



COMPANY CASE STUDIES



**FEED
BACK**

MEAT COMPANIES

JBS

JBS (José Batista Sobrinho Sociedade Anônima) is the world's largest meat producer¹, earning \$49.7bn in 2018. In 2016 JBS emitted a colossal 280 megatonnes of greenhouse gas emissions², the largest emissions of any livestock company globally. They are headquartered in Brazil but operate in more than 20 countries, and its subsidiaries include Pilgrim's Pride through which JBS control Moy Park, the UK's largest poultry producer. Recent Pilgrim's Pride acquisitions in Europe include Kerry Group's meats and meals business³ and UK pig processing company Tulip⁴. In 2021, JBS had the capacity to slaughter more than 75,000 cows, 115,000 pigs and 14 million birds and 16,000 lambs per day⁵. JBS told its shareholders that a pillar of its strategy is a projected 30% increase in per capita meat consumption by 2030 compared to 1999⁶. Mighty Earth's Soy and Cattle Deforestation Tracker gave JBS its lowest score of 1/100, estimating it was linked to 100,711 acres of deforestation in the two years since March 2019, of which 74,701 acres was potential illegal clearance⁷. It was fined \$7.7m in 2017 for buying cattle raised on illegally deforested land. HSBC analysts recently warned that JBS "has no vision, action plan, timeline, technology or solution" for monitoring whether the cattle it buys originate from farms involved in rainforest destruction⁸. JBS has also been at the centre of a number of corruption scandals over the years - including admitting to paying \$123 million in bribes to more than 1,800 Brazilian politicians over the past 25 years⁹, the 'Carne Fraca' scandal in 2017 where JBS allegedly bribed food sanitation inspectors, resulting in rotten meat exported worldwide¹⁰. Some investors, such as the Norwegian Pension Fund, already exclude JBS on corruption grounds¹¹. JBS were found to have one of the highest levels of Covid-10 infections and deaths of all US food companies by a recent investigation¹².

TYSON FOODS

Tyson Foods is the world's second-largest meat processor, with a revenue of \$42.4 billion in 2019/20 and total annual emissions of 118.1 million tonnes, making it the second largest greenhouse gas emitter of all global livestock companies¹³. Tyson Foods produces approximately 20% U.S. beef, pork and chicken¹⁴, and slaughters 22,000 cattle, 70,000 pigs and 7.8 million chickens a day¹⁵. Tyson Foods primarily operates in the United States, China and India, but sells food all over the world and has consolidated its power by acquiring dozens of smaller competitors¹⁶. Tyson Foods have tried to market themselves as a climate leader - but only targets a 30% reduction in emissions intensity (i.e. emissions per kilo of meat) by 2030 for their supply chain, where the majority of emissions occur¹⁷. Since Tyson plan to expand their meat production¹⁸, their total supply chain emissions will rise, even if these targets are met. An Oxfam investigation in 2016 found that many Tyson workers endure harsh conditions, limiting breaks so that some employees wear diapers to allow them to keep working without taking toilet breaks¹⁹. Tyson Foods were found to have the highest levels of Covid-10 infections and deaths of all US food companies by a recent investigation²⁰. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, rated Tyson Foods as "High risk" for the categories water use and water scarcity, waste and water pollution, and antibiotics²¹. Tyson chicken products have been contaminated on multiple occasions, with product recalls including chicken containing rubber, plastic, and metal²².

CARGILL

Tyson As the third largest meat processor worldwide, Cargill has a revenue of \$115bn and total annual emissions of 86.3 Mt in GHG emissions, making it the third largest greenhouse gas emitter of all global livestock companies²³. Cargill is America's largest privately held family-owned company – at 14 family billionaires, the Cargill family has more billionaires than any other family²⁴. The conglomerate supplies 22% of the US domestic meat market and is the largest poultry producer in Thailand. The company has been accused of wide-scale deforestation to produce soy for industrial livestock feed, causing mass biodiversity loss²⁵. Mighty Earth's Soy and Cattle Deforestation Tracker gave Cargill a score of only 21/100, estimating it was linked to 66,189 acres of deforestation in the two years since March 2019, of which 13,850 acres was potential illegal clearance²⁶. Its palm oil operations in Indonesia, and Papua New Guinea have been charged for violating human rights, using bonded labour and child workers²⁷. Cargill is also linked to deforestation and land grabbing from indigenous territories in the Amazon region, through financing land-clearing operations for soy to feed hogs, chickens, and cows²⁸. Cargill has repeatedly recalled large volumes of meat products due to contamination²⁹. Cargill were found to have one of the highest levels of Covid-10 infections and deaths of all US food companies by a recent investigation³⁰.

WH GROUP (SMITHFIELD FOODS)

WH Group is the world's largest producer of pork, having followed a path of aggressive expansion. In 2016 WH Group emitted 30.1 megatonnes of GHG emissions, making it the ninth largest greenhouse gas emitter of all global livestock companies³¹. WH Group's sales for 2019/20 was 23.3 billion US dollars³². It is made up of two major companies: the Chinese pork processor Shuanghui, and Smithfield, which WH Group purchased for \$7.1 billion in 2013³³. Smithfield, itself a \$5 billion company, has been accused of creating over 3,300 lagoons of contaminated waste containing faeces, urine, blood, and bodily fluids in North Carolina³⁴. Around 160,000 North Carolinians live within a half-mile of a pig or poultry farm³⁵, causing damaging health and wellbeing impacts on its predominantly African-American community³⁶. Another subsidiary linked to WH Group has been accused of human trafficking and modern slavery of Thai workers in Utah³⁷. WH Group signed an MoU with JBS in Spring 2020 to secure a little regulated route for Brazilian meat into China, increasing deforestation risks³⁸. One of the biggest outbreaks of Covid19 occurred at a Smithfield pork processing plant in South Dakota, Smithfield-related infections accounted for 55% of the cases in the state³⁹.

HORMEL FOODS CORPORATION

Hormel's sales for 2019/20 were 9.5 billion US dollars⁴⁰. In 2016 Hormel Foods' emitted 8.1 megatonnes of greenhouse gas emissions⁴¹. In September 2021, the District of Columbia Court of Appeals issued a decision reviving the Animal Legal Defense Fund's case against Hormel Foods' "Natural Choice" advertising. The lawsuit argues that Hormel should not be advertising its meat products as natural as the animals are reared in factory farms⁴². In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Hormel Foods Corporation as "High risk" for the categories of greenhouse gas emissions, waste and water pollution, and governance⁴³.

NH FOODS

NH Food is a food processing corporation headquartered in Japan with a presence in 18 countries globally⁴⁴. NH Foods sales for 2019/20 were 10.9 billion US dollars⁴⁵. In 2016 NH foods emitted 8.69 megatonnes of greenhouse gas emissions⁴⁶. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked NH Foods as “high risk” overall – scoring them as “high risk” for the categories of GHG emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, animal welfare, food safety and governance⁴⁷.

CHAROEN POKPHAND GROUP (CP GROUP)

Headquartered in Thailand CPF exports its products to more than 30 countries including China, Taiwan, Turkey, India, Malaysia, Russia, the UK and countries in the EU. CPF is a vertically integrated company in which their business operations can be divided into three areas, the feed, farm and food business. The farm business operation is further divided into two business segments, “the livestock (swine, broilers, layers, and ducks) and aquaculture (shrimp and fish) business. In 2016 CP Group emitted over 6 megatonnes of GHG’s⁴⁸. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Charoen Pokphand Group as “High risk” in the categories of greenhouse gas emissions, water use and water scarcity, and waste and water pollution⁴⁹. CP Group does not report or target the reduction of emissions in its supply chains (so-called Scope 3 emissions) where the majority of emissions occur⁵⁰.

HILTON FOOD GROUP

Hilton Food Group is headquartered in the UK and is a meat and fish processor and producer that has expanded to ready meals with operations across Europe and Asia Pacific⁵¹. Hilton Food Group have set targets to reduce absolute emissions from their purchased agricultural products (Scope 3 emissions), which is where most of their emissions occur – but only by an extremely inadequate 12.3% by 2030⁵². Although Hilton Food Group have begun investing in some plant-based proteins, they continue their drive for growth in meat sales - and acquired UK meat supplier Fairfax Meadows for £28.8 million in 2021 as part of a drive for growth⁵³. Hilton have identified as a risk to their business that customers “choose alternatives to beef and lamb to reduce their personal carbon footprint”, and although part of their response to this is to diversify into plant-based protein, a core part of their response is “long-term consumer education to build their trust in meat and fish products”⁵⁴.

SIGMA ALIMENTOS SA DE CV

A multinational food processing and distribution company headquartered in Mexico and present in 18 countries, it is one of Mexico’s largest suppliers of meat and dairy. 57% of Sigma’s sales are cooked meats, 19% is dairy, 17% is dry meats and 7% is “other”, and they own 70 manufacturing facilities⁵⁵. It has pursued expansion throughout the US, Europe and central America – for instance, in 2010 it acquired US packaged meat business Bar-S Foods⁵⁶, and in 2017 Sigma took full control of Romanian meat processing company Caroli Foods Group⁵⁷. Sigma do not report the emissions in their supply chains (so-called Scope 3 emissions), where the majority of emissions occur, or have targets to reduce these⁵⁸. The World Benchmarking Alliance gives them a score of only 16.3/100 for a range of environmental and social indicators⁵⁹, noting that it does not have a commitment to prohibit child or forced labour in its supply chain or a target for responsible purchase of soya⁶⁰.

MUYUAN FOODSTUFF

A China-based company specialising in pig breeding, feed processing and slaughter – whose products include pigs, piglets and pork products⁶¹. In 2020, Muyuan produced 18.12 million live pigs⁶². It has been recognised as “the national key leading enterprise of agricultural industrialization”⁶³. It is rated by FAIRR as a high risk for investors on every category – scoring 1/100 for greenhouse gas emissions, 4/100 for deforestation, 0/100 for animal welfare, and 4/100 for working conditions⁶⁴.

MHP

The largest producer and exporter of chicken in Ukraine, providing 55% of Ukraine’s industrial production, covering about 35% of total chicken consumption in Ukraine and exporting to 85 countries, particularly in the EU Middle East and North Africa⁶⁵. It is also a large manufacturer of meat and sausage products and ready-to-eat meat products, and is a significant grain producer⁶⁶. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked MHP SE as “High risk” overall - including in the categories of greenhouse gas emissions, deforestation and biodiversity, water use and water scarcity, waste and water pollution and animal welfare⁶⁷.

MINERVA FOODS

One of the biggest producers and marketers of beef and its by-products, live cattle exporters and beef processors, based in South America⁶⁸. Marfrig, JBS, and Minerva collectively account for 70% of all cattle slaughtered in Brazil. Minerva has total annual emissions of 34.7 million tonnes, making it the eighth largest greenhouse gas emitter of all global livestock companies⁶⁹. Mighty Earth’s Soy and Cattle Deforestation Tracker gave Minerva only 20/100, estimating it was linked to 50,310 hectares of deforestation in the two years since March 2019, of which 39,119 hectares was potential illegal clearance⁷⁰. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Minerva as “High risk” overall - including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and scarcity, waste and pollution, antibiotics, and animal welfare⁷¹. In 2019, two UN experts urged the World Bank to divest from Minerva over the Brazilian beef producer’s links to deforestation and the climate crisis⁷². Minerva has made no public commitment to eliminate forced labour and child labour from its supply chains⁷³.

MARFRIG GLOBAL FOODS

Marfrig are the second largest beef producer in the world, after JBS, and Brazil’s second largest food processor. It is currently reducing its poultry, pork and fish business to focus more on beef. Marfrig has total annual emissions of 40 million tonnes, making it the seventh largest greenhouse gas emitter of all global livestock companies⁷⁴. Mighty Earth’s Soy and Cattle Deforestation Tracker gave Marfrig its second worst score after JBS of 8/100, estimating it was linked to 50,138 hectares of deforestation in the two years since March 2019, of which 42,637 hectares was possible illegal clearance⁷⁵. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, rated Inner Marfrig as “High risk” in the categories of waste and water pollution, antibiotics and working conditions⁷⁶. Marfrig targeted 7.5-9.5% annual growth between 2015 and 2018⁷⁷. Marb Bondco PLC processes and produces meat products in the UK, and is owned by Marfrig⁷⁸.

NEW HOPE LIUHE CO LTD (NEW HOPE GROUP)

A Chinese conglomerate composed of 600 subsidiaries across 30 countries, New Hope Group are one of the biggest producers of poultry and animal feed in the world⁷⁹, and the biggest poultry processor in China⁸⁰. They produce 20 million tonnes of animal feed and process 1.3 million chickens and 8 million pigs a year⁸¹. Their self-professed philosophy is “high input, high efficiency, high return and low cost”, industrialised livestock⁸². They also directly own 20 large-scale dairy farms and 12 dairy processing facilities⁸³. In 2016, New Hope Group emitted 12.2 megatonnes of GHG emissions⁸⁴. Forest 500 gave New Hope group a score of just 1% for their action of deforestation, including for their soya⁸⁵. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked New Hope Liuhe Co Ltd as “High risk” overall - including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare⁸⁶. New Hope Group have also branched into other industries, including dairy, real estate and tourism, chemical resources, healthcare and finance⁸⁷.

FUJIAN SUNNER DEVELOPMENT CO LTD

Fujian Sunner are a China-based company which primarily deals in the breeding, slaughtering and processing of poultry - primarily sold domestically for the Chinese domestic market⁸⁸. It supplies frozen chicken products for the fast-food industry, including to Burger King, KFC and McDonald’s, as well as to Walmart and meat wholesale markets⁸⁹. Their annual revenue is \$1.7 billion⁹⁰. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Fujian Sunner Development Co Ltd as “High risk” overall - including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare, scoring it 0/100 on almost every category⁹¹.

BEIJING SHUNXIN AGRICULTURE CO LTD

Shunxin is a China-based company engaged in hog breeding, raising, slaughtering, meat processing and cold chain distribution⁹². It has an annual slaughter capacity of 3 million hogs, and its live and fresh meat products make up over 45% of the Beijing market⁹³. Shunxin is also engaged in bio brewing, agricultural products, real estate and ecological construction⁹⁴. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Beijing Shunxin Agriculture Co Ltd as “High risk” overall - including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare⁹⁵.

QL RESOURCES BERHAD

QL are a multinational company which operates in five main areas: integrated livestock farming, marine products manufacturing, consumer foods, retail, and palm oil⁹⁶. Its livestock operations are mainly based in Malaysia, Indonesia and Vietnam, and it produces mainly eggs, poultry meat and animal feed⁹⁷. It is directly involved in layer and broiler chicken farming, as well as meat processing⁹⁸. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked QL Resources Berhad as “High risk” overall - including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare⁹⁹. QL do not report emissions from their supply chains (so-called “Scope 3” emissions), where the majority of emissions occur¹⁰⁰.

SIMMONS FOODS INC

A US-based producer of poultry. Their chicken business is vertically integrated, and mainly supplies the food service industry – their hatcheries and feed mills supply nearly 300 independent and 20+ company managed farms who raise approximately 200 million chickens a year, and their processing plants produce 750 million pounds of chicken a year¹⁰¹. Simmons also produce pet food and animal nutrition products.

SANDERSON FARMS INC

The third largest producer of poultry in the US¹⁰², Sanderson Farms own hatcheries, feed mills and processing plants, and have capacity to process over 16 million chickens a week¹⁰³. In August 2021, Sanderson Farms was acquired by Cargill and Continental Grain Co¹⁰⁴. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Sanderson Farms Inc as “High risk” overall – including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare¹⁰⁵.

INDUSTRIAS BACHOCO, S.A.B. DE C.V.

Mexico’s largest poultry producer, Industrias Bachoco focuses primarily on poultry and eggs, but also operates in pigs, beef, turkey and animal feed sectors¹⁰⁶. It is a vertically integrated company, engaging in animal feed preparation, poultry breeding, processing and distribution. In 2016, Industrias Bachoco emitted 3.7 megatonnes of GHG emissions¹⁰⁷. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Industrias Bachoco as “High risk” overall – including in the categories of greenhouse gas emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare¹⁰⁸.

BRF S.A.

BRF is the world’s largest producer and exporter of chicken meat¹⁰⁹, processing one third of Brazil’s chicken¹¹⁰, and major producer of pork. BRF has total annual emissions of 23 million tonnes, making it the eleventh largest greenhouse gas emitter of all global livestock companies¹¹¹. 96% of BRF’s revenue comes from animal protein¹¹², although it has a range of brands including pastas, pizzas and frozen vegetables. They are vertically integrated, working in partnership with livestock producers but also owning some of their own farms¹¹³. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked BRF SA as “High risk” in the categories of greenhouse gas emissions, water use and water scarcity, and waste and water pollution¹¹⁴. In May 2021, Marfrig bought an \$800 million stake in BRF, becoming its biggest shareholder¹¹⁵. Trase found that although soya in Brazilian chicken is linked to comparatively little direct deforestation because it is mainly produced in areas with little remaining forest, the large demand for soy and corn to feed chicken (an estimated 2.7 million tonnes of soy just to feed Brazil’s chicken exports) “exerts considerable pressure for cropland expansion, fuelling demand for expansion into new areas, often forested”¹¹⁶.

DAIRY COMPANIES

FONTERRA CO-OPERATIVE GROUP

New Zealand's largest dairy company and operates in New Zealand, Australia, Brazil and Chile¹¹⁷. In 2016 Fonterra emitted over 41 mega tonnes of GHGs, making it the fifth largest emitter of all global livestock companies¹¹⁸. It is responsible for Fonterra is responsible for 25% of New Zealand's exports and they export to over 130 countries¹¹⁹. Fonterra formed after a merger of New Zealand's two largest dairy co-operatives (New Zealand Dairy Group and Kiwi Cooperative Dairies). The co-operative, which is owned by farmers across New Zealand, is the world's largest dairy exporter, responsible for around 30% of the world's dairy exports¹²⁰. It has a monopsony over New Zealand's dairy industry, controlling over 80% of New Zealand's raw milk intake¹²¹, earning total revenue of \$12.9bn in 2018. Fonterra is also New Zealand's largest producer of biofuel. Fonterra's expansionist strategy focused on aggressive expansion in Asia has caused it financial and reputational difficulties¹²². Its 43% stake in its Chinese partner, Sanlu Group, embroiled the company in the 2008 contaminated milk scandal that affected around 300,000 Chinese infants and killed six¹²³ and in 2013, an international recall of contaminated baby formula resulted in the resignation of the head of its milk division¹²⁴. As well as its colossal emissions, Fonterra is linked to other environmental disasters. Wilmar, Fonterra's key supplier of palm kernel used in supplementary livestock feed, was linked by Greenpeace to deforestation an area twice the size of Paris in Indonesia¹²⁵.

SAPUTO

Canada-based company Saputo is one of the ten largest dairy processors in the world, and owns brands such as Cathedral City cheddar and Clover margarine. It processes about 11 billion litres of milk per year into dairy products, in facilities in Canada, the US, Argentina, Australia and the UK¹²⁶. Saputo's sales for 2019/20 were 11.3 billion US dollars¹²⁷. In 2016 Saputo emitted 14.29 megatonnes of GHG emissions¹²⁸. A recent report found that the world's 20 largest meat and dairy companies (including Saputo) collectively produce more emissions than Germany or the UK¹²⁹. A 2021 investigation by Greenpeace found that dairy farms in the UK owned by Saputo were being fed on Brazilian soya linked to deforestation in the Amazon and Cerrado regions of Brazil¹³⁰.

INNER MONGOLIA YILI (YILI GROUP)

One of China's two leading dairy companies, along with China Mengniu Dairy, which together control 40% of China's booming dairy market¹³¹. Headquartered in Inner Mongolia, Inner Mongolia Yili took 13.4 billion US Dollars in sales in 2019/20¹³² and produced 18 megatonnes of greenhouse gas emissions in 2016¹³³. At the time of writing, Yili do not have any plans to reduce emissions from their supply chains (so-called Scope 3 emissions), and lack commitments to eliminate child and forced labour for supply chain partners¹³⁴. It does not even publish Scope 1 and 2 emissions for its own operations and energy-use, let alone Scope 3 emissions for its supply chain¹³⁵. In November 2020, the Coller FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, ranked Inner Mongolia Yili as "High risk" overall - including in the categories of deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, working conditions and animal welfare¹³⁶.

CHINA MENGNIU DAIRY

One of China's two leading dairy companies, along with Inner Mongolia Yili, which together control 40% of China's dairy market¹³⁷. It took 11.9 billion US dollars in sales in 2019/20¹³⁸. In 2020, the company's annual dairy production capacity was 9.9 million tonnes¹³⁹. Legal & General Investment Management, Britain's biggest asset manager, divested from industrial dairy company China Mengniu Dairy in 2021 over their "insufficient" response to climate change¹⁴⁰. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, rated Inner Mongolia Yili as "High risk" in the categories of GHG emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics and working conditions¹⁴¹.

ALMARAI CO

A Saudi-based company, Almarai are the world's largest vertically integrated dairy company¹⁴². Approximately 61% of Almarai's revenue comes from dairy sales, 13% is from fresh poultry products, and the rest is from juice, bakery and infant nutrition¹⁴³. The company owns over 190,000 dairy cows in Saudi Arabia and Jordan¹⁴⁴. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, rated Almarai Co as "High risk" overall - including in the categories of GHG emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics, animal welfare and working conditions¹⁴⁵. In 2020, Almarai was accused of expelling employees and reducing salaries during the coronavirus pandemic¹⁴⁶.

VIETNAM DAIRY PRODUCTS (VINAMILK)

Vinamilk is the largest dairy company in Vietnam, engaged in manufacturing, marketing, wholesale trading and retail distribution of dairy products¹⁴⁷. They also sell child nutrition products (dairy-based), sugar, fruit juices and some milk alternatives like soymilk - but the core of their business is dairy¹⁴⁸. The company aims to further expand its farms, factories and distribution systems¹⁴⁹. In November 2020, the Collier FAIRR Protein Producer Index, an assessment of the largest meat, dairy and farmed fish producers on material ESG risks, rated Vietnam Dairy Products as "High risk" in the categories of GHG emissions, deforestation and biodiversity loss, water use and water scarcity, waste and water pollution, antibiotics and animal welfare¹⁵⁰.

SOYA COMPANIES

ADM

The Archer-Daniels-Midland Company (ADM) is an American multinational food processing and commodities trading corporation - with products including oils and meal made from soybeans, and other cereals and oilseeds. It is one of the major processors of soya from South America. Mighty Earth's Soy and Cattle Deforestation Tracker gave ADM a score of 42/100, estimating it was linked to 7,269 acres of deforestation in the two years since March 2019, of which 5,113 acres was potential illegal clearance¹⁵¹. Danske Bank excluded ADM from two of its investment funds because of deforestation risk¹⁵². A 2020 Global Witness Investigation found that ADM were failing to ensure that the Indonesian palm oil mills they source from are free from abuse against land and environmental defenders¹⁵³. An AGM subsidiary pleaded guilty in 2013 to paying bribes to Ukrainian government officials to obtain VAT refunds, in violation of the Foreign Corrupt Practices Act¹⁵⁴.

AQUACULTURE COMPANIES

MOWI ASA

Mowi is the world's biggest salmon producer both by volume and revenue. Headquartered in Bergen, Norway, Mowi operates in 25 countries worldwide. It has farms in Norway, Chile, Canada, Scotland, Ireland and the Faroes, and feed production sites in Norway and Scotland¹⁵⁵. In 2018, Mowi's sales were €3.8 billion¹⁵⁶. Feedback have calculated that to produce just 436,000 tonnes of farmed salmon annually, Mowi uses 880,000 tonnes of wild-caught fish as animal feed – more wild fish than the total fisheries capture of Canada¹⁵⁷. This is highly wasteful of fish which could be eaten directly, raising pressures on overfishing. These fish are sourced from countries including Mauritania, Chile and Peru, where overfishing scandals are rife and exporting valuable fish for animal feed risks diverting nutritious food from local people, many of whom face hunger and malnutrition¹⁵⁸. Mowi has also suffered significant financial losses because of mortalities on salmon farms – including due to infestations of sea lice and other diseases which require increasing use of antibiotics to avert¹⁵⁹. For instance, Mowi has reported an overall 9.4% mortality rate for its Scottish salmon¹⁶⁰, 1.5 million salmon died in 2020 at Mowi's hatchery in Northern Norway¹⁶¹, and a mass mortality event across several of its Canadian farms in 2019 resulted in the death of 2.6 million salmon, which led to the suspension of the company's farming licenses¹⁶².

SALMAR

Headquartered on the island of Frøya, Norway and with farming activities in Norway, Iceland and the UK and sales offices in Asia, SalMar is the world's second largest producer of Atlantic salmon¹⁶³. SalMar is traded on the Oslo Stock Exchange. SalMar owns 50% stake in Scottish Sea Farms; Norwegian producer Lerøy owns the other 50%. On 15 December 2021, SalMar announced that Scottish Sea Farms Ltd. had completed its transaction to acquire 100% of the shares in Grieg Seafood Hjalmland UK Ltd¹⁶⁴, making Scottish Sea Farms Shetland's largest salmon producer¹⁶⁵. The 2020 Collier FAIRR Protein Producer Index identified SalMar as a 'medium risk' company, coming in 18th out of 60 ranked companies¹⁶⁶.

THAI UNION GROUP

Thai Union Group Public Company Limited (PCL) is the world's largest producer of canned tuna¹⁶⁷; it also produces other ambient seafood (salmon, sardine, mackerel), frozen and chilled seafood and related products (shrimp, lobster, dalmon) and pet food. The company is headquartered in Mueang Samut Sakhon District of the Samut Sakhon Province, Thailand¹⁶⁸ and operates globally, with corporate offices/sales in the US, Canada, Italy, France, the UK, Norway, Thailand and China¹⁶⁹. The company's brand portfolio includes, amongst others, John West (business in the Netherlands and UK), Mareblu (Italy), and Parmentier and Petit Navire (France). Of the total canned seafood market in the UK, John West holds 32.6%¹⁷⁰. In the last few years, the company has been accused by Greenpeace of having destructive tuna sourcing practices as well as human rights abuses in its seafood supply chains¹⁷¹.

BAKKAFROST

Headquartered in the Faroe Islands and with offices in England, Scotland and the US, Bakkafrost claims to be 'one of the world's most vertically integrated salmon farming companies', controlling from fishmeal and fish oil to feed to the final product¹⁷². Since 2019, Bakkafrost owns The Scottish Salmon Company, one of Scotland's largest fish farm firms¹⁷³. Regarding the company's production of fishmeal and fish oil: Havsbrún (Bakkafrost's FMFO producer) received 283,307 tonnes of raw materials (i.e. wild caught pelagic fish) in 2020, up 2% from the previous year¹⁷⁴. In an unusual move, Bakkafrost recently announced that it would buy its own aircraft to transport its finished products to countries around the world including the US and China, the only salmon farmer to do so¹⁷⁵. The 2020 Collier FAIRR Protein Producer Index indicated Bakkafrost as a medium risk company overall. In 2021 Bakkafrost saw 'exceptionally high' salmon mortality figures on its farms in Scotland, with mortalities causing financial losses of nearly \$27 million¹⁷⁶.

MARUHA NICHIRO CORPORATION

Headquartered in Tokyo, Japan but with offices worldwide, Maruha Nichiro is one of the largest seafood suppliers in the world¹⁷⁷: Maruha Nichiro Group has 149 companies worldwide and delivers its seafood products from around 70 countries and regions. Maruha Nichiro has one of the world's first egg-to-harvest raised bluefin tuna farms and claims to have the world's first carbon neutral fishing company (group company Austral Fisheries based in Australia¹⁷⁸). In July 2021, 2 fishing vessels owned by Maruha Nichiro's subsidiary Taiyo Micronesia Corporation were criminally charged and civilly sued by the Federated State of Micronesia for, amongst others, illegally removing shark fins¹⁷⁹. Beyond aquaculture, Maruha Nichiro produces other meat products including beef, pork chicken and processed products, with facilities across the globe¹⁸⁰. The 2020 Collier FAIRR Protein Producer Index lists Maruha Nichiro as a high risk company overall¹⁸¹.

LERØY SEAFOOD GROUP

Headquartered in Bergen, Norway, Lerøy Seafood Group has production and distribution in Sweden, Denmark, Finland, France, the Netherlands, Portugal, Spain, Italy and Turkey¹⁸². More than 63% of the Group's operating revenue in 2020 was from salmon (whole and processed), and the rest derived from its white fish, trout, shellfish, pelagic and other products. Just over 50% of revenue comes from the EU, with Norway and Asia its second and third largest markets. Lerøy Seafood Group owns 50% of Scottish Sea Farms; SalMar owns the other 50%. Lerøy issued a \$58 million green bond in 2021¹⁸³.

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