the one hand, there are some signs of improvement with previously poor performers turning their ESG performance around and some greater commitments from food companies on Scope 3 and science-based emissions targets.

On the other hand, it's clear from FAIRR's data that the global Meat and Dairy industry, and the Asian suppliers in particular, have more room to improve in order to secure the trust of both markets and wider society in their management of critical risks like climate change.

Jerry Goh, Investment Manager at Aberdeen Standard

REFERENCES

1   Bloomberg data from latest fiscal year

2   Global Supply Chain Report 2019, CDP https://www.cdp.net/en/research/global-reports/global-supply-chain-report-2019

3   FAO data. http://www.fao.org/3/a-a0701e.pdf

4   FAO data. http://www.fao.org/3/xii/0568-b1.htm

5   European Union https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3A4381220

6   https://www.globenewswire.com/news-release/2020/02/03/1978845/0/en/Alternative-Protein-Market-is-Expected-to-Grow-at-a-CAGR-of-9-5-to-Reach-17-9-Billion-by-2025-Meticulous-Research.html

7   FAIRR data. https://www.fairr.org/sustainable-proteins/

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The Coller FAIRR Protein Producer Index is accessible to investors in the form of an interactive digital tool. Investor Members of the FAIRR Initiative can access the full report, interactive graphs and full datasets at **fairr.org/index**. Membership is free.
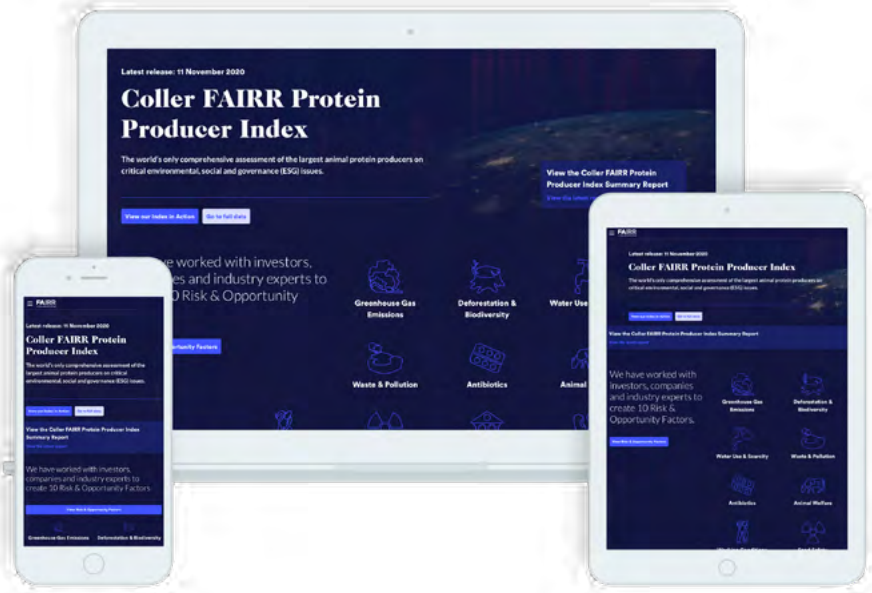
FAIRR
A COLLER INITIATIVE

Established by the Jeremy Coller Foundation, the FAIRR Initiative is a collaborative investor network that raises awareness of the material ESG risks and opportunities caused by intensive animal production. FAIRR helps investors to identify and prioritise these factors through cutting-edge research that investors can then 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 animal production.

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