



Big meat. Big bucks. Bigger harm.

Animal welfare and European financial links to drivers of deforestation in the Amazon and Cerrado



Image: Beef cattle, Mato Grosso, Brazil.
Credits: World Animal Protection.

Contents

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About this report

This report investigates the links of European financial institutions with the biggest drivers of deforestation in the Amazon and Cerrado regions, with a special focus on animal welfare.

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Executive summary

The top 10 European financial institutions are at risk of massively bankrolling illegal and legal deforestation for meat production in Brazil's Amazon and Cerrado regions, thereby exacerbating climate change, biodiversity loss, public health risks and, often overlooked, global farm animal cruelty on a massive scale.

Their support, identified for this report, totals at least US\$98bn in financial products including loans, investments and underwriting share and bond issuances. This is despite European citizens – their clients – seeing animal welfare and protecting the environment as important issues. More than 9 in 10 believe animal welfare should be better protected than it is now according to Eurobarometer.

Deforestation in the Amazon and Cerrado is continuing – and even increasing –, bringing the region dangerously close to the tipping point beyond which rainforest will flip into savannahs. This will have devastating consequences for global and regional climate change, indigenous and local communities, biodiversity, the welfare of wild animals and agricultural production across South America. Deforestation and the related intensification of livestock production is one of the biggest risk factors for zoonotic epidemics and pandemics.

The main drivers of deforestation in the Amazon and Cerrado are the production of beef and soy, primarily used as animal feed for factory farming in Brazil, China and Europe. Shockingly, at least 17% of beef exports and 20% soy exports from the Amazon and Cerrado to the EU may be contaminated with illegal deforestation. Combined with legal deforestation, these numbers are even higher.

Cattle farming generates long distance transport of live animals on a massive scale, inflicting appalling animal cruelty. Long journeys – up to 60 hours along treacherous roads – are common. Sea journeys are even worse.

The production of monocrops of (genetically modified) soy for animal feed is not only driving deforestation, but also uses huge quantities of pesticides, adversely affecting ecosystems and communities dependent on them. Often ignored, the soy industry is also propping up factory farming cruelty at enormous scale: around 50 billion chickens, pigs and cows worldwide are condemned to lives of misery annually.

Factory farms squash large numbers of animals into stressful, barren environments which have no access to outdoors or natural light. Animals are often caged. They are genetically selected for high yields. Due to its high quality protein content, soy is an important feed ingredient to realize these high yields within

industrial livestock production. Large quantities of antibiotics are used to maintain production, which leads to antimicrobial resistance. Currently, antimicrobial resistance is killing approximately 700,000 people annually, a figure that is expected to rise sharply.

The financial institutions researched for this report have financial links with 34 out of the 60 companies our researchers identified as having high risks of contributing to deforestation in the Amazon and Cerrado. These companies include Brazilian-based JBS – the largest meat processing company in the world – the American soy trading company Cargill and the French retailers Carrefour and Casino. Cargill was identified as the biggest recipient with US\$15.7bn in loans and US\$1.5bn in underwritings.

Commitments and initiatives – including certification of soy – to stop deforestation, have failed so far. This is unsurprising, since the root cause of the problem has largely been ignored: the excessive production and consumption of animal products. To stop deforestation and its associated adverse impacts requires a transformation of the global food system. We need to return to the acknowledgment that plants are the basic building blocks of food. Plants should be used by people for food first. The role of animals in human food systems should be limited to:

1. grazing on lands not suitable for growing food
2. converting streams of by-products not of immediate use for human consumption and unavoidable food waste into food

This transformation entails a shift to:

- **High animal welfare.** Safeguarding animal welfare should be central to livestock farming. This means respecting and utilizing animals' natural behaviours such as grazing, rooting and foraging. It also includes the use of robust, slower growing breeds, that adapt well to local circumstances. High animal welfare also means fewer antibiotics being used and does not permit cage and crate use and painful mutilations.
- **More plant-based.** The current excessive consumption of animal-derived foods in many countries needs urgent rebalancing. Healthy, nutritious, predominantly plant-based diets should become the norm. Replacing animal protein with plant protein greatly reduces greenhouse gas emissions and land use. It also contributes significantly to mitigating pandemic and other health risks.

- **Sustainable, circular agriculture.** Loops of agricultural inputs and outputs should be closed and shortened as much as possible at local and regional level. This includes phasing out the use of monocrops like soy as feed for chickens, pigs and cows. It also includes a profound reduction in the use of pesticides and antibiotics. Finally, it would make long distance transport of animals a thing of the past.

Financial institutions are key to bring about this transformative shift. Many financial institutions still lack (adequate) policies. Where policies exist, there are gaps with implementation, monitoring and reporting. Nevertheless, some banks including ABN AMRO and Rabobank in the Netherlands and Standard Chartered in the UK have started to include animal welfare criteria that could drive significant progress.

To become part of the solution, financial institutions must:

Commit to a transformation of the food system, including zero tolerance for deforestation.

Develop a robust policy on deforestation and sustainable food systems, focussed on achieving:

- **High animal welfare:** implementation of the standards of the FARMS initiative as a minimum.
- **Protein transition:** at least halving current protein production and consumption by 2040.
- **Sustainable, circular agriculture:** including the phasing out the use of monocrops like soy as feed for chickens, pigs and cows.

Communicate expectations and formalise requirements.

Sustainability expectations – including on animal welfare and the protein transition – need to be clearly communicated and in case of loans formalised in the contract.

Screen companies within beef and animal feed supply chains.

The information from companies and from service providers needs to be triangulated with all relevant information obtained from NGOs, experts, knowledge institutes and local communities.

Exclude clear offenders. When screening clarifies a company's systematic involvement in adverse impacts (including on animal welfare), and prospects for adequate improvement are low, the company should be excluded.

Engage with companies. Engagement with companies which may not meet all principles and criteria included in the financial institution's policy, must lead to a time-bound action plan to achieve better alignment.

Monitor and act. The company's progress in implementing an action plan must be monitored. If progress is insufficient, financial institutions must decide to divest or – in case of a loan – apply for dissolution of the loan contract because the company defaults on one of the clauses.

Vote on shareholder resolutions. Investors should use the voting rights on the shares of the high-risk companies they hold.

Take collective initiative. Financial institutions need to collaborate with peers, with NGOs, national and local governments and other stakeholders.

Ensure effective grievance mechanisms. Effective grievance mechanisms should be in place for all relevant stakeholders that could be affected by the adverse impacts linked to those companies that financial institutions are financing or investing in.

Disclose and be transparent. Full transparency needs to be a condition for investment and financing. Transparency is also needed regarding deforestation-related policies and their implementation.



Image: A victim of forest fires: a cub of a coloured cougar treated at the Wildlife Hospital of the veterinary faculty of the Federal University of Matto Grosso, Brazil. Credits: World Animal Protection.



Image: Forest fires in the Amazon, Acre, Brazil.
Credits: World Animal Protection/Noelly Castro.



Image: World Animal Protection have been working with a fire department in Acre state, Brazil, to explore how the fires is affecting wild animals. Credits: World Animal Protection/Noelly Castro.

Introduction

Decades-old concerns over deforestation in the Amazon and within its lesser-known neighbour the Cerrado are rising rapidly again. With good reason. Probably no region on this planet better illustrates the intertwined, self-inflicted and deepening crises we face: climate change, biodiversity loss, inequality and public health risks. Often overlooked, animals face these crises too and at an alarming scale. The COVID-19 pandemic grimly underscores that animal welfare is central to human welfare. Our fates are inextricably linked.

This report shines a light on the role – and plight – of animals within the supply chains of the commodities for which the Amazon and Cerrado are destroyed. We reveal how the top European financial institutions support of the biggest companies in these supply chains raises the risk of driving the Amazon and Cerrado deforestation crisis. And we expose the harsh impact of their decisions and alliances on farm animals globally and upon our environment.

Investors and banks keep the current system running.¹ They dominate the allocation of resources within the modern globalised economy and so are bankrolling our current crises.² But they can also become part of the solution. They hold a crucial key – they can transform our global food system in ways that our planet and all its inhabitants so urgently need.

And as individual investors, savers and borrowers, we also hold a powerful key. Money lent by banks or invested by insurance

companies and pension funds is our money; its use must be traceable. If we don't want it used to obliterate the Amazon and Cerrado, to make farm animals suffer, to imperil our common future, we must tell our financial institutions to do better. Or we need to find better ones.

How companies view and manage animal welfare should be seen as a litmus test for good management – particularly risk management – by bankers and investors. Animals are the most vulnerable members of our society; farm animals are especially completely at the mercy of people. Their welfare and contribution to sustainability should be firmly entrenched in the risk strategies of businesses. Companies that acknowledge this and act upon it are more likely to pay back loans and create long-term value.

An important part of this is shifting away from a heavy reliance on animal protein towards more plant-based foods. This is important to meet greenhouse gas emission reduction targets. It is also an important tool for mitigating biodiversity and health risks. Ultimately, the destruction of nature is not a sustainable business case.

Change is urgent. Time is running out to curb climate change. Many species are on the brink of extinction. Our health is at risk. Animals are suffering now, by the billions. Financial institutions must act, and must act boldly. Improving business as usual is not nearly enough. By playing a crucial role in transforming the food system, they can reverse deforestation and promote the wellbeing of humans and animals alike. This report should be their trigger.



Image: Forest fires near Manaus, Brazil. Credits: World Animal Protection/Noelly Castro.

1. Facing desolation – the Amazon and Cerrado

The Amazon rainforest is our planet's most diverse and most extensive rainforest. At least 1 in 10 of every known plant and animal species is found in the Amazon. It is also home to many indigenous peoples and other local communities, who depend for their way of living on the forests and waterways and often act as nature's guardians.³

The Amazon Basin is a unique system of forests and waters, containing countless streams and several large rivers, centered around the Amazon River, the planet's largest river. It stretches over seven countries in South America: Bolivia, Brazil, Colombia, Ecuador, Peru and Venezuela. Brazil accounts for over two-thirds of the Amazon Basin's total area.⁴

South of the Amazon is another vital, but lesser-known biome, the Cerrado. This is the world's most ancient and biodiverse forest savanna, representing 5% of the world's plant and animal species. Like the Amazon, the Cerrado is also important for storing carbon and for South America's water systems.⁵

Both the Amazon and Cerrado are under threat – the threats of deforestation and degradation.

Deforestation – devastating data

Brazil leads the world in rainforest loss. By far. The latest annual deforestation data from June 2020 shows that Brazil suffered the highest loss of primary forest: 1,361,000ha. This is more than one third of the total loss of humid tropical primary forests worldwide. Brazil is followed by the Democratic Republic of Congo (DRC) with 475,000ha and Indonesia with 324,000ha.⁶ And these are not the only countries badly affected, Bolivia experienced record-breaking tree cover loss. In 2019 Bolivia's tree cover loss was more than 80% higher than in 2018.⁷

Large-scale deforestation in the Amazon is relatively recent. In 1970, only 2% of the Brazilian Amazon had been deforested. Since then, almost 20% of the Brazil Amazon forest has been destroyed. This roughly corresponds to an area twice the size of Germany. In addition, an even larger part is considered degraded: an estimated 1,225,100 km².⁸

Deforestation in the Cerrado is even more dramatic: half of it has been annihilated, a further 30% degraded, leaving only 21% intact. Only 8% of the Cerrado is legally protected, and less than 3% within fully protected conservation units. Unlike in the Amazon, much of the Cerrado land conversion is legal. The Brazilian Forest Code requires farmers to set aside only 20% of natural vegetation, in contrast to 80% in the Amazon.⁹

The situation hasn't always appeared so bleak. Between 2004 and 2012, deforestation in the Brazilian Amazon showed an encouraging downward trend.¹⁰ Annual deforestation rates declined by more than 80%. And also in the Cerrado, deforestation rates went down. Brazil was known internationally as an environmental champion, a country that successfully managed to reduce deforestation. However, deforestation could not be halted. Neither region has achieved anything close to zero deforestation in any year during the 21st century. Even worse, since 2012 deforestation in the Brazilian Amazon has increased again.¹¹

In 2019, the destruction reached almost 10,000 km² – a 30% increase compared to 2018, and a doubling of annual deforestation compared with 2012. It means that every minute, about three football fields of rainforest are destroyed. Figures for 2020 are even worse. Fires in Brazil's Amazon increased 13% in the first nine months compared with 2019. In September 2020, satellites recorded a staggering 32,017 hotspots. This meant a 61% rise from the same month in 2019.¹²

This is unsurprising. Deforestation's main driver still remains unchallenged: our world's insatiable demand for meat.

| Company | Number of fire alerts in 2019 | | | | Number of fire alerts in 2020 | | | | Variance year over year | | | |
|--|-------------------------------|---------|---------|------------|-------------------------------|---------|---------|------------|-------------------------|----------|----------|--------------|
| | Jul'19 | Aug'19 | Sep'19 | Jul-Sep'19 | Jul'20 | Aug'20 | Sep'20 | Jul-Sep'20 | V% (Jul) | V% (Aug) | V% (Sep) | V% (Jul-Sep) |
| JBS | 22,707 | 132,721 | 121,824 | 277,252 | 20,892 | 107,404 | 221,934 | 350,230 | -8% | -19% | 82% | 26% |
| Marfrig Global Foods | 7,005 | 34,292 | 47,014 | 88,311 | 8,065 | 40,602 | 95,449 | 144,116 | 15% | 18% | 103% | 63% |
| Minerva | 6,719 | 37,563 | 42,751 | 87,033 | 8,319 | 33,454 | 98,066 | 139,839 | 24% | -11% | 129% | 61% |
| Mercurio Alimentos | 3,919 | 22,562 | 23,422 | 49,903 | 7,695 | 21,347 | 52,887 | 81,929 | 96% | -5% | 126% | 64% |
| Vale Grande Industria e Comercio de Alimentos | 8,129 | 29,717 | 24,081 | 61,927 | 4,383 | 24,886 | 49,591 | 78,860 | -46% | -16% | 106% | 27% |
| Amazonboi | 7,166 | 39,012 | 16,008 | 62,186 | 9,176 | 37,329 | 25,003 | 71,508 | 28% | -4% | 56% | 15% |
| Masterboi | 3,710 | 14,131 | 19,882 | 37,723 | 4,808 | 10,804 | 47,461 | 63,073 | 30% | -24% | 139% | 67% |
| Matobo Alimentos | 1,717 | 6,153 | 18,350 | 26,220 | 2,237 | 15,288 | 43,097 | 60,622 | 30% | 148% | 135% | 131% |
| Frigol | 2,011 | 15,312 | 15,474 | 32,797 | 2,718 | 13,780 | 40,880 | 57,378 | 35% | -10% | 164% | 75% |
| Irmaos Goncalves Comercio e Industria | 2,571 | 27,319 | 14,089 | 43,979 | 1,244 | 12,650 | 16,833 | 30,727 | -52% | -54% | 19% | -30% |
| Total fire alerts in major slaughterhouse sourcing regions | 65,654 | 358,782 | 342,895 | 767,331 | 69,537 | 317,544 | 691,201 | 1,078,282 | 6% | -11% | 102% | 41% |

Source: Chain Reaction Research visual based on NASA VIIRS data



Image: 'Heroes of Brazil', commemoration of Chico Mendes, a famous environmental and human rights activist, murdered by a rancher on December 22, 1988. In 2019, 212 environmental defenders were murdered globally, 24 of them in Brazil. Credits: Alexandre Possi, CC BY 3.0.

Driving deforestation

Beef is the key driver of the Brazilian Amazon's deforestation; converting land to cattle farms is responsible for 70-80% of the destruction.¹³ Brazil is the world's biggest beef exporter – and the second largest leather producer. In the Amazon, cattle outnumber people three to one. Tellingly, the common expression for cattle grazing on illegally deforested land is 'pirate ox' ('boi pirate').

Since the late 20th century, the mechanised cultivation of genetically modified soybeans has also driven Amazonian deforestation and is tightly linked with meat production. This soy is mainly used for animal feed – in Brazil, and also in China and the EU. There it is used to feed chicken, pigs and cows.¹⁴ By contrast, soy used for direct consumption by people is largely produced in countries other than Brazil and is not usually genetically modified.¹⁵

Deforestation in the Cerrado is largely driven by soy production, with beef playing a smaller role. But like in the Amazon, cropland is often created in a two-step process: forests are cut and burned to create pasture; then those grazing lands are, over time, converted to soy fields.¹⁶

In sum, the two biggest deforestation drivers in the Amazon and Cerrado are both meat production.

Logging and mining are other drivers of deforestation, but to a far lesser degree than beef production and soy.¹⁷ However, logging is often linked with the expansion of agricultural land. Before forest is converted to graze cattle or grow soy, the valuable trees are taken out. Then the land is cleared: smaller trees are pulled down with a bulldozer or by using a metal chain between tractors. At the end of the dry season, around August-September – the area is burned. Although logging and mining cause significant destruction to the Amazon; their role is not covered in this report.

Deforestation for soy in the Amazon has decreased since 2005–2006 after international attention and pressure from NGOs led to the acclaimed Amazon Soy Moratorium. Notwithstanding its tremendous importance, its success has not been clear-cut. It has pushed soy to the Cerrado, and cattle farming from the Cerrado to the north into new forest areas.¹⁸ The Moratorium has not fully stopped deforestation for soy and related infrastructure in the Amazon.¹⁹ Soy producers clearing forests for purposes other than growing soy – to use as pasture or for other crops – are still compliant to the Soy Moratorium, even if they continue to profit from deforestation.²⁰

Again, this continuing deforestation should not be unexpected. This is because the Amazon Soy Moratorium does not address the main root cause: expanding industrial meat production and consumption.



Creating soy infrastructure – causing deforestation

How road building enables deforestation is well-documented. In the Amazon nearly 95% of all deforestation has occurred within 5.5km of roads or 1km of rivers,²¹ highlighting the clear links between building infrastructure, deforestation and negative impacts on biodiversity. Infrastructure for the production and trade in soy is an important case in point – and ignored by soy certification schemes which proudly claim green-no deforestation credentials. For example, construction of a soy port in Santarém, Brazil by US global food corporation Cargill, in the early 2000s involved much deforestation in the region around the port. It also led to conflicts with indigenous and local communities greatly concerned about the irreparable damage caused.²²

And the destruction continues... Another soy infrastructural project – the Ferrogrão, a planned railroad of about 1,000km from Mato Grosso to the Tapajós River – is currently threatening forests and the communities dependent on them. However, lack of investors may stop this highly controversial project.²³

The Dutch play a major role in soy infrastructure development. The Dutch government has helped Dutch companies profit from infrastructure construction to move soy and other commodities from Mato Grosso state down the Tapajós and Amazon waterways to the Atlantic for export. The Dutch government used diplomacy, subsidies and advisory studies to bring this about, despite clear evidence that such projects contribute to risks of deforestation, land grabbing, pollution, corruption and murder, but chose to focus on economic opportunities, flagging these risks as merely reputational risks, as was reconstructed in 2018 by investigative journalist Karlijn Kuijpers, based on documents retrieved via a Freedom of Information request.²⁴

Figure 1

Brazil's role in soy production globally, 2019

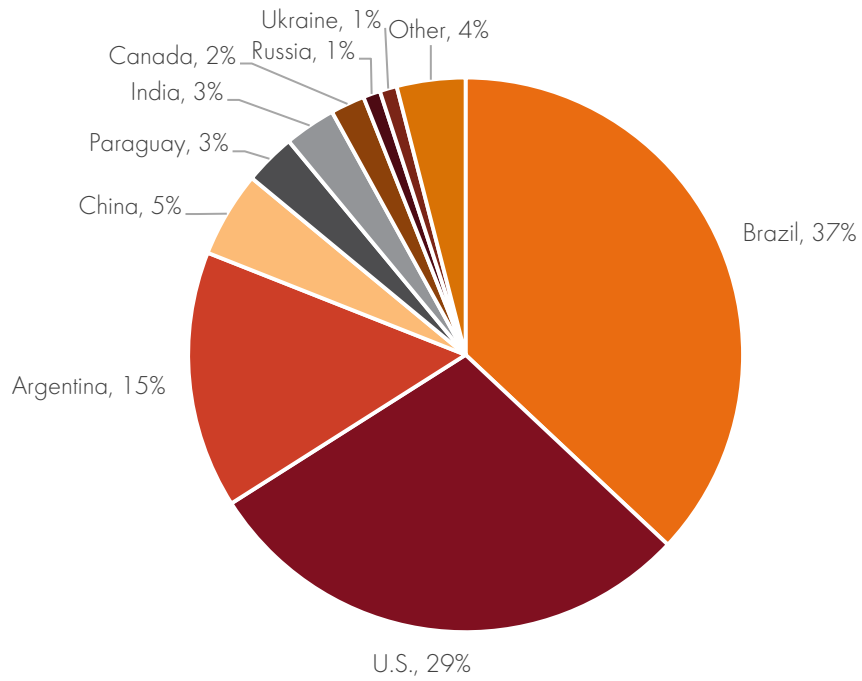
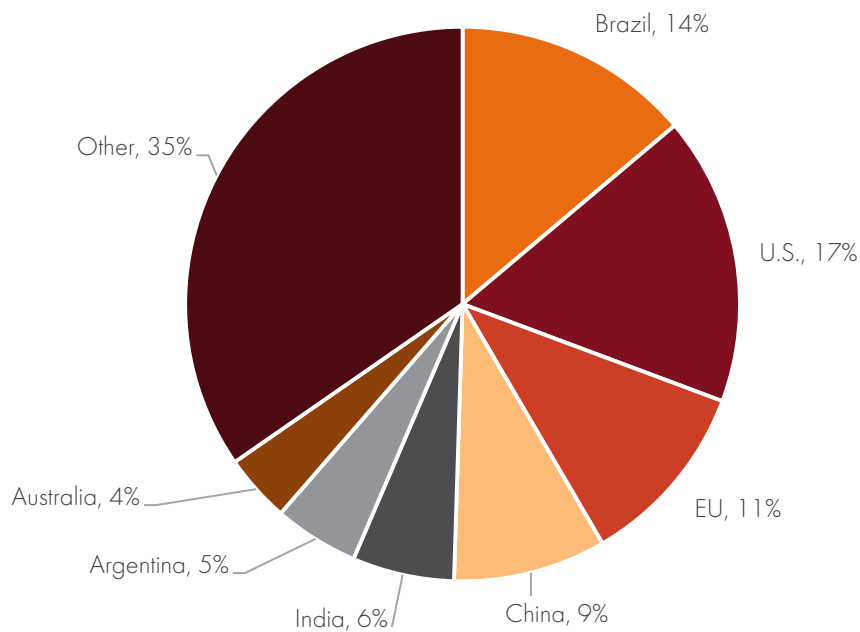


Figure 2

Brazil's role in beef production globally, 2019



Source: Fair Finance Guide Netherlands, "Funding destruction of the Amazon and Cerrado", August 2020.

Combining crises – linking the adverse impacts

Deforestation for cattle and soy production for animal feed causes immediate harm to the welfare of wild animals whose habitat is destroyed. But it also has much wider and multifaceted negative impacts for people, animals and the planet.

Climate change

The Amazon rainforest is considered one of nine global tipping points for climate change. Recent research found that in South America approximately 1.45m km² of forest – located mainly in the northern Amazon – is at high risk of becoming savannah.²⁵ The risk of this happening is increased by deforestation.²⁶ Rainforests enhance rainfall patterns and act as buffers (protection) during droughts. Conversely, deforestation reduces rainfall and buffer capacity. This leads to less vegetation and more susceptibility to fire creating a negative cycle of environmental degradation.

Research by the American ecologist Dan Nepstad showed that a 60% drop in rainfall during each wet season prompts a 4.5-fold increase of mortality rates among large trees after 3.2 years.²⁷ This indicates that the Amazonian rainforest might not survive 3-4 years of consecutive droughts.²⁸ Researchers believe that if just 20-25% of the rainforest were cut down, it could reach the tipping point at which eastern, southern and central Amazonia would flip to a savannah-like ecosystem.²⁹ Shockingly, deforestation in the Brazilian Amazon is already close to 20%.³⁰

Reaching this tipping point would add billions of tonnes of carbon to the atmosphere. It would also affect the regional climate and rainfall patterns of South America, posing long-term risks for agriculture in most parts of the continent.³¹

Similarly, deforestation in the Cerrado contributes to global warming. Measured per hectare, it is even probable that deforestation in the Cerrado is responsible for greater emissions of greenhouse gases than deforestation in the Amazon.³²

Animal production – the main driver for deforestation in the Amazon and Cerrado – is widely recognised as disproportionately contributing to climate change. A 2018 study calculated that while animal production provides just 18% of calories and 37% of protein, it uses 83% of farmland and produces 58% of agriculture’s greenhouse gas emissions.³³ Other studies put livestock’s contribution to all agriculture’s greenhouse gas emissions even higher, at nearly 80%.³⁴ Without fast and large-scale downward shifts in global meat consumption, agriculture will consume the entire world’s carbon budget necessary for keeping global temperature rises under 2°C by 2050.

Globally, if health guidelines on eating less meat are followed, greenhouse gas emissions would be two-thirds lower by 2050 compared with current predictions. Healthy diets would prevent around 11 million deaths per year.³⁵

Image: Brazilian soy is an important feed ingredient for factory farmed pigs in the EU. Note the barren slatted floor, high stocking density and docked tails. Credits: World Animal Protection.



Biodiversity loss

Industrial meat production requires disproportional land use, for both grazing and growing animal feed crops. The deforestation carried out to support it disrupts and destroys biodiversity, threatening unique and rare Amazonian plant and animal species that can only survive in specific areas. Infrastructural projects for soy transportation pose additional risks. Dams are built both for hydroelectricity and the opening up of waterways to allow soy shipments access to the Amazon river and the Atlantic. This can degrade habitat quality, altering water speeds and the quantity and distribution of aquatic plants.³⁶ Studies show that dams have fragmented dolphin populations, reducing their gene pool and limiting their territories.³⁷

And when forests are replaced by fields for soy production, pollution starts. Pesticide use in Brazil has rapidly increased.³⁸ Since 2016, 1,270 pesticide products have been approved in the country³⁹ and of those around 193 contain active ingredients banned in the EU because of their toxicity. The devastation caused by such pesticides was highlighted by a 2019 case where 500 million honey bees in Brazil had died through suspected pesticide use.⁴⁰ Investigations by Brazil's prosecutor's office confirmed the deaths were caused by the insecticide fipronil (prohibited in the EU⁴¹), that had been used on soy plantations.⁴²

Pesticides used in soybean production areas do not just negatively affect pollinators and the ecosystems that depend on them. They also encourage the pests to spread elsewhere to attack local crops in the surrounding areas. Farmers then feel forced to also use the pesticides too, to protect their vegetable crops and so a vicious cycle is created.⁴³ Pesticides associated with soy production also leak into waterways poisoning fish and other aquatic animals, including the Amazon's rare pink river dolphins.⁴⁴

Industrial animal production, propped up by South American soy through the animals it feeds, affects biodiversity globally. Many of the problems are caused by the extra nitrogen and phosphorus industrial farming produces which end up in the water. Algae blooms then develop. Their decomposition process consumes oxygen and suffocate aquatic life, resulting in dead zones.⁴⁵ The extra nitrogen produced by industrial farming affects the land too – there is evidence of it threatening plant diversity in China and in temperate and northern parts of Europe.⁴⁶

Zoonotic diseases and other public health threats

The COVID-19 pandemic has put the spotlight on the risks of habitat destruction, agricultural intensification and wildlife trade for

the emergence of zoonotic epidemics and pandemics. Sixty percent of emerging infectious diseases are zoonotic. An estimated 1.7 million currently undiscovered viruses are thought to exist in mammal and avian hosts, of which 540,000-850,000 could have the ability to infect humans. As the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) noted, 'without preventative strategies, pandemics will emerge more often, spread more rapidly, kill more people, and affect the global economy with more devastating impact than ever before.'⁴⁷ Prevention is significantly more cost-effective than response, as the UN Environmental Programme has noted.⁴⁸ However, current strategies to deal with pandemics tend to solely rely on responding to diseases after their emergence.

The same global environmental changes that drive biodiversity loss and climate change, drive the emergence of pandemics: land-use change, agricultural expansion and intensification, and wildlife trade and consumption.⁴⁹

Land-use change is widely recognised to influence the risk and emergence of zoonotic disease in people. As the authors of a 2020 research paper wrote: 'global changes in the mode and the intensity of land use are creating expanding hazardous interfaces between people, livestock and wildlife reservoirs of zoonotic disease.' Unsurprisingly, a team of 25 international experts listed protecting 'areas with high biodiversity or important habitat features that are at risk from land-use change' as an important measure to prevent the risks of new pandemics.⁵⁰

The main driver of deforestation, industrial meat production, also carries other significant zoonotic risks. The high numbers of densely packed animals with low genetic variation, enable rapid and massive amplification of viruses and other pathogens.⁵¹ Especially pigs and poultry are considered to be important reservoirs of pathogens with pandemic potential, together with wild animals like bats, rodents and water birds.⁵² Furthermore, the stress the animals endure increases pathogen shedding, especially during transport and at arrival at slaughterhouses. Industrial livestock production is recognised as one of the most likely epicenters of the next pandemic.⁵³

Industrial meat production carries other serious public health risks too. The heavy use of antibiotics, which props up the system, is creating antimicrobial resistance. Already an estimated 700,000 people die annually through antimicrobial resistant infections. And this number is projected to further rise, costing the global economy US\$60tn to \$US100tn – or even up to US\$310tn once wider costs are taken into account.⁵⁴ A large number of COVID-19 deaths have been associated with secondary infections, highlighting how antimicrobial resistance can amplify pandemic impacts.⁵⁵

Other effects on human health include poor air quality around production units and the health risks of meat consumption itself. This is associated with an increased incidence of a range of infections and non-communicable diseases, from salmonella, campylobacter to various types of cancer.⁵⁶ Industrial animal production also depends on using crops for animal feed. This continued, inefficient use of protein contributes to global food insecurity.⁵⁷

Human rights violations

Deforestation in the Brazilian Amazon is mostly illegal and often accompanied by other law violations.⁵⁸ Logging and forest conversion or infrastructural projects often lead to disputes over land tenure, land grabbing, threats and violence.⁵⁹ Not surprisingly, the term 'conflict soy' is commonly used.

Members of traditional communities are dependent on the forests and rivers where they live. Consequently, they tend to oppose deforestation which makes them targets for violence and murder. Such incidences have been regularly reported by the Amazon's indigenous council and the pastoral land commission (CPT).⁶⁰ These human rights violations are exacerbated by widespread corruption, fraud and a poor land registry system.⁶¹

The latter is exemplified by the CAR, the Rural Environmental Cadaster, required for every land user. Many CARs are registered in the names of large landholders, such as cattle and soy farmers. However, the CAR is only a land **claim**, not a land title or a document of land ownership.⁶² CARs need validation by state agencies, since many overlapping CARs exist or unlawfully claim land in Indigenous Territories and Nature Conservation

Units.⁶³ The Federal Prosecutor's Office (MPF) warned that the CAR should not be used to commit environmental crimes and grab indigenous land.⁶⁴

But, according to research published in 2020, more than 11 mha hectares of public land in the Brazilian Amazon was illegally registered as private land within the CAR system.⁶⁵ In total, 2.6 mha of this land was already illegally deforested by 2018. Still, companies (and financial institutions) often only require a CAR, and so land grabbing remains a risk within their supply chains.⁶⁶

To make matters worse, there is little law enforcement.⁶⁷ Brazil's federal police and state and federal public prosecutor offices are known for their independence and low levels of corruption. However, the Amazon is simply too vast and the crimes committed too numerous to facilitate enforcement. For example, during the dry season, deforestation arson cases may occur in tens of thousands of different places throughout the Brazilian Amazon, an area larger than India.

Brazil's history of legitimising illegal land occupation further compounds the problem of unlawful land ownership. The 2012 Forest Act included an amnesty for much of the illegal deforestation that took place before 2009. And because the agricultural lobby is the most powerful lobby in Brazilian politics, agribusinesses may have reason to believe laws will again change to serve their commercial interests. Current land grabbing may be pardoned and legalised in the future, much to the detriment of the planet and its current and future inhabitants.

Finally, violations of workers' rights are prevalent in the meat supply chain, especially in slaughterhouses, as the COVID 19-crisis again revealed.⁶⁸



Image: Pink river dolphin, Rio Negro, Brazil. This species is endangered by hunting (for the use as bait for fish), habitat fragmentation due to dams and pollution, including agrochemicals used in soy farming. Credits: World Animal Protection/Dirk-Jan Verdonk.





Image: Cattle grazing on deforested land in Acre, Brazil.
Credits: World Animal Protection/Noelly Castro.

2. Travelling cruelty – cattle transport and animal welfare

The cruelty inflicted on farm animals by deforestation in the Amazon and Cerrado is largely ignored. Cattle raised on the pastures cleared from forests may endure animal welfare problems throughout their lives, but transport causes them the most severe stress and suffering.

Transporting millions

Live cattle transport is very common in Brazil. And millions of animals are slaughtered closer to where they will be consumed (in cities) rather than near the rural areas where they are reared. Brazil's vastness means they endure long transport times exacerbated by many poor roads that are even more treacherous during the rainy season.⁶⁹ In Pará and Mato Grosso, states alone, during 2017, 4.1 million heads of cattle were traded to slaughterhouses in 2017.⁷⁰ However, reliable estimates for unregistered livestock transports and those that may be reared on illegal deforested lands are hard to obtain.

Cattle transportation is strongly connected to the Amazon's deforestation. Since 2009, the leading meatpackers with activities in the Amazon are subject to legally binding cattle sustainability agreements. These agreements mean that all suppliers should not be involved in any practices that damage the environment. However, these pacts so far focus only on direct suppliers, leaving indirect suppliers largely out of sight. It is easy to manipulate the origin of cattle, since animals can be moved. In such cases, cattle graze on land that was illegally forested, but before transport to a slaughterhouse, the animals are transported to a legal cattle ranch in order to 'prove' that the origin of the cattle arriving at the slaughterhouse is legitimate. This 'leakage' from illegal operations into supply chains regularly occurs.⁷¹ An estimated 12% of cattle slaughtered in Pará and Mato Grosso are potentially directly contaminated by illegal deforestation and 48% indirectly.⁷²

Shockingly, at least 17% of beef exports from the Amazon and Cerrado to the EU may be connected with illegal deforestation. And these estimates are conservative. If legal deforestation had been considered, percentages of beef linked with deforestation would be even higher.

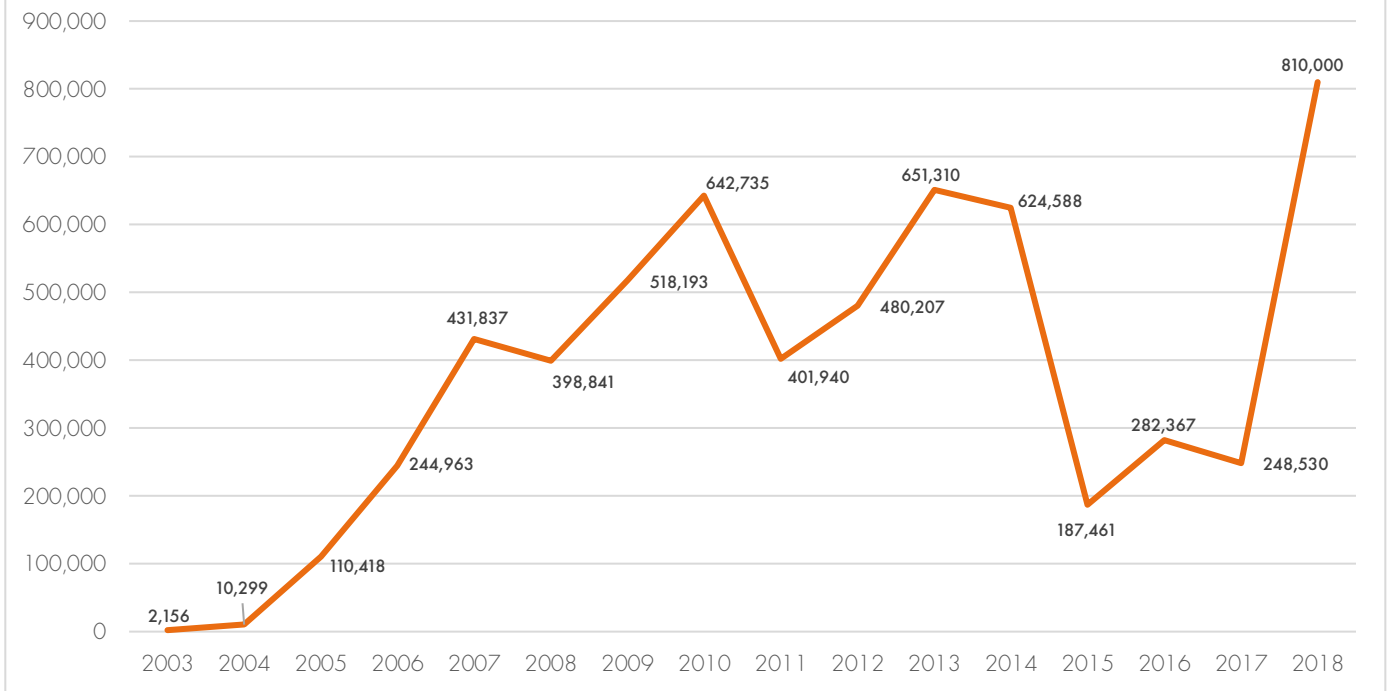
Exporting suffering

Brazil exports live cattle within South America – mainly shipments to Venezuela – and across the Atlantic to countries like Lebanon and Egypt. These live exports increased from a few thousand in the early 2000s to around half a million 10 years later (see Figure 3). But annual numbers vary substantially. In 2015 'only' 187,461 cattle were exported, whereas in 2018 the number had increased to 810,000. Most cattle destined for live export originated from Pará State, one of the regions most prone to deforestation, (Figure 4). For example, in 2009 no fewer than 97% of all live exports went through Vila do Conde Port, located in Pará state's Barcarena municipality. Almost all these animals also originated from Pará, from 1,441 different farms in 80 different municipalities. In recent years, this percentage has gone down, but Pará remains the main provider of cattle for live export.

In 2018, researchers calculated cattle from farms in Pará were transported an average of 420km to reach the port near Barcarena. However, such averages contain wildly different transport distances ranging from 53km to a staggering 1,823 km. Transport times can also vary greatly depending on climate and road conditions. Journeys up to 60 hours have been observed.⁷³ Recent legislation aims to limit the last leg of the journey – from the Pre-Shipment Establishment to the port – to 8 hours, but this does little to limit overall transport times.⁷⁴ In turn, the journey across the Atlantic and Mediterranean can take three to four weeks; followed by land transport to slaughterhouses in the destination countries.

Figure 3

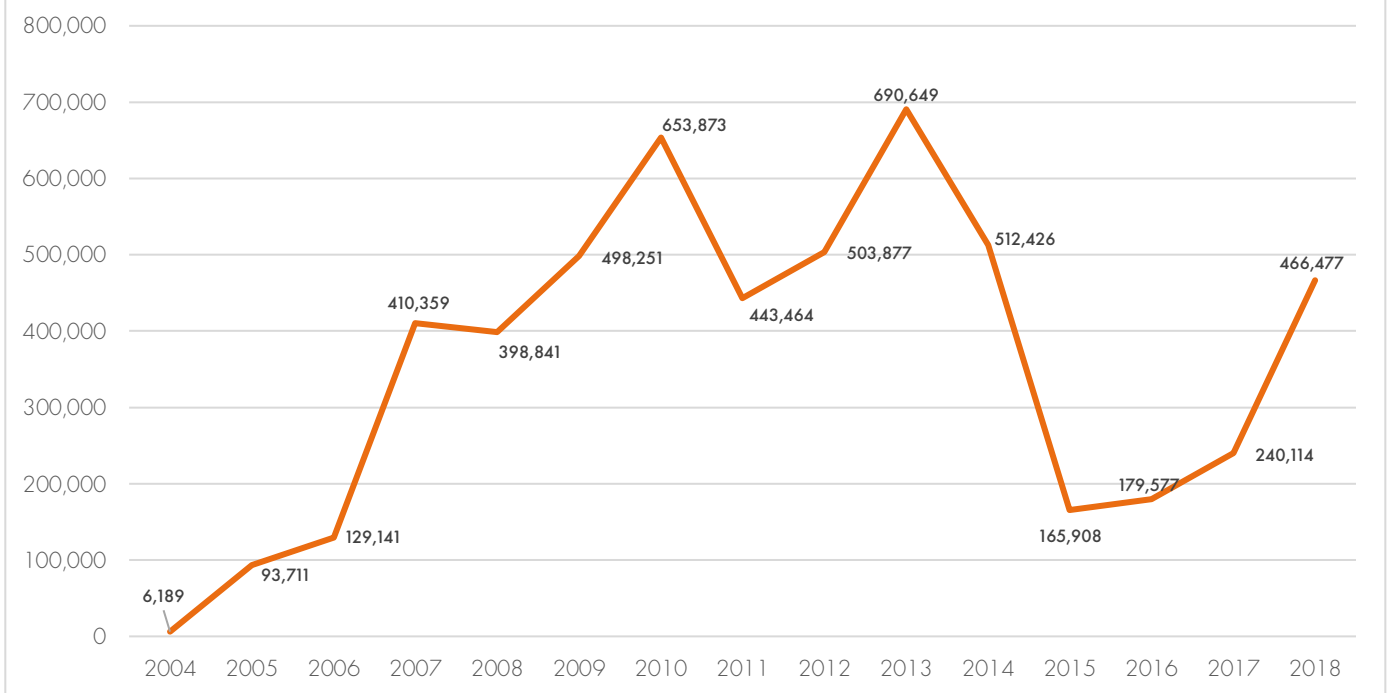
Exports of live bovide - Brazil - Number of animals - 2003 to 2018



Source: Ministry of Industry Foreign Trade and Services (MDIC) / Scot Consulting.

Figure 4

Exports of live bovide - Pará - Number of animals - 2004 to 2018



Source: VIGI-VDC / Vigiagro / MAPA.

Failing transported animals

Any transportation can cause animals distress.⁷⁵ However, this can be alleviated through appropriate accommodation, sensitive handling and other good practices, but the longer the transport takes, the harder this is. And animal welfare science shows that the negative impacts of long distance transports (especially more than 12 hours) cannot be prevented, no matter how good the conditions.

Animal suffering during long distance transportation has been extensively documented. Live transportation also involves zoonotic risks: stressed animals are more likely to catch and spread disease. The main problems - 'stressors' - in long distance transport are heat, cold, hunger, thirst, humidity, overcrowding, mixing with unfamiliar animals, fatigue, motion sickness, noise, vibration, and inadequate ventilation. Such stressors can affect an animal's ability to fight infections.⁷⁶ Cattle are usually kept on open, large pastures where they have little contact with people. So the human contact involved in gathering and loading them for transport causes them great stress.⁷⁷

Sea journeys can cause even more suffering; it is difficult to protect the animals' welfare during loading and handling⁷⁸ and it is hard to maintain good hygiene on board. Separating and treating sick, injured - some will have fractures - or traumatised animals on a ship is extremely challenging. Keeping animals in healthy conditions for weeks is next to impossible.⁷⁹ And distressingly, after weeks of suffering, when they arrive at their final destination, often in countries with low welfare standard, they are handled cruelly and slaughtered without stunning. Their fear and suffering is unimaginable.

Transported cattle are always at high risks of accidents as they are vulnerable to bad road and weather conditions and long driving shifts. Accidents at sea happen less frequently, but their

impact can be catastrophic. Recent examples include the Gulf Livestock 1 - sinking off the Japanese coast with 6,000 animals on board in September 2020 - and the Queen Hind capsizing in the Black Sea and drowning 15,000 sheep in November 2019. And in 2015, 3,000 cattle died in a shipwreck in the Brazilian port of Barcarena.⁸⁰ An investigation conducted by The Guardian found that ships transporting live animals are twice as likely to be deemed total losses as a result of sinking or grounding⁸¹ Apart from the animal suffering, such disasters have major environmental impacts. In the Barcarena case, thousands of decaying carcasses disrupted the life of local communities for many years.⁸²

Assessing animal welfare

The Five Domains model devised by renowned Australian academics Professor David Mellor and Dr Cam Reid is a respected, systematic and comprehensive method of assessing animal welfare.⁸³ The domains cover: 1) nutrition; 2) environment; 3) health; 4) behaviour and 5) an animal's mental state. Any problems an animal experiences with domains 1 to 4 can distress them and affect their mental wellbeing. And changes in one domain has knock-on effects regarding the others.

So, using the Five Domains model it is easy to understand and measure how much cattle suffer during long distance transport.⁸⁴ For example, the overcrowding involved affects an animal's behaviour, but also its environment because of the large quantities of faeces and urine in too small a space. The animal's ability to get the right nutrition is also affected - overcrowding makes it difficult to access drinking water and feed. And in overcrowded areas cattle can't lie down properly and rest; this means they can't ruminate well, which can cause illness and even death.⁸⁵ All of these issues combine to affect an animal's mental state - making them feel frightened, frustrated, anxious and panicked.



Image: Cattle transport in Mato Grosso, Brazil. Road conditions are often poor, exacerbating animal welfare risks. Credits: AGB Photo Library.

Table 1

Stressors in cattle transportation

| Stress | Stressor | Effect |
|---------------|---|------------------------|
| Behavioral | Novelty, restraint, noise | Fear |
| | Mixing, overcrowding | Aggressive interaction |
| Nutritional | Fasting | Dehydration and hunger |
| Physical | Mixing, overcrowding, road conditions, driving technique, horns | Bruising and injury |
| | Weather extremes | Hyper / hypothermia |
| Infectious | Dust | Respiratory disease |
| | Exposure | |

Controlling cattle – the companies

Due to a wave of consolidation in the meat processing sector, only a few large meatpackers dominate currently cattle processing. In the Amazon, three companies – JBS, Minerva, and Marfrig – control around 70% of the cattle slaughter capacity. They also dominate Brazilian beef exports, with a combined share of around 60% in 2017.

In 2019, about three quarters of Brazilian produced beef was used for domestic consumption; and supermarkets are the most important sales channel. Important beef retailers in Brazil include Casino, Carrefour Group, Grupo BIG (Advent International), Muffato and supermarkets owned by Cencosud (Bretas, Barbosa, Prezunic, Perini).

Twenty four percent of Brazilian beef is exported and these exports increase year-on-year. Beef from companies like Minerva, Mataboi and Marfrig is imported into the EU by a range of meat traders. These include Tulling Meat Import, Carnimex, Intervlees, Groenveld Vlees and FN Global Meat. In turn, they supply foodservice, wholesale, retail and industry. The three largest live cattle export companies Agroexport, Mercurio and Minerva are all part of the Brazilian Association of Live Cattle Exporters (ABEGS). Only Minerva has an animal welfare policy, but this is too general and weak.

Safeguarding animal welfare

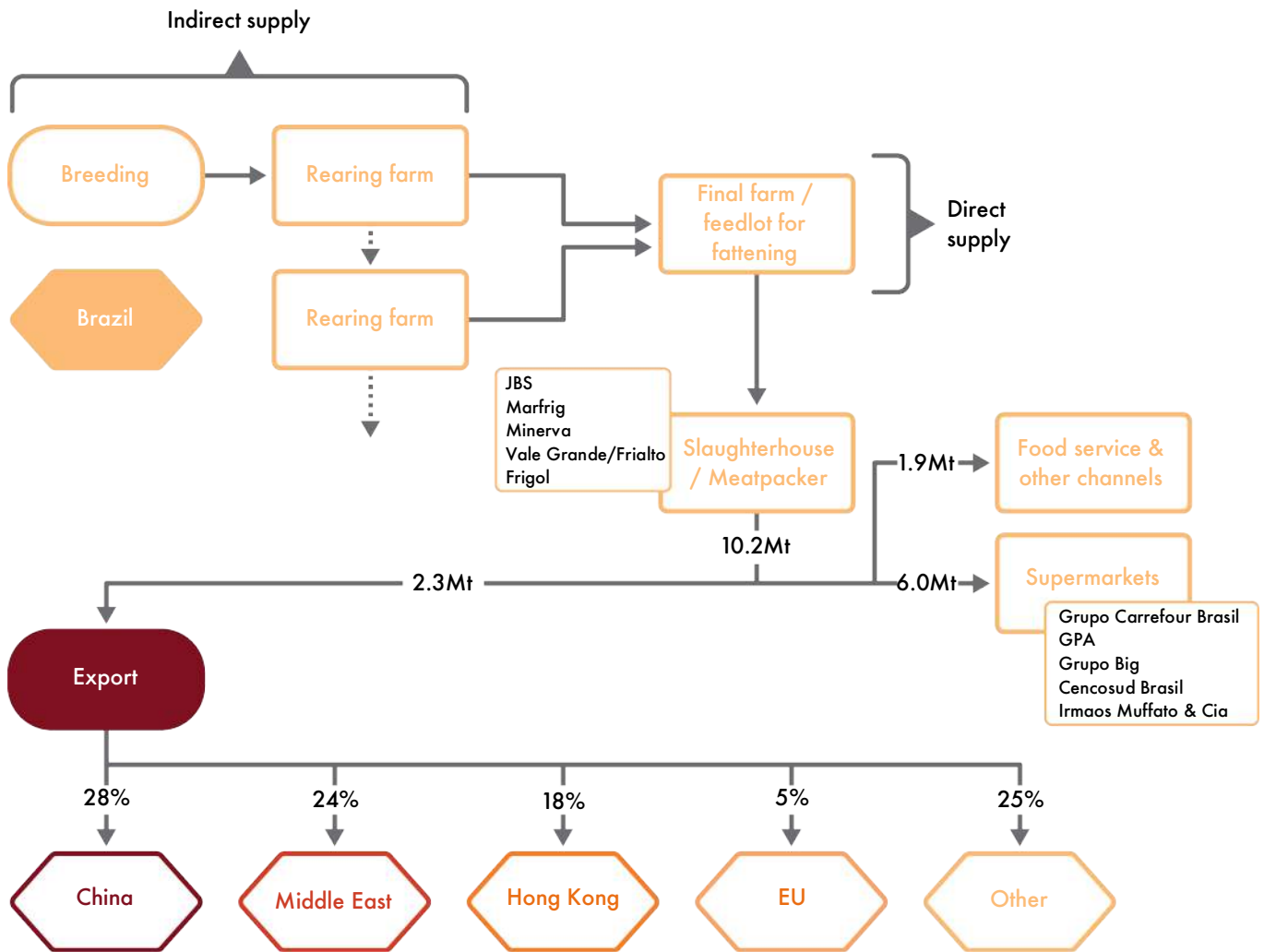
Long-distance transport of live animals hurts animals, people and the environment. And in the case of live exports, they do not fully benefit producing countries regarding economic gains or related employment. This is because slaughter and meat packing happens in destination countries.

Companies – and the financial institutions that back them – should stop live exports and minimise internal transport times to a maximum of eight hours. The conditions in which animals are transported must also improve, including safe handling and adequate climatic controls.

But ultimately to protect millions of animals from suffering annually, actual meat products – rather than live animals – should be traded and sold. It is also critical that alternatives – plant-based protein products – are widely developed, promoted, traded and sold.

Figure 5

Domestic and international supply chain of Brazilian beef



Source: Fair Finance guide report.



Image: Broiler chicken factory farm. Extremely high stocking densities – at least 20 animals per square meter – are the norm. Credits: World Animal Protection/ DuxX for iStock

3. Compounding cruelty – soy’s role in industrial farming

The link between Brazil’s deforestation and the cruelty caused to cattle is clear. But the country’s deforestation is also linked to the mass suffering of chickens, pigs, cows and fish in Brazil, Europe and Asia. This link is soy. It props up industrial farming and its associated animal welfare problems. In 2017, Europe imported 8m metric tonnes of soy from the Cerrado and Amazon, mostly for livestock feed.⁸⁶

Inflicting industrial suffering

Factory farming is responsible for a host of animal welfare problems that inflict pain, stress and appalling suffering on at least 50 billion animals annually. They endure intensely cruel, overcrowded confinement that does not accommodate or respect their natural behaviours. Painful mutilations, early weaning, poor air quality, unnatural feeding regimes, rough handling, long distance transport and inhumane slaughter are the norm. Animals suffer from stress, boredom, injuries, ailments, hunger and social deprivation. And within industrial systems safety measures to protect animals from calamities (failing ventilation systems, fires, extreme weather events etcetera) are inadequate or completely lacking.

Animals in industrial livestock production are genetically selected to grow fast, have large litters, lay high numbers of eggs or produce a maximum amount of milk. Their ‘performance’ is often compared to that of top sporting athletes. And as with extraordinary athletic accomplishments, optimal nutrition – including high digestible protein in animal feed is crucial to achieve high yields. Soy is dubbed a ‘virtual protein pill for concentrated livestock’.⁸⁷ For example, the soy content of fast growing meat chicken feed is high, about 26%,⁸⁸ This means that for every kilogram of chicken meat, 665 grams of soy is used.

Unfortunately, this ‘high performance’ and genetic selection has a large cost.

Fast-growth suffering – meat chickens

Meat chickens are a prime example. For decades, genetic selection of meat chickens has focussed on improving feeding efficiency, weight gain, and breast muscle size. Today’s broilers can reach their slaughter weight in just 35-42 days. This excessive fast growth has hugely compromised their welfare. Fast-growing birds often experience leg deformities, skeletal defects, skin problems, and reduced mobility. They are also susceptible to heat stress. Not surprisingly fast-growing chicken breeds have relatively high mortality rates and so never reach their slaughter weights.⁸⁹

In contrast, birds from slower growing chicken breeds have stronger bones, they are more able to carry their body weight and suffer from fewer bone and skin problems. Because their bones are stronger they can be more active and perform their natural behaviours such as scratching, pecking, walking, running, and perching⁹⁰. More movement also means they suffer less from hock burn, and food pad dermatitis. This painful condition on the bottoms and backs of chickens’ feet can develop into painful open sores. It usually results from a combination of poor skin health and long periods of sitting in soiled litter because of reduced mobility.⁹¹

Animals belonging to slower growing breeds do not require the same high protein feed to fulfill their potential as their faster growing counterparts. Consequently and crucially, they do not need much soy (if any).

So although birds belonging to slower growing breeds live longer and therefore require more feed during their lifespan, the feed they eat can have a lower environmental footprint. Mortality rates of slower growing meat chickens are also generally lower, so less feed is lost by being fed to birds that do not make it to slaughter.⁹² Consequently, despite industry claims to the contrary, higher welfare chickens may also have less negative impacts on climate change and biodiversity.⁹³

Shifting to slower growing breeds is also good for meat quality.⁹⁴ Slower growing chickens are less affected by breast muscle disease – ‘wooden breast’ and ‘white striping’. These two conditions create meat which is usually rejected by consumers. Wooden breast is a disease which hardens a chicken’s breast muscle. It is caused by decreased oxygen supply and associated cell death which gives the meat a ‘woody’ texture. White striping is caused by fat depositing in the breast muscle during the bird’s growth. Better meat quality from slower growing birds results in less food waste. And because the birds are more robust, they do not need as many antibiotics to keep them healthy as faster growing breeds. This in turn decreases the risk of antimicrobial resistance.⁹⁵

The biggest meat chicken producing countries are the USA, China and Brazil. Together, they are responsible for 44% of global production. In the EU, about 7 billion meat chickens are produced annually. Poland is the biggest producer, followed by Spain, France and Germany. The overwhelming majority of these chickens are fast growing. They live in overcrowded, barren and underlit barns, propped up by overuse of antibiotics. Welfare problems in China are even worse and include the use of cages.

Milking to starvation – dairy cows

Dairy cows are another example of animals genetically selected to become ‘top athletes’ requiring high levels of protein to meet their targets. Again, this has profoundly negative impacts on their welfare.⁹⁶ According to the EU’s European Food Safety Authority (EFSA): “Long-term genetic selection for high milk yield is the major factor causing poor welfare, in particular health problems, in dairy cows. The genetic component underlying milk yield has also been found to be positively correlated with the incidence of lameness, mastitis, reproductive disorders and metabolic disorders.”⁹⁷

Due to excessive genetic selection, cows have severe difficulties getting enough nutrition and energy from grass.⁹⁸ This means they may be hungry or starving because their metabolic output is greater than the food they take in. They are literally at risk of being milked ‘to starvation’.⁹⁹ To prevent this, these high yielding

cows are given high protein concentrates in addition to grass and corn; soy is usually a main concentrate ingredient.¹⁰⁰ Dutch cows eat on average more than 5kg of soy per week. According to a Wageningen University report, Dutch dairy production uses 26g of soy per litre of milk.¹⁰¹ And because the production of 1kg of cheese requires 10l of milk, one unit of cheese requires about 25% of its weight in soy.

However, cows from higher welfare breeds genetically selected for lower milk yield and higher meat quality – so-called ‘double purpose animals’ -- can flourish on a diet of grass. They will be given very little if any corn, let alone soy. These lower milk yield breeds not only have lower risk of lameness and mastitis, their diet is not linked to deforestation and their manure contains less nitrogen, so they are also more sustainable.¹⁰²

To aid sustainability, arable land should be used to grow food for people, not livestock. In addition, by-products and waste streams unsuitable for human consumption could be converted by animals into food.¹⁰³ Such a transformation does not just provide environmental and food security benefits. It leads to better balanced diets, shifting people away from the excessive intake of animal proteins characterising Western diets in particular.¹⁰⁴ Finally, it offers important opportunities – and some risks – for improving animal welfare by utilizing the natural behaviours of animals such as grazing and using higher welfare breeds.¹⁰⁵

Mitigating meat chicken welfare risks

To mitigate animal welfare risks in livestock production, the FARMS initiative (www.farms-initiative.com) has set responsible minimum standards for the most commonly farmed species.¹⁰⁶ For meat chickens these entail the progressive implementation of:

- breeds that demonstrate higher welfare outcomes, including the Hubbard JA757, 787, 957, or 987, Rambler Ranger, Ranger Classic, and Ranger Gold, or others that meet the criteria of the UK’s Royal Society for the Prevention of Cruelty to Animals’ Broiler Breed Welfare Assessment Protocol
- a maximum stocking density of 30kg/m² or less. Thinning is discouraged and if practised must be limited to one thin per flock
- no cages or multi-tiered systems for either broilers or broiler breeders
- at least 2m of usable perch space and two pecking substrates per 1,000 birds
- at least 50 lux of light, including natural light
- on air quality, the concentration of ammonia (NH₃) must not exceed 20 ppm and the concentration of carbon dioxide (CO₂) must not exceed 3,000 ppm measured at the level of the chickens’ heads
- controlled atmospheric stunning using inert gas or multi-phase systems, or effective electrical stunning without live inversion
- compliance with the above standards via annual third-party auditing and annual public reporting on progress towards this commitment.

Figure 6
Brazilian soybean & soymeal exports 2019

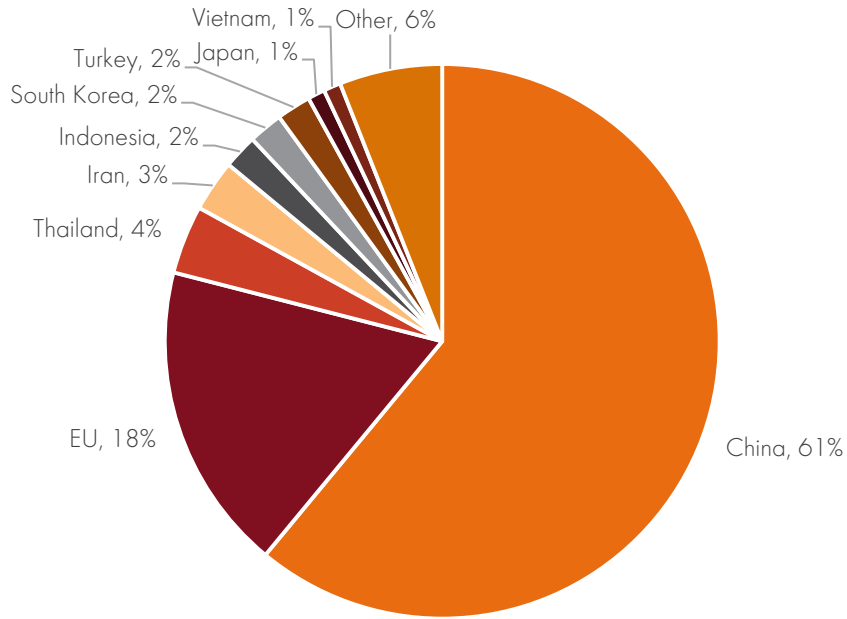
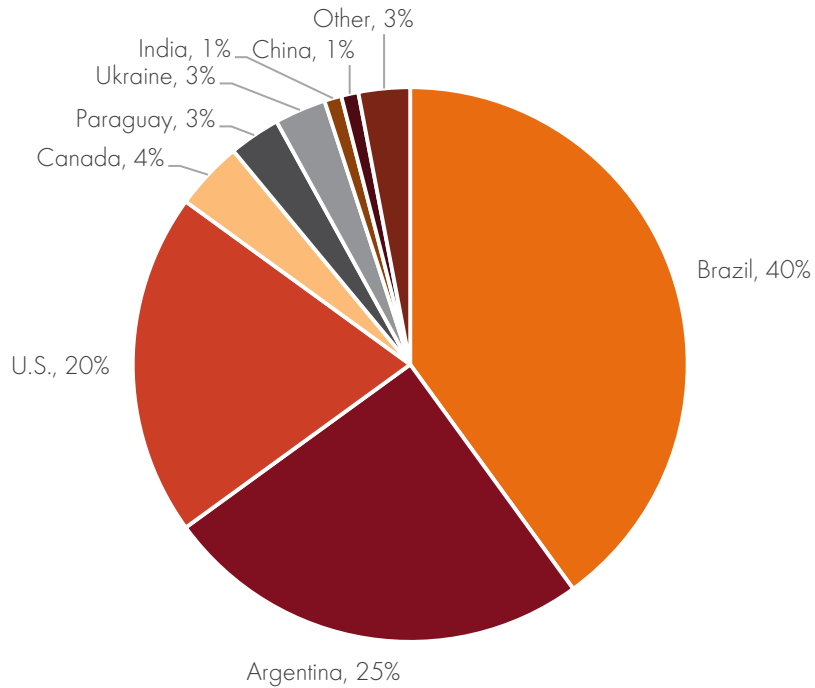


Figure 7
EU soybean & soymeal imports 2019



Source: Fair Finance Guide Netherlands, "Funding destruction of the Amazon and Cerrado", August 2020.



Image: Soy bean harvesting in the Cerrado, Mato Grosso, Brazil. Credits: Alf Ribeiro.

4. Driving deforestation – high-risk companies

The main drivers for deforestation in the Amazon and Cerrado are beef and soy for animal feed. So companies in these supply chains run a high risk of contributing to deforestation and related adverse impacts. And they are failing to mitigate these risks adequately.

Lacking ambition, false claims and bribery

Large companies (and their banks and investors) usually attempt to mitigate these risks by trying to improve legislative compliance, participate in multi-stakeholder platforms, adopt sustainability policies and use certification or other tools indicating sustainability credentials. Many companies have signed up to the New York Declaration on Forests (NYDF) which is a voluntary and non-binding international declaration committed to halting global deforestation. It was first endorsed at the United Nations Climate Summit in September 2014. Although the signatory companies responses go some way to prevent deforestation, they have not even come remotely close to stopping it. Tropical tree cover loss has actually **increased** since the launch of NYDF, including in Latin-America.¹⁰⁷

Responses from companies are typically inadequate. For example, US global food corporation Cargill has said it will only become deforestation-free by 2030, and it announced in 2019 that it will not support a soy moratorium in the Cerrado.¹⁰⁸ This means that all companies in Cargill's supply chain associated with feed from Brazil are currently at risk of failing to be deforestation

free.¹⁰⁹ Similarly, Marfrig has set a goal of only achieving full traceability for its beef in both direct and indirect supply chains by 2025 in the Amazon and by 2030 in the Cerrado.¹¹⁰

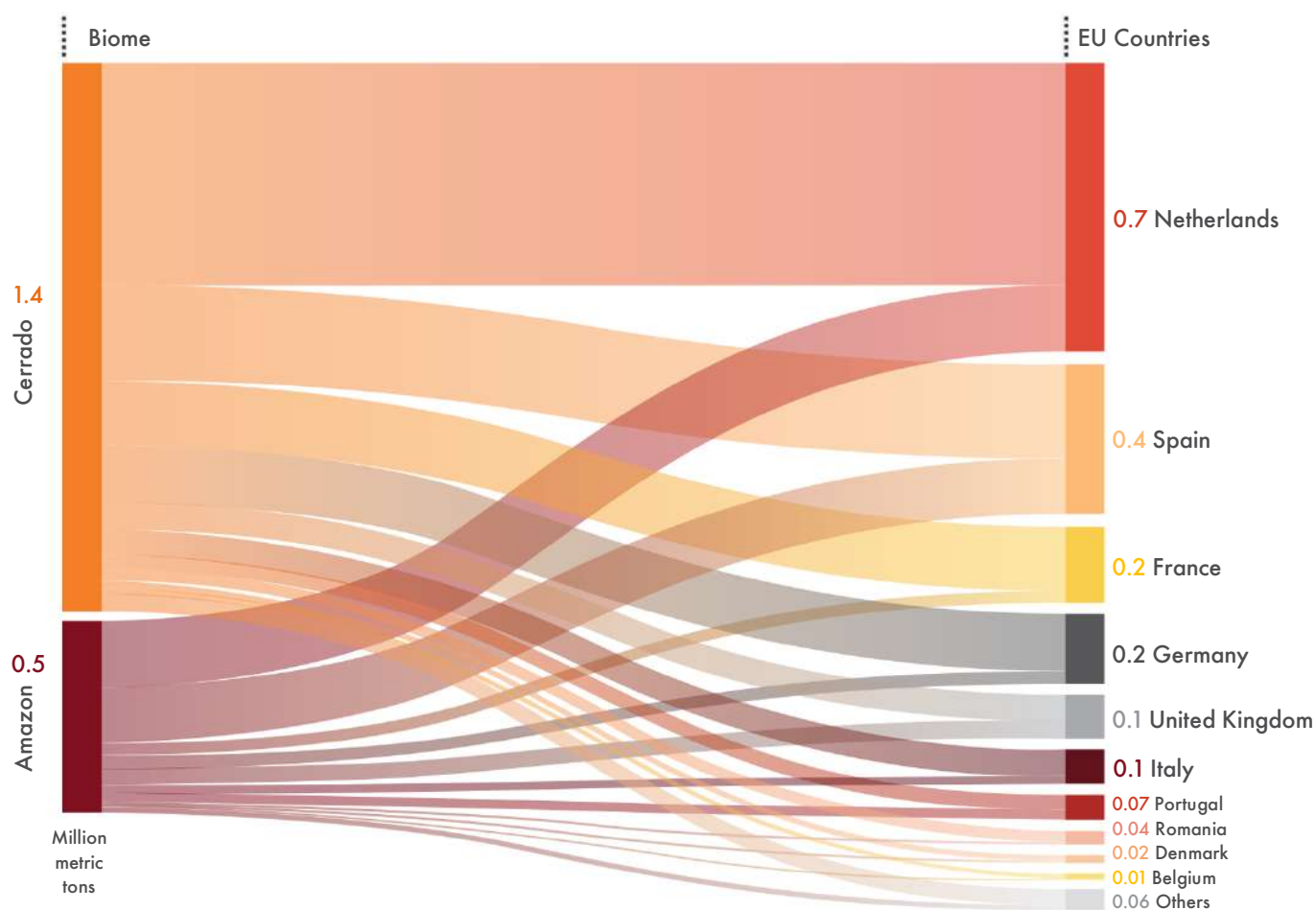
JBS has also failed for many years to guarantee its beef is deforestation-free, which prevents its many buyers from complying with zero deforestation.¹¹¹ It is conservatively estimated that JBS' total deforestation footprint may be as high as 200,000ha in its direct supply chain and a staggering 1.5m ha in its indirect supply chain.¹¹² JBS' previous auditor DNV-GL called out the company for falsely claiming that its operations in Brazil's Amazon region are deforestation-free.¹¹³ These revelations about false claims were unsurprising as JBS was in the middle of a large corruption case in 2017. It was also reportedly linked (with its competitor Marfrig) to the Colniza Massacre in the same year. This involved nine people killed by gunmen in a land conflict related to illegal timber extraction and illegal cattle farming.¹¹⁴

JBS is not the only Brazilian meat company involved in corruption.¹¹⁵ In 2019, BRF admitted bribing federal food inspectors with more than US\$4.5m dollars in bank deposits and health benefits.¹¹⁶



Image: Cargill's soy terminal in the port of Santarém, Brazil, to facilitate soy exports to the EU. The construction of the port was a source of controversy, and stimulated deforestation and related conflicts in the area around the city. Credits: Matyas Rehak.

Source and country destinations of soy potentially contaminated with potentially illegal deforestation. Estimated annual average between 2009 and 2017 from TRASE (47)



Source: Raoni Rājiao, "The rotten apples of Brazil's agribusiness", July 2020

Zero deforestation? Zero companies on track...

Even when companies have made zero deforestation commitments by 2020, they seldom stand up to closer scrutiny. A 2019 assessment of corporate zero deforestation commitments by NYDF Assessment Partners concluded that most commitments lack ambition and do not cover all supply chains and operations. Furthermore, companies have been slow to implement commitments and report on actions taken; progress made toward achieving these commitments remains inadequate.¹¹⁷

French retail multinational Carrefour is an example. It has committed to eliminating deforestation from its products by 2020, however, the scope and implementation of Carrefour's deforestation and beef policy is limited to unprocessed beef

products. The policy does not apply to processed or frozen beef products. Moreover, Carrefour does not publish progress reports or a list of its beef suppliers.

In 2019, research revealed that 35% (168 products) of Carrefour's beef products sampled originated from slaughterhouses located within the Amazon. Eleven products (2.3%) were linked to high-risk (linked with deforestation) slaughterhouses operated by JBS, Marfrig Global Foods and Mercúrio Alimentos.¹¹⁸ Moreover, Carrefour's recent acquisition of 30 stores in Brasil from retailer Makro Atacadista increases risks of deforestation-linked beef entering its supply chain.¹¹⁹

Another example is Casino, owner of GPA, the second largest retailer in Brazil. GPA states in its policy that beef suppliers must be free from deforestation and land conversion of native vegetation for cattle.¹²⁰ Moreover, it uses a traceability system to monitor its beef suppliers, but relies on the suppliers themselves to monitor the rest of the supply chain. The company acknowledges that tracing the origin of beef and monitoring indirect farms are 'still complex challenges for meatpacking plants, considering that there is a vast number of potential indirect farms in Brazil'.¹²¹ These challenges are compounded by the difficulty tracking illegal practices such as livestock laundering and leakage. The company recognises 'the importance for our suppliers to improve and reinforce all means of controlling Indirect farms as soon as possible, implementing sectorial processes and solutions.'

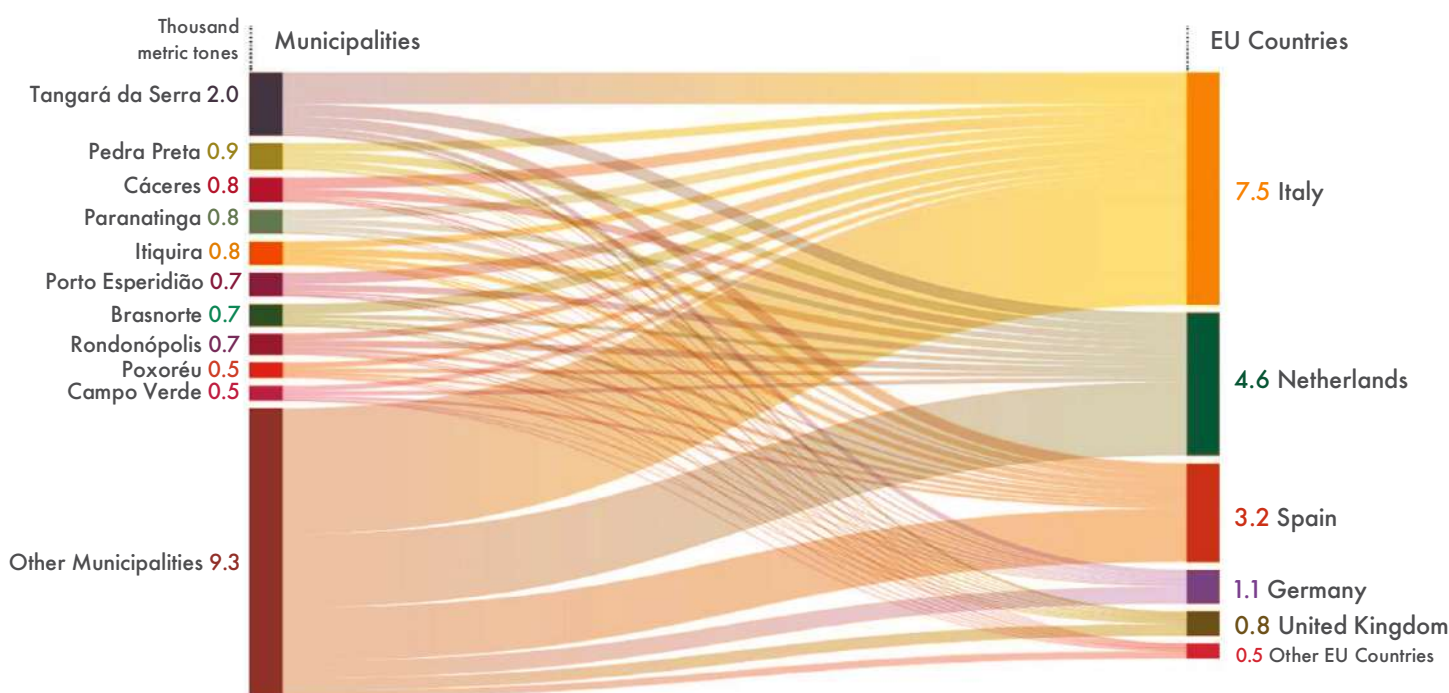
However, GPA does not state when control and compliance will be achieved. Nor has it published regular and detailed updates on the implementation of its 2016 beef sourcing policy. Meanwhile, recent research found that GPA sourced meat from farms involved in deforestation and encroachment on indigenous communities. Meat sold in GPA stores could be traced back to four farms that saw approximately 4,500ha of forest cleared for cattle ranching.¹²² Casino and GPA now may face a risk of legal action due to allegations of noncompliance with French law.

Similarly, a 2019 Federal Prosecutor's Office audit report showed gaps in legal documentation within the supply chain of Minerva Foods (one of Brazil's big beef producers), followed by the identification by NGOs in 2020 of multiple cases of alleged 'cattle laundering'.

Unfortunately, these companies and their practices are not the exception, but the rule. The 2019 corporate zero deforestation assessment commitment concluded that none of the 350 most influential companies, with forest-relevant operations are on track. They will not achieve their supply-chain commitments regarding the elimination of deforestation from the production of agricultural commodities by 2020.¹²³

Moreover, most companies choose to remain largely blind to the wider negative impacts these supply chains create.¹²⁴ Animal welfare commitments, policies and compliance remain especially weak.¹²⁵ Most companies do not or inadequately address root causes. Their policies and actions fail to catalyse the system change that is required.

Exports of beef potentially contaminated with illegal deforestation from municipalities of Mato Grosso and Pará state to the European Union in 2017. Total of 17.7±1.2 thousand metric tons*. Source: TRASE (48).



Source: Raoni Rājao, "The rotten apples of Brazil's agribusiness", July 2020

Claiming 'responsible' soy in animal feed

Many companies – and the financial institutions to which they are linked – claim they use soy as an animal feed ingredient which is 'deforestation-free', 'responsible' and or 'sustainable'. These claims are often exaggerated if not downright false. Very few of the companies further down the supply chains of animal feed containing soy from the Amazon and Cerrado can guarantee their soy is deforestation-free.¹²⁶ Conservative estimates show that 20% of the EU's imported soy from the Amazon and Cerrado may be linked with illegal deforestation.¹²⁷ If legal deforestation is considered, this number would be even higher.

The European Feed Manufacturers' Federation (FEFAC) represents the European compound feed industry at European Institutions level. It issued Soy Sourcing Guidelines (SSG), which comprise recommendations to evaluate the many existing and newly developed schemes for 'responsible' soy. But compliance with the FEFAC SSG does **not** require zero deforestation, so unsurprisingly, most soy traded in compliance with the FEFAC SSG cannot be considered deforestation free.¹²⁸

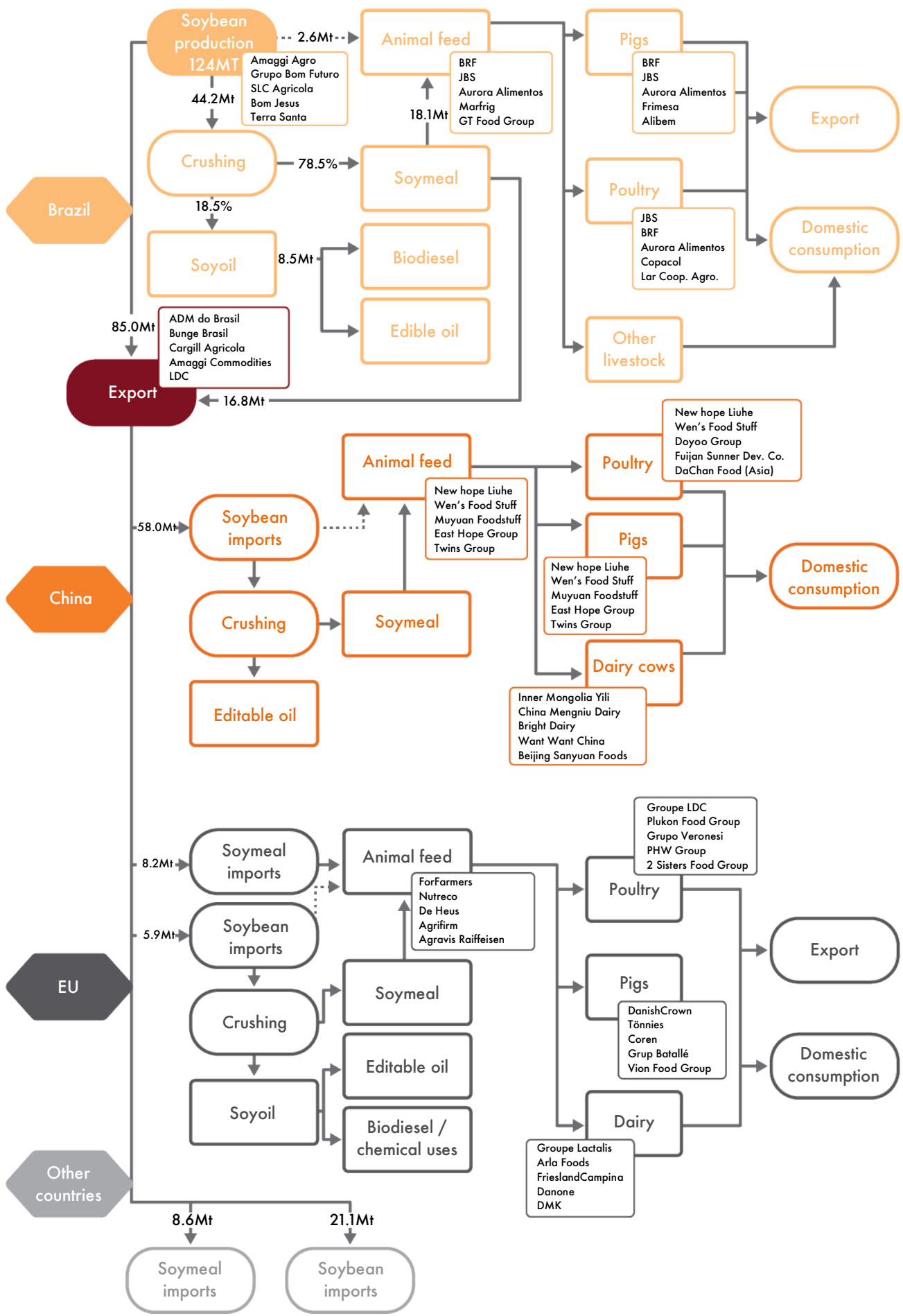
Even so, several SSG compliant schemes do contain zero deforestation requirements. The most prominent example is soy certified by the Roundtable on Responsible Soy (RTRS). But unfortunately, the RTRS zero deforestation requirements are largely rendered immaterial by the scheme's set up and a complicated 'credit' system where soy can be purchased from non-certified producers (see appendix I). This includes the use of soy produced on legally and illegally deforested land.¹²⁹ Although RTRS credits do encourage better production methods – which is clearly important – claims about using only 'deforestation-free soy' unconditionally based on RTRS credits are misleading at best.

Sustainability claims should always be treated with caution. A 2015 study by The Hague Centre for Strategic Studies found that in Brazil, 'sustainability' is primarily used in an economic sense. The researchers note that Brazil's agricultural production model is 'based on economically sustainable schemes rather than on environmentally sustainable schemes'. Agrochemicals are an example. RTRS allows the use of a range of controversial pesticides, including those banned in the EU. Even more importantly, 'sustainability' cannot be viewed in isolation. No matter how carefully certification criteria are obeyed, soy used for animal feed is part of a destructive system, risking people's health and causing the mass suffering of animals.

RTRS is a soy trade platform, and not a forest protection system.¹³⁰ But even as a trade platform, RTRS has not lived up to its promise. RTRS was set up in 2006, but only 3.3% of Brazilian soy is currently RTRS certified.¹³¹ Moreover, RTRS supply is (substantially) higher than demand. This suggests that adherence is driven by farmers willing to work (or already working) according to relative good agricultural practices, rather than by companies purchasing RTRS credits. The European Soy Monitor explains, RTRS certification 'hasn't delivered the financial incentive to producers that would stimulate further investment.'¹³²



Image: Protest by the Rainforest Action Network against ADM, Bunge and Cargill. Credits: Wesha. CC BY-SA 3.0.



Source: Fair Finance Guide Netherlands, "Funding destruction of the Amazon and Cerrado", August 2020.

Image: Fires in the Amazon. Credits: World Animal Protection/Noelly Castro.



5. Focusing on financial links – the powerful keys

Banks and investors are central to the allocation of resources in our modern, globalised economy. They keep the current system running and current crises deepening. But the financial sector also holds one of the most important keys to stop deforestation and the negative impacts to which it is linked. It can powerfully catalyse the transformation of the global food system so urgently needed by our planet and all its inhabitants.

Grey money, weak policies

Financial institutions should redirect mainstream finance and investment (so called ‘grey’ finance/investments) toward activities with positive outcomes (‘green’ finance/investments). Currently, green finance and investments are regrettably only a fraction of the grey – mainstream financial and investment flows – towards countries with high levels of deforestation.¹³³

This is because of the lack of ambitious and positive policies from financial institutions – and/or because of gaps between policies and actual implementation. It creates exposure to businesses with a heightened reputational risk resulting from products or activities linked to deforestation and related adverse impacts.¹³⁴

Financial institutions are also particularly weak on animal welfare and on protein diversification which would aid the transition to more plant-based foods (the protein transition) and a sustainable future. Their policies regarding these issues are completely lacking or too general to be meaningful. Only a few banks have included animal welfare elements that can drive significant improvements (see box on page 33). Engagement on animal welfare and the protein transition is also often non-existing or lacks ambition. Only a few financial institutions report on animal welfare, and minimally.¹³⁵ Some asset managers may exclude high-risk companies – like JBS – from their portfolio. But this is usually for reasons other than negative associations with animal welfare and animal protein production.¹³⁶

This is surprising for European financial institutions as European citizens generally view animal welfare as an important issue. According to Eurobarometer, more than nine in ten EU citizens believe it is important to protect the welfare of farmed animals (94%), and 82% of Europeans believe farmed animal welfare should be better protected than it is currently.¹³⁷ Opinion polls also indicate that people expect their banks and pension funds to not support the suffering of factory farmed animals.¹³⁸

The Organisation for Economic Co-operation and Development (OECD) notes that as investments in the agricultural sector have grown, ‘so too has the awareness that they need to be

responsible’.¹³⁹ Hence, the OECD’s Guidance for Responsible Agricultural Supply Chains is not only aimed at enterprises directly working within agricultural production, but also at other stakeholders involved through business relationships. These include investment funds and banks. This guidance, developed with the Food and Agriculture Organisation of the United Nations (FAO) to facilitate responsible business conduct, marks animal welfare as a key issue for responsible business due diligence.

Despite the increased adoption of carbon accounting, enabling financial institutions to assess and disclose greenhouse gas emissions of loans and investments, protein transition benefits are largely ignored. Yet shifting from animal towards more plant-based proteins would help institutions meet carbon emission reduction targets.

However, awareness within the finance and investment community of animal welfare as an Environmental, Social and Governance (ESG) issue worthy of consideration regarding risks and opportunities is increasing. There is understanding that analysing animal welfare practices improves risk management, unlocks investment opportunities and guides active ownership.¹⁴⁰

The 2019 UN Principles for Responsible Banking guidance document and the 2020 UN ESG Guide for the Global Insurance Industry identifies the FARMS initiative as a key resource for managing farm animal welfare.¹⁴¹ And the OECD notes: ‘failing to consider long term investment value drivers, which include environmental, social and governance issues, in investment practice is seen to be a failure of fiduciary duty.’¹⁴² This point also applies to animal welfare and protein transition, especially given their potential contributions in mitigating climate, biodiversity and public health risks, all of which have enormous economic consequences.¹⁴³

This section maps European loans, bondholdings, stockholdings and underwritings into the biggest high-risk companies operating in the supply chains of Brazilian beef and soy. Its purpose is to detail how money flows towards high-risk companies.

As both beef and soy production sectors, including their (international) supply chains, involve many thousands of South American and international companies, a manageable selection of companies was chosen. This means that for example loans to soy and cattle farmers have not been included.¹⁴⁴ Moreover, suppliers of inputs for soy and beef production – such as Syngenta, Dupont, Bayer and Elanco for GM seeds, agrochemicals and veterinary products – have been left out of scope.¹⁴⁵

Selection of companies

The most important companies in these sectors were identified based on the following two criteria.

- Which companies are most prominent (in terms of turnover and market share) in the two most important deforestation-risk sectors (the soy and beef sectors) and in the different stages of their (international) supply chains?¹⁴⁶
- Which companies are most likely to attract financing or investments from financial institutions active on the European market? This criterion translates into a relative preference for companies which are European-owned and/or stock exchange listed.

Beef sector

Most cattle are slaughtered domestically and most beef is consumed domestically, so supermarkets are the key sales channel to consumers. Based on this and the two selection criteria mentioned above, the following selection of companies includes:

- the top-5 Brazilian beef slaughterhouses
- the top-5 Brazilian supermarket chains.



Soy sector

The continuous expansion of soy farming is key to deforestation processes in the Amazon and Cerrado regions. Around 80% of soy is exported; China and the European Union are the main export markets.

In export markets, the soy is processed into animal feed for the livestock and dairy sectors. Additionally, part of the soy is consumed as animal feed by the Brazilian livestock sector (specifically poultry and pork). Based on this and the two selection criteria mentioned above, the following selection of companies includes:

- the top-5 soy farmers in Brazil
- the top-5 Brazilian poultry and pork slaughterhouses
- the top-5 soy traders exporting from the Amazon and Cerrado regions
- the top-5 animal feed producers in China
- the top-5 livestock slaughterhouses in China
- the top-5 dairy companies in China
- the top-5 animal feed producers in Europe
- the top-5 livestock slaughterhouses in Europe
- the top-5 dairy companies in Europe.

Sources used for this selection process included market studies and publications of research initiatives, NGOs and media. Given the overlap in beef and soy companies, DLG Group (Denmark) could be added to the list. The selection process has resulted in a list of 60 companies (see appendix II).

Selection of European financial institutions

Based on the data in this database, European banks and investors very important in financing and/or investing in the two supply chains were selected. The following selection criteria were applied:

- the top-10 European financial institutions in terms of financing/investing these supply chains.
- the top-3 financial institutions from Denmark, insofar not included in the European top-10 (see next chapter)

Image: Sows in gestation crates. Many European financial institutions are still linked to companies in supply chains in which these cruel systems are used. Credits: World Animal Protection.

Animal welfare policies

Many financial institutions still lack (adequate) animal welfare policies. Nevertheless, some banks have started to include animal welfare elements that can drive significant progress. These include the following.

ABN AMRO

The 2020 Animal Protein Policy of ABN AMRO explicitly states that clients will need to use cage-free and crate-free production systems. They should also adopt space requirements for farm animals in line with the FARMS initiative, or certification schemes such as the Global Animal Partnership and Beter Leven, which are often more stringent. Moreover, ABN AMRO highlights plant-based products as an innovation for clients to work on to reduce their environmental and climate impacts.¹⁴⁷

Rabobank

Rabobank's 2018 sustainability policy framework strongly encourages all its clients to move to cage-free housing systems for laying hens and group housing systems for sows by 2025. According to the policy, the bank also encourages clients to consider best practices. For example, for broilers a stocking density of maximum 30kg/m². This is in line with the FARMS responsible minimum standards. However, these good elements are partially nullified by Rabobank's aim to increase meat and dairy production, rather than to curb it.¹⁴⁸

Standard Chartered

Standard Chartered only provides financial services to producers who use cage-free or crate-free production systems for livestock (including both hens and sows).¹⁴⁹

Financial research¹⁵⁰

The following types of financial relationships were researched:

- loans signed in the last five years, provided they are still (partially) outstanding
- underwriting of share and bond issuances in the past five years
- investments in shares and bonds managed at the last available reporting date.

This financial research resulted in a database presenting key details. These are: type of finance, date and original value for loans and underwritings; and reporting date, number of shares/bonds and outstanding value for investments. Sources used for this database include the Bloomberg, Thomson EIKON (part of Refinitiv), Orbis, IJGlobal and TradeFinanceAnalytics databases; annual reports and stock exchange filings of companies; company registers and media sources.

Results

The total value of the identified financial links between the top 10 European financial institutions and the 60 high-risk companies amounts to more than US\$98bn. Financial relationships were identified with 34 of the 60 researched high-risk companies.

Cargill and Danone are the main recipients. Cargill with US\$15.7bn in loans and US\$1.5bn in underwritings; Danone with US\$11.8bn in loans and an equal amount in underwritings, plus US\$4bn in stock and bond holdings. Other companies with multi-billion financial links are ADM, Bunge, Carrefour, Casino, Lactalis, JBS, Louis Dreyfus and Marfrig.

Table 2 shows the financial relationships identified between the top 10 European financial institutions and the 60 corporate groups active in the beef and soy supply chains, between 2015-2020.

Table 2

Financial ties between the top 10 European financial institutions and the 60 companies in the beef and soy supply chains

(Million USD)

| Rank No. | Financial institution | Country | Bondholdings | Loans | Shareholdings | Underwritings | Total value |
|-----------------|------------------------------|----------------|---------------------|---------------|----------------------|----------------------|--------------------|
| 1 | BNP Paribas | France | 82 | 13,149 | 579 | 5,108 | 18,918 |
| 2 | Barclays | UK | - | 10,532 | 78 | 3,778 | 14,387 |
| 3 | HSBC | UK | 56 | 6,225 | 302 | 5,658 | 12,241 |
| 4 | Crédit Agricole | France | 289 | 5,070 | 2,013 | 2,784 | 10,156 |
| 5 | Société Générale | France | 13 | 5,878 | 687 | 2,495 | 9,072 |
| 6 | Santander | Spain | - | 3,607 | 145 | 4,557 | 8,309 |
| 7 | BPCE Group | France | 204 | 3,826 | 1,052 | 2,550 | 7,633 |
| 8 | ING Group | Netherlands | 1 | 4,905 | 0 | 1,839 | 6,745 |
| 9 | Rabobank | Netherlands | - | 5,182 | - | 667 | 5,848 |
| 10 | Deutsche Bank | Germany | 147 | 2,730 | 687 | 1,573 | 5,137 |
| Total | | | 791 | 61,103 | 5,543 | 31,009 | 98,446 |



Image: Meat in the supermarket, likely linked to soy production in Brazil.

Credits: World Animal Protection/Julia Bakker.

6. Country profile: Denmark

Denmark's top-3 financial institutions are Danske Bank, Sydbank and BankInvest. The total value of the identified bondholdings, loans, shareholdings and underwritings is US\$631m. Financial relationships were identified with 19 of the 60 researched high-risk companies. DLG Group is the main recipient, with US\$363m in loans, followed by Danone (US\$73m in shares). Other companies include soy traders ADM and Bunge, beef producers JBS, Minerva and Marfrig, pork producer Danish Crown and retailers Carrefour and Casino.

Table 3

Financial ties between the top-3 Danish financial institutions and the 60 companies in the beef and soy supply chains (in million US\$)

| Rank No. | Financial institution | Country | Bondholdings | Loans | Shareholdings | Underwritings | Total value |
|--------------|-----------------------|---------|--------------|------------|---------------|---------------|-------------|
| 1 | Danske Bank | Denmark | 27 | 274 | 44 | 70 | 415 |
| 2 | Sydbank | Denmark | 2 | 153 | 5 | - | 160 |
| 3 | BankInvest | Denmark | - | - | 56 | - | 56 |
| Total | | | 29 | 427 | 105 | 70 | 631 |

Soy for animal feed

Denmark imported 1.7m tonnes of soy meal in 2018, mainly from Germany, Argentina and Brazil. Note that the soy from Germany mainly originates from Brazil and the USA (directly or through The Netherlands). Moreover, it imported 152,193 tonnes of embedded soy in animal products (mainly through poultry). In turn, Denmark exported 96,000 tonnes of soy meal and 642,075 tonnes of embedded soy, mainly through pork and dairy products.

This estimated total domestic soybean meal consumption amounts to 1,098,075 tonnes.

Beef

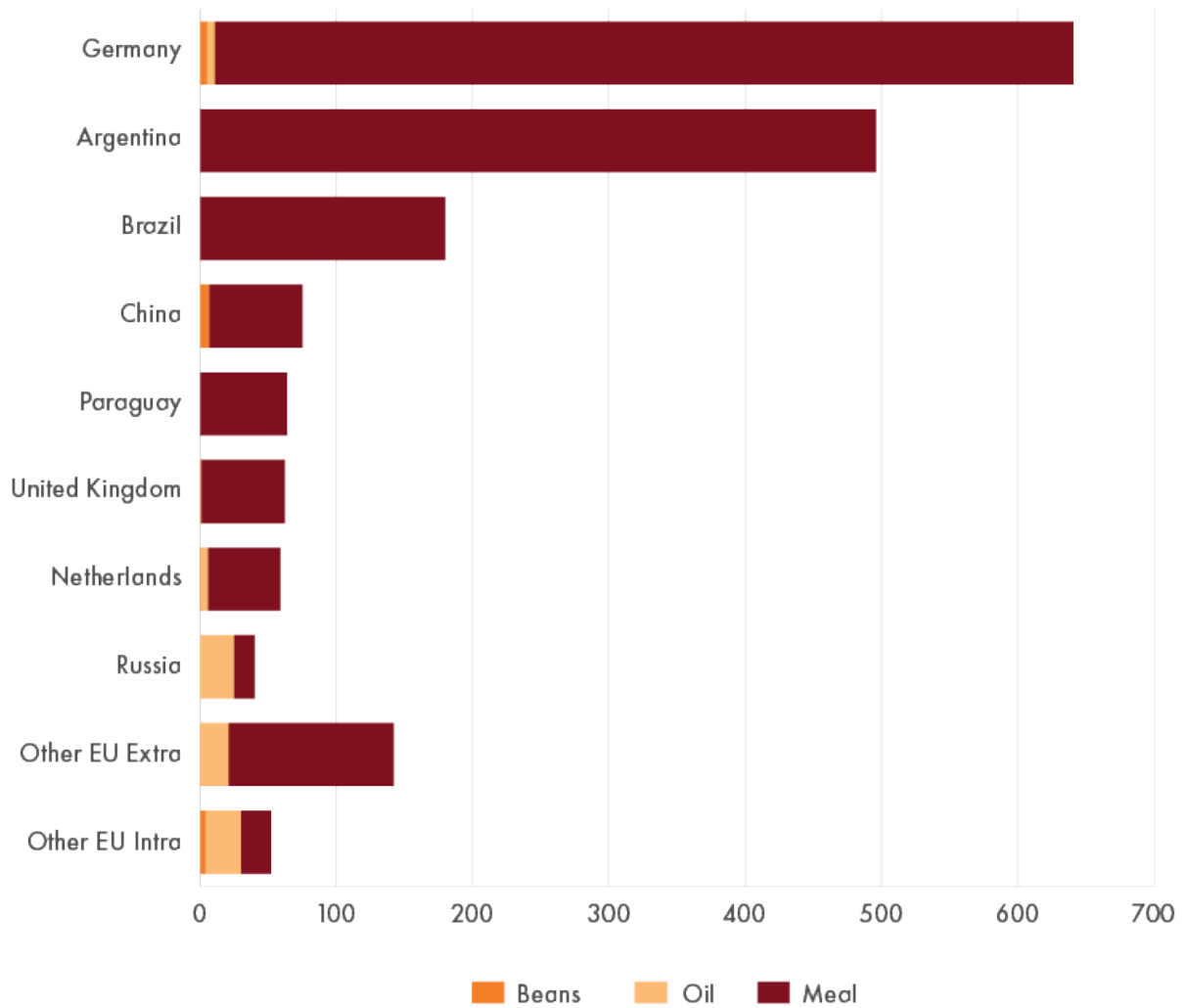
Denmark imported 668 tonnes of beef from Brazil in 2019.¹⁵¹ Danish beef consumption is 14 kilograms a year per capita.¹⁵²

EU - Mercosur

Trade in agricultural forest risk commodities from South America could further increase due to the pending trade agreement between the EU and Mercosur, the economic and political collaboration between Argentina, Brazil, Paraguay, Uruguay, and Venezuela.

Figure 8

Denmark soy imports by country in 2018 (1,000 tonnes)



Source: IDH, "European Soy Monitor 2018"



Image: Plant-based meat replacers in the supermarket. ING expects the market for meat and dairy alternatives to be able to maintain its growth rate of around 10%. This means retail sales of meat alternatives could increase to 2.5 billion EUR and retail sales of dairy alternatives to 5 billion EUR in 2025 (ING Research, 'Big things have small beginnings. Growth of meat and dairy alternatives is stirring up the European food industry'). Credits: World Animal Protection/Julia Bakker.

7. Transforming the food system – facing the future

Urgent action is needed to stop and reverse deforestation. But it is not enough to concentrate on tree cover loss. To a large extent, deforestation is one of the symptoms of a broken food system. The wider negative impacts of the drivers of deforestation must be considered. And doing so requires addressing root causes. It requires understanding that multifaceted problems need multifunctional solutions. Predominantly, it requires reconfiguring the role of animals in the food system.

Moving from improving 'business as usual' to transformational change

Many initiatives over the past decades have attempted to halt deforestation in the Amazon and Cerrado, including some by banks and investors. They have largely focussed on improving current practices of beef and soy production, for example through certification.

These initiatives have been important in preventing even worse destruction, but they have not come even close to stopping deforestation. And they certainly have not resulted in habitat restoration. These initiatives have also been regularly used – knowingly or unknowingly – to make misleading claims. Consequently, they have promoted complacency.

Many initiatives have also overlooked the broader negative impacts of the commodity supply chains of which they form part. These include: undue corporate power; unhealthy diets; health risks linked to antibiotic use; zoonotic risks, and pressures on land use, inextricably linked to the role of animals within food production. In turn, these negative impacts include animal welfare violations on a massive scale.

Improving elements of the current industrial model, predominantly based on the production of animal protein, is not enough.¹⁵³ The model itself has reached a dead end. And time is running out. The global food **system** needs urgently to be transformed. To make that happen, Europe's role is vital, given both its sizable consumer market and its considerable power globally.

It is also vital for saving Europe's own natural environments. As the European Environment Agency concluded in their October 2020 assessment of nature in Europe: 'safeguarding the health and resilience of Europe's nature, and people's well-being, requires fundamental changes to the way we produce and consume food [...]'¹⁵⁴

Rethinking animals

Rethinking animals in food production is essential for this transformation. We need to return to the acknowledgment that plants are the basic building blocks of food. Plants should be used by people for food first. This then leads to a careful reconfiguration of the role of animals in human food systems.

Their role should be limited to converting streams of by-products not of immediate use for human consumption and unavoidable food waste into food and to grazing on lands not suitable for growing food, putting their natural behaviours, health and welfare central stage.

To optimise the circularity of such a system, researchers at Wageningen University have proposed a prioritisation of the use of by-products and waste streams. In the first instance, these should be applied in the field for the improvement or preservation of soil quality. Next in line is the application as animal feed. In third and fourth place comes the use for renewable energy and carbon sequestration.¹⁵⁵

Such a system would free up land for nature, decrease greenhouse gas emissions, curb the use of pesticides, antibiotics, phosphate, water and other resources and deliver better balanced diets. Critically, it would also prevent the suffering that tens of billions of animals endure annually.

Developing a pathway to a sustainable future

Transforming the food system requires focussing on and shifting towards the following.

- **High animal welfare.** Safeguarding animal welfare should be central to livestock farming. This means respecting and utilizing animals' natural behaviours such as grazing, rooting and foraging.¹⁵⁶ It also includes the use of robust, slower growing breeds, that adapt well to local circumstances. High animal welfare also means fewer antibiotics being used and does not permit cage and crate use and painful procedures.
- **Plant-based.** The current excessive consumption of animal-derived foods in many countries needs urgent rebalancing. Healthy, nutritious, predominantly plant-based diets should

become the norm. Such a switch may reduce global mortality by 6–10%.¹⁵⁷ Replacing animal protein with plant protein could also reduce greenhouse gas emissions up to 90% and the land used for food by up to 76%.¹⁵⁸ This would allow for large-scale reforestation.

- **Sustainable, circular agriculture.** Loops of agricultural inputs and outputs should be closed and shortened as much as possible at local and regional level. This includes phasing out the use of monocrops like soy as feed for chickens, pigs and cows. It also includes a profound reduction in the use of pesticides and antibiotics. Finally, it would make long distance transport of animals a thing of the past.

Image: Sow with piglet. The sow is confined in a cage so narrow, it cannot turn around. Although the picture is taken in Latin-America, these farrowing cages are also widely used in European factory farming. Credits: World Animal Protection.



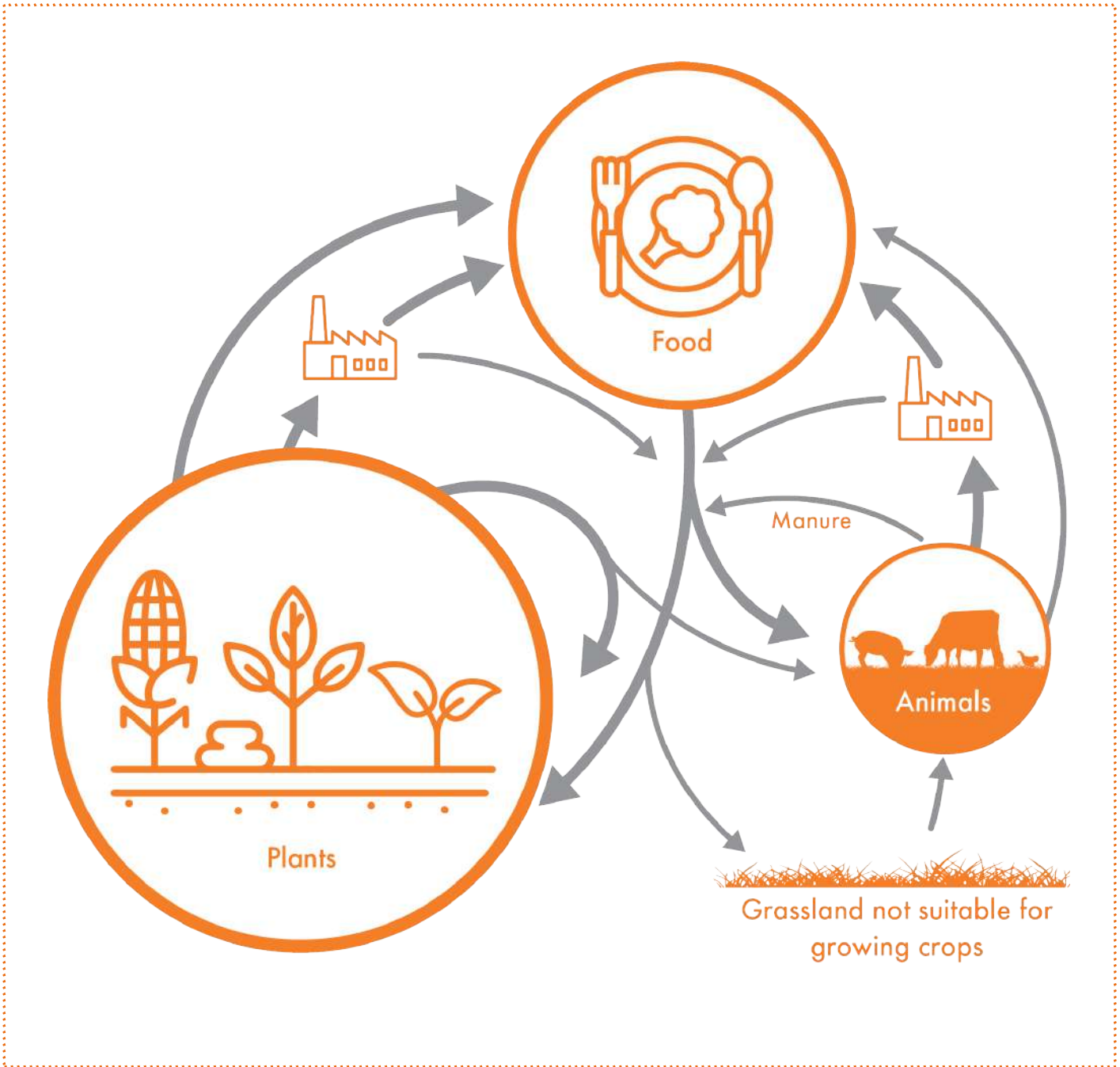


Image: Aerial view of the Amazon Rainforest. Credits: Lucia Barreiros. CC BY-SA 2.0, source: www.flickr.com/photos/lubasi/4909683043/



Image: Chicken in a Kipster farm, Beuningen, The Netherlands. Kipster farms not only aim at maximum animal welfare, but also adhere to the principle of circular, closed-loop agriculture: the animals are fed with residual flows (from for example large bakeries). The CO2 footprint of Kipster feed is 50% smaller compared with standard chicken feed based (www.kipster.farm). Credits: World Animal Protection/Dirk-Jan Verdonk.

8. Recommendations

It is vital that financial institutions take responsibility and act now to protect animals, people and our planet. They must...

- 1. Commit to a transformation of the food system**, including zero tolerance for deforestation and based on a 1.5 degrees scenario aligned with the Paris Climate Agreement. This commitment should entail: a commitment to high animal welfare, a shift from animal-based food to more plant-based food and a transition to sustainable, circular agriculture.
- 2. Develop a robust policy on deforestation and sustainable food systems**, which include Key Performance Indicators (KPIs). This policy should focus on achieving the following.
 - **High animal welfare:** implementation of the standards of the FARMS initiative as a minimum. This includes no cages and crates, the phasing out of painful procedures, using higher welfare breeds, limiting transport times and adopting more humane slaughter methods. Given the enormous potential of a shift towards plant-based food, (alleged) trade-offs between the reduction of GHG emissions and animal welfare **within** industrial livestock production are unacceptable. Companies should only use antibiotics for treatment, not for mass prophylaxis or growth promotion.
 - **Protein transition:** at least halving current protein production and consumption by 2040.
 - **Sustainable, circular agriculture:** including the phasing out the use of monocrops like soy as feed for chickens, pigs and cows.
- 3. Communicate expectations and formalise requirements.** Sustainability expectations - including on animal welfare and the protein transition - need to be clearly communicated to new and existing clients and investee companies. When granting a loan, these expectations should be formalised by a clause in the loan contract.¹⁵⁹
- 4. Screen companies within beef and animal feed supply chains.** Screening must be done regularly and should not be limited to new clients or investments. The information from companies and from service providers needs to be triangulated with all relevant information obtained from NGOs, experts and knowledge institutes. Meaningful engagement with local, actual and potentially affected stakeholders, such as indigenous peoples and other affected communities is also vital.¹⁶⁰ Screening should aim to identify if the company and - when relevant - its suppliers meet the principles and criteria included in the financial institution's policy. Company involvement in adverse impacts may also well pertain to its lobbying activities. Such activities could be aimed at weakening legislation and enforcement to protect humans, animals or the environment - or to prevent existing legislation being strengthened.
- 5. Exclude clear offenders.** When screening clarifies a company's systematic involvement in adverse impacts (including on animal welfare), and prospects for adequate improvement are low, the company should be excluded from investment and other financing.
- 6. Engage with companies.** Engagement with companies which may not meet all principles and criteria included in the financial institution's policy, must lead to a clear understanding of the problem. It should also lead to an agreement regarding steps needed to achieve better alignment. This agreement needs to be summarised in a time-bound action plan to which the company commits. It should include a clear description of the consequences when the company breaches these commitments.¹⁶¹

7. **Monitor and act.** The company's progress in implementing an action plan must be monitored. If progress is insufficient, financial institutions must decide to divest or – in case of a loan – apply for dissolution of the loan contract because the company defaults on one of the clauses.
8. **Vote on shareholder resolutions.** Investors should use the voting rights on the shares of the high-risk companies they hold. Moreover, since such shareholder resolutions may not adequately address deforestation's root causes, investors should also take the initiative to file and recruit support for more transformational shareholder resolutions.
9. **Take collective initiative.** Financial institutions need to collaborate with peers, with NGOs, national and local governments and other stakeholders. Collectively they should help stop and reverse deforestation, facilitate the transition to a sustainable, more plant-based food system, and safeguard animal welfare.
10. **Ensure effective grievance mechanisms.** Effective grievance mechanisms should be in place for all relevant stakeholders, that could be affected by the adverse impacts linked to those companies that financial institutions are financing or investing in.
11. **Disclose and be transparent.** Full transparency needs to be a condition for investment and financing, including disclosure of all the names and relevant details of the high-risk companies in financing and investment portfolios. Transparency is also needed regarding deforestation-related policies (including on animal welfare, the protein transition and antibiotics use), screening procedures, engagement processes, voting behaviour and collective initiatives, and the progress achieved against KPIs.

Image: Rio Negro, Brazil. Credits: World Animal Protection/Dirk-Jan Verdonk.



9. Tools and further reading

FARMS initiative

The FARMS initiative provides financial institutions with Responsible Minimum Standards with respect to how farm animals are raised, transported and slaughtered, to encourage meat, milk and egg producers, and other companies in the supply chain to advance animal welfare. Improving farm animal welfare creates not just benefits to the animals, but also for the environment, public health and the people who work with farm animals. Moreover, it contributes to meeting the rising expectations consumers have about the animal-sourced foods they consume.

www.farms-initiative.com

FAIRR

The FAIRR Initiative is a collaborative investor network that raises awareness of the environmental, social and governance (ESG) risks and opportunities caused by intensive animal production. FAIRR helps investors to identify and prioritise these factors through cutting-edge research, which investors can integrate into their decision-making and active stewardship processes.

www.fairr.org

Chain Reaction Research

Chain Reaction Research conducts free sustainability risk analysis for financial analysts, credit analysts, commercial bankers, institutional investors, corporations, and other stakeholders. Its special focus is demonstrating that deforestation is material financial risk. Chain Reaction Research focusses on tropical deforestation-related commodities including soy and cattle, palm oil, coffee, cacao and timber pulp and paper.

www.chainreactionresearch.com

Fair Finance Guide International

Fair Finance International (FFI) is an international civil society network of 70 CSOs, initiated by Oxfam, that seeks to strengthen the commitment of banks and other financial institutions to social, environmental and human rights standards. By benchmarking the investment policies and practices of financial institutions in critical areas such as human rights and climate impact, we enable consumers and policy holders to demand more socially responsible, fair, and sustainable investments. FFI is currently active in 11 countries: Belgium, Brazil, Germany, India, Indonesia, Japan, Netherlands, Norway, Sweden, Thailand, and Vietnam.

www.fairfinanceguide.org

Global Canopy

Global Canopy is an environmental organisation focussing on the production, trade and financing of the key commodities responsible for agricultural expansion into tropical forests. The organisation provides data, tools and guidance for companies, investors and governments. Examples include Trase (and Trase Finance), an independent, research-based supply chain transparency initiative and the Forest 500, a ranking of the most influential companies, financial institutions, and governments on forest risks.

www.globalcanopy.org - trase.earth - forest500.org

Appendix I: RTRS

The Round table for responsible soy (RTRS) offers the following three types of certification.

Segregated – certified soy is kept separate from non-certified soy throughout the entire supply chain. This should ensure zero deforestation for the particular product.¹⁶² Yet in practice, segregated certified soy is extremely rare if non-existent. This is because companies are not willing to pay the high premium to compensate for extra logistical costs.¹⁶³

Mass balance – soy of different production specifications (certified and non-certified soy) is mixed. Certificates are being traded along with the physical flow, according to the actual volume of certified soy in the mix. Control on the mass balance is needed at every stage of the supply chain. Only a small share of RTRS-certified soy falls under the mass balance category. In terms of sales, the 2018 RTRS management report mentions that mass balance is only 11% of total sales.¹⁶⁴

Book and claim ('credits') – Certified soy and product certificates (credits) are traded separately. Soy can be purchased from non-certified producers, but certificates guarantee that a certain volume of production has taken place according to the specific standard. Most RTRS soy traded use this system.

Furthermore, a hybrid called 'area mass balance' is increasingly available. This entails a book and claim system, but where the physical product flow comes from the same region as credits are attributed.

For book and claim, no real connection exists between the physical product and the RTRS credits. On its website, RTRS is notably careful about what an RTRS credit actually entails. It does not assure the traceability of RTRS certified soy – and so does not assure zero deforestation. Instead it signals 'interest in and commitment with encouraging a form of production that is environmentally appropriate, socially adequate and economically feasible.'¹⁶⁵

Appendix II: Overview of links European financial institutions per company

Table 4

Loans from the top 10 European financial institutions to high risk companies in the soy and beef supply chains (2015-2020, million USD)

| Company | BNP Paribas | Barclays | HSBC | Crédit Agricole | Société Générale | Santander | BPCE Group | ING Group | Rabobank | Deutsche Bank | Total |
|------------------------|---------------|---------------|--------------|-----------------|------------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Agravis Raiffeisen | | | | | | | | | 184 | 209 | 392 |
| Archer Daniels Midland | 105 | 2,924 | 105 | | | | | 105 | 105 | 105 | 3,448 |
| Bright Food Group | 104 | 54 | 163 | | | | | 159 | 224 | | 704 |
| Bunge | 322 | 104 | 187 | 210 | 213 | 96 | 158 | 715 | 185 | 176 | 2,365 |
| Cargill | 4,247 | 2,906 | 1,784 | 232 | 1,165 | 923 | 691 | 1,012 | 1,008 | 1,784 | 15,752 |
| Carrefour Group | 1,132 | 142 | 1,132 | 1,030 | 1,132 | 1,132 | 814 | 705 | | 227 | 7,447 |
| Casino | 499 | 4 | 546 | 934 | 383 | 143 | 499 | 42 | 122 | 47 | 3,219 |
| China Mengniu Dairy | 51 | | 200 | | | | | | 365 | | 617 |
| Danone | 5,220 | 842 | 920 | 1,125 | 990 | 990 | 785 | 785 | 136 | | 11,792 |
| DLG Group | 21 | | 34 | | | | | | 91 | 21 | 167 |
| DMK | 9 | | | | | | | 9 | 77 | | 96 |
| ForFarmers | | | 68 | | | | | 68 | 68 | | 205 |
| FrieslandCampina | 87 | 29 | 87 | | | | | 87 | 87 | | 379 |
| Groupe Lactalis | 715 | | 605 | 1,288 | 775 | 170 | 598 | 605 | 605 | | 5,360 |
| JBS | | 3,349 | | | 90 | 60 | | | 1,110 | 117 | 4,725 |
| Louis Dreyfus Company | 415 | 114 | 188 | 250 | 1,131 | | 281 | 357 | 620 | 46 | 3,402 |
| Nutreco | 161 | 63 | 114 | | | | | 161 | 68 | | 567 |
| Royal Agrifirm Group | | | | | | | | 94 | 94 | | 188 |
| Terra Santa | | | | | | 95 | | | | | 95 |
| Want Want Holdings | 60 | | 91 | | | | | | 31 | | 183 |
| Total | 13,149 | 10,532 | 6,225 | 5,070 | 5,878 | 3,607 | 3,826 | 4,905 | 5,182 | 2,730 | 61,103 |

Table 5

Underwritings by the top-10 European financial institutions in share and bond issuances of high risk companies in the soy and beef supply chains (2015–2020), in million US\$

| Company | BNP Paribas | Barclays | HSBC | Crédit Agricole | Société Générale | Santander | BPCE Group | ING Group | Rabobank | Deutsche Bank | Total |
|------------------------|--------------|--------------|--------------|-----------------|------------------|--------------|--------------|--------------|------------|---------------|---------------|
| Archer Daniels Midland | 1,179 | 1,412 | 608 | | | | | | 78 | 933 | 4,209 |
| BRF | 92 | | | | | 317 | | | | 92 | 500 |
| Bright Food Group | | | 14 | | | | | | | | 14 |
| Bunge | 240 | 19 | 185 | 37 | 36 | 6 | 78 | 208 | 97 | 25 | 932 |
| Cargill | 467 | 467 | 167 | | 83 | 83 | | | 83 | 167 | 1,517 |
| Carrefour Group | 1,058 | | 520 | 533 | 549 | 522 | 894 | 220 | | 280 | 4,574 |
| Casino | 174 | | 147 | 174 | 110 | 110 | 147 | | | 77 | 939 |
| Cencosud | | | 825 | | | | | | | | 825 |
| China Mengniu Dairy | | | 71 | | 71 | | | | 71 | | 214 |
| Danone | 1,706 | 960 | 1,233 | 2,041 | 1,645 | 1,733 | 1,356 | 1,171 | | | 11,846 |
| DMK | | | | | | | | 190 | 101 | | 291 |
| JBS | | 920 | | | | 607 | | | 186 | | 1,713 |
| Louis Dreyfus Company | | | 75 | | | | 75 | | | | 150 |
| Marfrig | 193 | | 1,085 | | | 1,179 | | 50 | 50 | | 2,556 |
| Minerva | | | 728 | | | | | | | | 728 |
| Total | 5,108 | 3,778 | 5,658 | 2,784 | 2,495 | 4,557 | 2,550 | 1,839 | 667 | 1,573 | 31,009 |

Table 6

Investments by the top-10 European financial institutions in shares of high risk companies in the soy and beef supply chains (2015–2020), in million US\$

| Company | BNP Paribas | Barclays | HSBC | Crédit Agricole | Société Générale | Santander | BPCE Group | ING Group | Rabobank | Deutsche Bank | Total |
|--------------------------------------|-------------|-----------|------------|-----------------|------------------|------------|--------------|-----------|----------|---------------|--------------|
| Archer Daniels Midland | 14 | 69 | 25 | 73 | 11 | | 14 | | | 132 | 338 |
| BRF | 12 | 1 | 2 | 5 | 0 | 10 | 0 | | | 19 | 50 |
| Bunge | 59 | 5 | 5 | 36 | 0 | | 47 | 0 | | 88 | 241 |
| Carrefour Group | 130 | | 31 | 111 | 44 | 21 | 129 | | | 21 | 486 |
| Casino | 8 | | 35 | 10 | 1 | | 46 | | | 5 | 105 |
| Cencosud | 0 | | 2 | 1 | | 4 | | | | 1 | 9 |
| China Mengniu Dairy | 1 | | 83 | 25 | | 0 | 0 | | | 15 | 124 |
| Danone | 331 | 2 | 54 | 1,709 | 629 | 36 | 768 | | | 375 | 3,905 |
| ForFarmers | 0 | | | | 0 | 0 | | | | 0 | 1 |
| Fujian Sunner Development Co. | | | 0 | | | | 0 | | | 0 | 0 |
| Groupe LDC | 2 | | 1 | | | 4 | 38 | | | | 45 |
| Inner Mongolia Yili Industrial Group | 1 | | 3 | 2 | | | 10 | | | 2 | 18 |
| JBS | 2 | | 3 | 31 | | 56 | 1 | | | 11 | 104 |
| Marfrig | 1 | | 0 | 1 | | 1 | | | | | 3 |
| Minerva | 17 | | | 0 | | 12 | | | | | 29 |
| Muyuan Foodstuff | | | 2 | 2 | | | | | | 3 | 6 |
| New Hope Liuhe Group | | | 1 | 1 | | | | | | 1 | 3 |
| SLC Agricola | 1 | | | | | 0 | | | | 7 | 8 |
| Want Want Holdings | | | 52 | 4 | | 0 | 0 | | | 5 | 62 |
| Wen's Food Group | | | 3 | 2 | | | | | | 2 | 6 |
| Total | 579 | 78 | 302 | 2,013 | 687 | 145 | 1,052 | 0 | | 687 | 5,543 |

Table 7

Investments by the top-10 European financial institutions in bonds of high risk companies in the soy and beef supply chains (2015–2020), (2015–2020), in million US\$

| Company | BNP Paribas | Barclays | HSBC | Crédit Agricole | Société Générale | Santander | BPCE Group | ING Group | Rabobank | Deutsche Bank | Total |
|---------------------|-------------|----------|-----------|-----------------|------------------|-----------|------------|-----------|----------|---------------|------------|
| Boparan Holdings | 0 | | | 2 | | | | | | 2 | 5 |
| Bunge | 1 | | 1 | 0 | | | 10 | | | 15 | 27 |
| Carrefour Group | 26 | | 9 | 54 | 1 | | 0 | 1 | | 4 | 94 |
| Casino | 55 | | 36 | 229 | 12 | | 189 | | | 87 | 608 |
| Cencosud | 0 | | | | | | - | | | 0 | 0 |
| China Mengniu Dairy | | | 7 | 2 | | | | | | 2 | 11 |
| Danone | | | 4 | 2 | | | 5 | | | 35 | 46 |
| Want Want Holdings | | | | | | | | | | - | - |
| Total | 82 | | 56 | 289 | 13 | | 204 | 1 | | 147 | 791 |

Appendix III: Overview of links Danish financial institutions links per company

Table 8

Loans from the top-3 Danish financial institutions to high risk companies in the soy and beef supply chains (2015–2020), in million US\$

| Company | Danske Bank | Sydbank | BankInvest |
|------------------------|-------------|------------|------------|
| Archer Daniels Midland | | | |
| Bright Food Group | | | |
| Bunge | | | |
| Cargill | | | |
| Carrefour Group | | | |
| Casino | | | |
| China Mengniu Dairy | | | |
| Danone | | | |
| DLG Group | 210 | 153 | |
| ForFarmers | | | |
| FrieslandCampina | | | |
| Louis Dreyfus Company | | | |
| Nutreco | 63 | | |
| Plukon Food Group | | | |
| Vion Food Group | | | |
| Total | 274 | 153 | |

Table 9

Underwritings by the top-3 Danish financial institutions in share and bond issuances of high risk companies in the soy and beef supply chains (2015–2020), in million US\$

| Company | Danske Bank | Sydbank | BankInvest |
|-----------------------|--------------------|----------------|-------------------|
| Arla Foods | - | | |
| Bunge | | | |
| Carrefour Group | | | |
| Casino | | | |
| China Mengniu Dairy | | | |
| Danish Crown | 70 | | |
| Danone | | | |
| Louis Dreyfus Company | | | |
| Total | 70 | | |

Table 10

Investments by the top-3 Danish financial institutions in shares of high risk companies in the soy and beef supply chains (2015–2020), in million US\$

| Company | Danske Bank | Sydbank | BankInvest |
|--------------------------------------|--------------------|----------------|-------------------|
| Advent International | | | |
| Archer Daniels Midland | 13 | | 0 |
| BRF | 1 | | |
| Bunge | 3 | | |
| Carrefour Group | 4 | | 0 |
| Casino | 0 | | |
| Cencosud | 0 | | |
| China Mengniu Dairy | 1 | | |
| Danone | 17 | 3 | 53 |
| ForFarmers | | | |
| Fujian Sunner Development Co. | 1 | | |
| Groupe LDC | | | |
| Inner Mongolia Yili Industrial Group | 1 | | |
| JBS | | 2 | |
| Marfrig | | | 1 |
| Minerva | | | 1 |
| Muyuan Foodstuff | 2 | | |
| New Hope Liuhe Group | 0 | | |
| SLC Agricola | | | |
| Want Want Holdings | 1 | | |
| Wen's Food Group | 1 | | |
| Total | 44 | 5 | 56 |

Table 11

Investments by the top-3 Danish financial institutions in bonds of high risk companies in the soy and beef supply chains (2015–2020), in million US\$

| Company | Danske Bank | Sydbank | BankInvest |
|---------------------|-------------|----------|------------|
| Boparan Holdings | | | |
| Cargill | | | |
| Carrefour Group | | | |
| Casino | 27 | 2 | |
| Cencosud | | | |
| China Mengniu Dairy | | | |
| Danone | | | |
| JBS | | | |
| Marfrig | | | |
| Minerva | | | |
| Total | 27 | 2 | |

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160. The engagement with the local stakeholders should be done in a culturally and gender sensitive way, in which respect is paid to the local context in which these communities live.
161. Expanding the sustainability department of the financial institution will be necessary to have sufficient capacity for these systematic engagement processes with all high-risk companies in the portfolio.
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