

# Tesco: A basket of problems for the Amazon.



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# TESCO: A BASKET OF PROBLEMS FOR THE AMAZON

## CHICKEN AND PORK SOLD IN TESCO'S UK STORES LINKED TO AMAZON DEFORESTATION

### Summary

A new investigation by Mighty Earth, Repórter Brasil and Ecostorm has found that chicken and pork products sold in Tesco stores in the UK are linked to illegal deforestation and forest fires in the Amazon.

Our investigation shows that the soy-fed chicken and pork products found on Tesco's supermarket shelves can be linked to recent, illegal fires used to deforest huge swathes of the Brazilian Amazon rainforest to grow soy, breaching the Amazon Soy Moratorium, Brazilian laws and the UK Soy Manifesto's commitment.

Satellite images of Santa Ana farm, situated in Mato Grosso in the Amazon biome region of Brazil, show a total of 635 hectares of deforestation, including 400 hectares of Amazon forest burned during a few days in September 2022. Our investigation also uncovered evidence of 'grain laundering'. This farm is a direct supplier of agricultural giant, Cargill.

Our report follows the journey of illegally grown soy at Santa Ana farm in the Amazon on its route through Brazil, its likely transfer to Cargill's grain store at Santarém port in Pará—the port that supplies more than 75 per cent of Cargill's UK soy imports to Liverpool—on to UK food companies Avara and Pilgrim's UK, which supply chicken and pork products directly to Tesco.

Our unique report maps Tesco's entire soy supply chain and the risk of deforestation contamination, from the farm level in the Amazon onward. This case is not an exception; it highlights the fundamental flaws throughout Cargill's soy-related deforestation monitoring systems and enforcement mechanisms, which lead to the risk of contamination of Cargill soy sold across the whole UK farm, food and supermarket sector.

Tesco's claimed ability to achieve 100 per cent deforestation and conversion-free (DCF) soy by 2025 are disingenuous whilst it continues to source such high quantities of soy from Cargill, whose 2030 DCF date is incompatible with both the UK's incoming due diligence laws and Tesco's public promises. Despite numerous reports and cases of deforestation, the destructive commercial relationship between Tesco and Cargill remains firmly in place. Tesco has yet to take any actions against guilty commercial partners involved in illegal deforestation.

**"Tesco can no longer source soy from known forest destroyers, such as Cargill"**

Scientists estimate that the Amazon rainforest is close to reaching an irreversible tipping point, where vast areas of the rainforest will die back and turn into savannahs due to the loss of tree cover and the subsequent capacity for retention of moisture.<sup>1</sup> The scale of deforestation in the Amazon, which is now estimated to be emitting more carbon than it is storing, has severe local and global implications.<sup>2</sup>

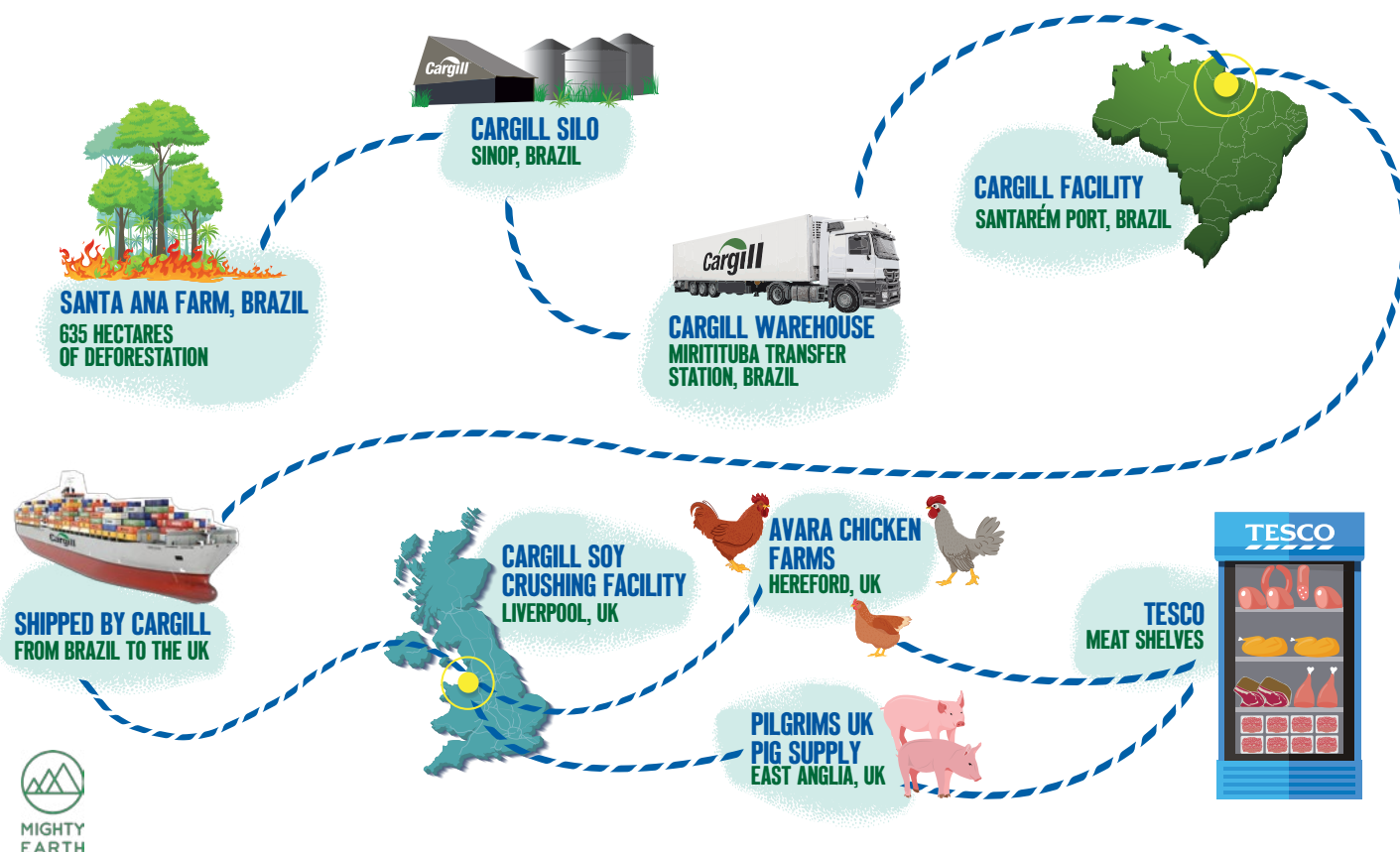
This investigation is a detailed illustration of the ongoing abuse of nature, of the disregard for the local law and of the empty promises that large agricultural firms such as Cargill and major supermarket chains such as Tesco overlook every day in order to keep trading and profiteering.

For Tesco to deliver on its public promise to be deforestation free by 2025, and on its commitment under the UK Soy Manifesto<sup>3</sup> only to source soy products that have not been produced on land deforested after 1 January 2020, Tesco can no longer source soy from known forest destroyers, such as Cargill, that link its products to deforestation.

Retailers must, and can do better: Latin America alone has 1.6 billion acres of degraded land where agriculture could be developed—more than enough to meet agricultural demand and alleviate pressures on beleaguered natural ecosystems.<sup>4</sup>

With the urgency of the climate crisis starkly set out in the Intergovernmental Panel on Climate Change’s Sixth Assessment Synthesis Report,<sup>5</sup> Tesco must take more decisive action against actors within its supply chain who fail to meet the ambition of Tesco’s public promises to avoid another target being missed.

## HOW TESCO’S SUPPLY CHAIN FUELS DEFORESTATION



The mapped journey of Tesco’s soy supply journey and associated risk of deforestation contamination, from the Amazon to Tesco in the UK

## Mato Grosso, Brazil Deforestation Case

Mato Grosso is Brazil's third-largest state and houses a significant stretch of the Amazon rainforest, alongside large proportions of the Cerrado savannah and Pantanal wetlands. These biomes are among the most biodiverse ecosystems in the world.<sup>6</sup> Despite this, Mato Grosso has experienced some of the highest rates of deforestation in Brazil.<sup>7</sup>

The Santa Ana farm unit sits close to the town of Cláudia in the north of Mato Grosso, Brazil. Land registration records show that the complex is divided formally into seven lots,<sup>8</sup> all of which, according to the Rural Environmental Registry (CAR), are owned by various members of the Lucion family. Satellite data confirms<sup>9</sup> that a plot of 235 hectares, known as Agropecuária Viva I, has been used to grow soy since 2018, despite being embargoed on 29 January 2019 because of unlicensed deforestation.<sup>10</sup>



"Mato Grosso has experienced some of the highest rates of deforestation in Brazil."

### The farm plots of the Fazenda Santa Ana farm unit in Cláudia, Mato Grosso, Brazil in January 2023

Source: Google Earth 23 January 2023, Mighty Earth marking

The farm's production could be considered an agricultural success story, except for the fact that the Lucion family farm is growing its soy illegally on interdicted land, where commercial farming is prohibited.<sup>11</sup> As a result, members of the Lucion family are currently under investigation by the Federal Prosecution Service and the Mato Grosso State Prosecution Service. Furthermore, the Mato Grosso Environmental Department (Sema-MT) previously issued fines of nearly BRL 3 million (£490,500) between 2019 and 2022 because of the deforestation of areas previously covered by Amazon rainforest.<sup>12</sup> The ongoing Federal investigation could see this amount multiply.

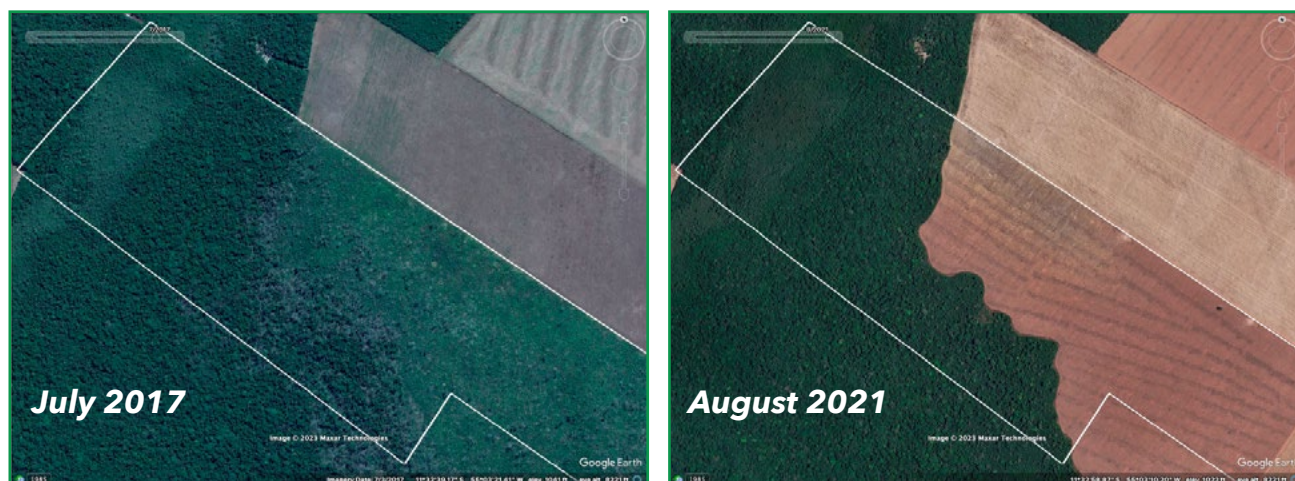
Farmers found guilty of growing crops on illegally deforested land can be further penalised with embargoes and fines, imposed either by Brazil's federal environment agency (IBAMA) or by the state environmental authorities, intended to halt agricultural use of that land. These embargoes and fines can be important instruments for deterring deforestation and enabling forest recovery. However, the extent to which landowners—and their buyers<sup>13</sup>—respect embargoes in the Brazilian Amazon is unclear. Certainly, it does not seem to have deterred the Lucion family from continued soy cultivation within the embargoed area. Our field investigations, confirmed by satellite data, show the deforested and embargoed area has been entirely covered by soy in the 2022/2023 season.<sup>14</sup>

Satellite images below show Agropecuria Viva I on Santa Ana farm unit between July 2017 and December 2018, highlighting the 235 hectares of deforestation in July 2017 and illegal soy cultivation preparation in December 2018



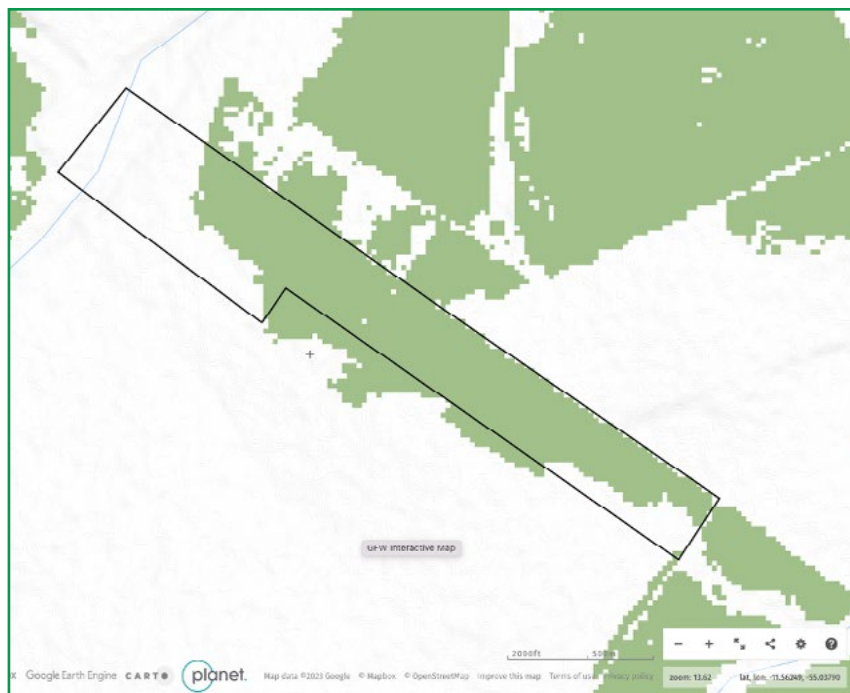
Credit: Planet Explorer Imagery, PS Tropical Normalized Analytic Biannual Archive, 13 March 2023

Google Earth Pro images show Agropecuária Viva I plot on Santa Ana farm unit in July 2017, before deforestation occurs, and in August 2021 with soy cultivation



Credit: Google Earth Pro July 2017 and August 2021 respectively, accessed 13 March 2023

## Agropecuária Viva I plot on Santa Ana farm unit soy planted area 2022



"Our field investigations, confirmed by satellite data, show the deforested and embargoed area has been entirely covered by soy in the 2022/2023 season."

Source: Song et al., 2021. "Soy Planted Area". Accessed through Global Forest Watch, 13 March 2023

To defend his actions, Vinícius Lucion, one of the heirs to the Lucion family dynasty, told Repórter Brasil that he did not know that there were plantations in the interdicted area—even though this portion of the property was registered with the Rural Environmental Register (CAR) to a company in which he and his sister are partners.

According to Abiove<sup>15</sup>, the Brazilian Association of Vegetable Oil Industries and a member of the Amazon Soy Moratorium (ASM) Audit Committee, since early 2021 areas of the Santa Ana farm unit were blocked by the Audit Committee from selling soy to ASM signatories. Despite these restrictions and publicly registered embargoes, however, tax records show Cargill has continued to purchase soy from the family until at least 2022.<sup>16</sup>

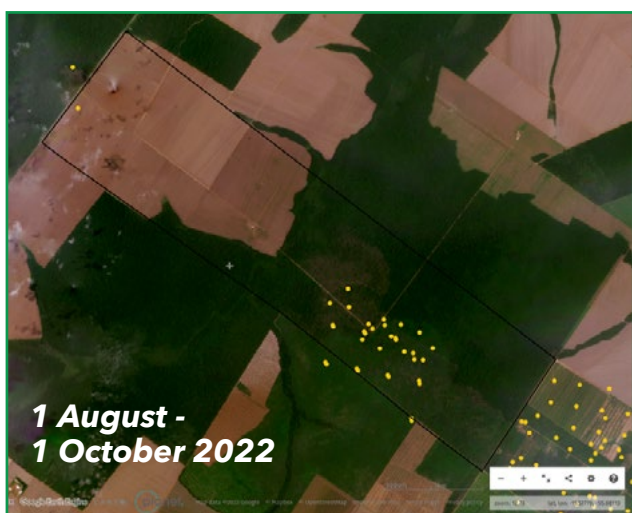
## Illegal fires

In the 2018/2019 season, when much of Brazil's rainforest was being destroyed by wildfires, the government instituted a 60-day ban on burning; those bans have been repeated each year since<sup>17</sup> but, as our research shows, illegal burning to clear land for agriculture continues.

Further investigations of Santa Ana farm in September 2022, confirmed by satellite images as well as field investigations and interviews by Repórter Brasil that same month, showed new burning on a separate 400-hectare area of interdicted land on the area known as Santa Ana II, at the southern edge of the property.

These 400 hectares of deforestation are equivalent to more than 560 Wembley football pitches. Applying MapBiomas calculations, it is estimated<sup>18</sup> that more than 220,000 trees, representing 40-100 different species<sup>19</sup>, could have been lost in this single case of illegal burning.

### VIIRS fire alerts on Fazenda Santa Ana II between 1 August and 1 October 2022



"These 400 hectares of deforestation are equivalent to more than 560 Wembley football pitches ... more than 220,000 trees, representing 40-100 different species, could have been lost in this single case of illegal burning."

Credit: NASA FIRMS. "VIIRS Active Fires." Accessed through Global Forest Watch, 8 March 2023

### Satellite imagery shows Fazenda Santa Ana II in May 2022, prior to the deforestation of 400 hectares in September 2022, and the aftermath of the burnt land in December 2022



Credit: Planet Explorer Imagery, PS Tropical Normalized Analytic Monthly Monitoring, accessed 3 March 2023

According to documents seen by Repórter Brasil, the Mato Grosso Environmental Department (Sema-MT) identified Vinícius Lucion as being responsible for the illegal deforestation and not complying with the interdiction. Vinícius Lucion, however, said that the fire was started by a neighbouring rural settlement—a justification that Mato Grosso firefighters say is common, but usually not true.<sup>20</sup>

In addition, a Repórter Brasil interview with the owner of a neighbouring farm suggests the illegal fires, often set in the middle of the night, are a longstanding problem. The neighbour said:



"We from the rural area suffer. ... We put out the fire in the area around us, but then the fire reaches the forest, it burns the woods, animals ... then you find dead monkeys, snakes, anteaters with burnt paws ...."

The Lucion family's plantations on interdicted and embargoed land at the Santa Ana farm unit cast suspicion on their current business dealings<sup>21</sup> with Cargill (2019-2022), as well as on past trade with other big soy traders, such as Amaggi, COFCO and Bunge.

**A plantation already harvested on the Santa Ana farm contrasts with the smoke on the horizon, in the middle of the fire ban season in Mato Grosso, September 2022**



*Photo credit: Fernando Martinho/Repórter Brasil*

## **Not protected by the Amazon Soy Moratorium**

To add insult to injury, all the companies that purchased soy from the Lucion farm—including Cargill—are signatories to the Amazon Soy Moratorium (ASM),<sup>22</sup> in which traders pledge not to purchase soy from interdicted or illegally deforested land. Under the Moratorium, traders who belong to Abiove or Anec, the main soy trade associations in Brazil, representing 85 per cent of Brazilian soybean purchases, agreed not to buy soy from Amazon rainforest cleared after July 2008, and crucially, from those farms with listed embargoes.<sup>23</sup>

Beginning in 2021, the ASM imposed a ban on parts of the Santa Ana farm unit, prohibiting companies from buying soybeans planted on those parcels of land. Companies are free, however, to buy soy from other, unblocked parts of the farm unit and, in 2019, tax records show that this is what Cargill did.<sup>24</sup> In practice, farmers simply mix the illegally grown soy in with that grown legally, making it almost impossible to trace. This is known as "triangulation" or "grain laundering". Cargill told Repórter Brasil that it has "robust procedures to ensure compliance with social and environmental restrictions" around slave labour, the ASM, the Green Grain Protocol and embargoes by federal and state agencies. It adds:

"We constantly monitor our suppliers and can confirm that the farm in question was in compliance during the period in which business with Cargill occurred. Through our whistleblower procedure, we investigate all allegations received and if we find any violation of our policies and commitments, the producer will be immediately blocked from our supply chain, as expressed in our Supplier Code of Conduct."<sup>25</sup>

CAR registration records are one way that soy buyers such as Cargill can monitor the legality, or otherwise, of suppliers and properties. In cases where grain laundering is suspected, Abiove stipulates that trading companies should take measures, such as analysing the distances and routes between the embargoed farm and the place where the cargo is to be delivered, checking whether a family relationship between neighbouring property owners exists, calculating the area's maximum productivity, and even hiring a specialised company to guarantee the soybean's deforestation-free origin.<sup>26</sup> No information is available about whether Cargill took these precautions in respect to soy from the Santa Ana farms.

Our investigation shows that some areas of the Santa Ana unit were under embargo in 2019/20, under Federal investigation in 2021 and blocked by the ASM in 2021.<sup>27</sup> Repórter Brasil have found that Cargill did business with the Lucion family throughout this period. Had Cargill followed Abiove's protocol, its investigations would have found the same thing as ours: soy planted on embargoed areas of the Lucion family-owned estate.

Without group-level accountability, the probability of deforestation-linked soy from illegal plantations being mixed together with legally harvested soy grown increases, with wide-ranging ramifications for the validity of soy traders' DCF assurances, including its certification guarantees. Cargill claims that structures are in place to prevent soy from deforested land entering its supply chain:

**"We also block other farms registered to the same person or entity in the state, as well as those owned by family members and those with whom they have a commercial relationship. These affiliated farms cannot be unblocked until we conduct a thorough analysis to help ensure that soy from the violating farm is not being rerouted and sold to us through the affiliated operation. All these unblocked farms are re-evaluated each new crop season to confirm they are still complying.**

**We passed our most recent third-party audit in November 2021 that confirmed our compliance with the Amazon Soy Moratorium and the Green Grain Protocol. No non-compliant soy was found to have entered our supply chain in this audit."<sup>28</sup>**

Clearly those structures have failed. Whilst global traders like Cargill say that their soy supplier verification policies prevent sourcing from interdicted areas,<sup>29</sup> the fact is that none of them presented concrete measures to prevent this grain laundering. As our investigation shows, this may have occurred with the Lucion family at the Santa Ana farm.

Enforcing the ASM requires accurate monitoring. But in 2019, data from Instituto Centro de Vida (ICV)<sup>30</sup> showed that, while monitoring by the ASM indicated that some 85,000 hectares of soy was planted in violation of the agreement, in fact almost 1 million hectares of soy were cultivated on properties with illegal deforestation – 10 per cent of the area cultivated in the state that year. In addition, ICV confirms<sup>31</sup> that deforestation occurring inside properties with soybeans but outside the cultivation area is outside the scope of the agreement – even if the deforestation is illegal. Clearly, also the terms of the agreement require strengthening to have actual impact.

More than 85 per cent of the soy deforestation in Mato Grosso, between August 2018 and July 2019, was illegal;<sup>32</sup> this fact alone gives good reason to question Cargill's assertions that 96 per cent of its Brazilian soy is DCF.<sup>33</sup>

Newer investigations indicate that the problem is worsening. A 2020 investigation by Brazilian civil society organisations Trase, ICV and Imaflora found that 95 per cent of the deforestation on soy farms was illegal under Brazilian regulations because the necessary licences were not in place. It also found that illegal deforestation in Mato Grosso is accelerating, and that between 2012 and 2017, more than one quarter (27 per cent) of the total deforestation in Mato Grosso took place on soy farms.<sup>34</sup>

In 2021, a report by MapBiomas evaluated all deforestation events across the whole of Brazil. Comparing data from protected areas, authorizations and CAR, it found evidence of irregularities in more than 98 per cent of cases.<sup>35</sup> It also found Mato Grosso to be one of the top three most deforested areas in Brazil. These data are not in dispute and are publicly available for anyone in the global soy supply chain to access and to take action against, but action from buyers like Cargill is slow to arrive.

**"Whilst global traders like Cargill say that their soy supplier verification policies prevent sourcing from interdicted areas, the fact is that none of them presented concrete measures to prevent this grain laundering."**

## Farm to port

From the soy farms of Cláudia deep in the Amazon rainforest, part of the soy is transported to Cargill's silo at Sinop and to other cities around the BR-163 highway in Mato Grosso.<sup>36</sup> Cargill plays a dominant role in the Mato Grosso soy market, and more specifically in the town of Cláudia. Cargill owns a warehouse with a capacity of 720,000 metric tons in Cláudia, which may contribute to the reported 69 per cent market share of Cláudia soy.<sup>37</sup> Much of this soy is then hauled by truck from silos along the BR-163 as far north as the river port of Miritituba, where Cargill's Estação de Transbordo de Cargas (ETC) grain terminal houses silos and barge-loading facilities.

### Cargill silo, Sinop, Mato Grosso



Photo credit: Fernando Martinho/Repórter Brasil

The BR-163 road, known as the “Soya highway”, is one of the main highways cutting through the heart of the Amazon rainforest. It runs through vast swathes of deforested land and is a main route for transporting soy and other agricultural goods from farms such as Santa Ana in the highly productive state of Mato Grosso, to Brazil’s “Northern Arc” river and ocean ports in the north and northeast regions of the country. From Miritituba, high-capacity barges take the soy up the Tapajós river to Cargill’s export terminal in the busy port of Santarém, at the confluence of the Tapajós and Amazon rivers. In 2021, the Santarém port authority, Companhia Docas do Pará (CDP), reported 5.9 million tonnes of soy and 2.5 million tonnes of maize were handled at Santarém port.<sup>38</sup>

### Cargill soy operations at Santarem port in Pará, Brazil



*Credit: Markus Mauthe/Greenpeace*

Cargill holds a lease with the CDP at the port of Santarém where it operates a dry bulk terminal and storage facility. From Santarém in Pará, Cargill’s soy is shipped to multiple global destinations, including the port of Liverpool—the principal entry point for much of the UK’s imported soy, and where Cargill has a number of operations in the United Kingdom (UK), including a soybean crushing facility and refinery based at Seaforth in Merseyside.<sup>39</sup>

## Brazil to UK

Shipments of Brazilian soy arrive regularly in the UK. Cargill ships more soy to the UK than any other grain trader, and as a consequence, Cargill dominates the UK soy market.<sup>40</sup> According to global trade and shipping data, between January 2020 and July 2022, 63 shipments of soy products from Brazil to the UK took place, totalling 1.4 million tonnes. During that period alone, Cargill Agrícola, Cargill’s Brazilian subsidiary, made 13 shipments to the port of Liverpool—12 from the port of Santarém—with a total gross weight of 744,734 tonnes. In that period, 75 per cent of Cargill soybean exports to Liverpool originated in Santarém.<sup>41</sup> Cargill PLC, Cargill’s wholly owned UK-registered subsidiary, owns and operates a dedicated animal feed ingredients terminal and crushing facility in Liverpool port, called S2 AFS Berth.<sup>42</sup>

## "75 per cent of Cargill soybean exports to Liverpool originated from Santarém"

## Cargill–Still “The Worst Company in the World”

Cargill, one of the US’s largest privately held companies, is a major global player in the grain trade, reporting record revenues of USD \$165 billion in 2022.<sup>43</sup> It has been doing business in Brazil since 1965, and today, is one of the country’s largest food companies, operating multiple processing factories, port terminals, warehouses and transshipment points in 17 Brazilian states.<sup>44</sup>

In 2010, Cargill and other signatories to the Consumer Goods Forum pledged to end deforestation<sup>45</sup> in its supply chains by 2020. In fact, soy-linked deforestation linked to soy has sharply increased since the pledge was made: for instance, monitoring data from March 2019 to March 2021 from Mighty Earth’s *Soy and Cattle Deforestation Tracker* report shows that deforestation detected in companies’ supply chains more than doubled by the end of that monitoring period.<sup>46</sup> Suppliers to Cargill were responsible for approximately 66,000 hectares of clearance and deforestation—an area larger than the UK’s New Forest—in just two years.

By 2019, Cargill, the UK’s largest soy importer, admitted that it would miss the 2020 deadline<sup>47</sup>, and set a new global target: 2030.<sup>48</sup> Shifting goalposts and ignoring the true scale of its deforestation impact<sup>49</sup> seem consistent with Cargill’s historic approach.

In recent years, Mighty Earth and others have presented Cargill with clear evidence of deforestation in its supply chains. Our 2017 report *The Ultimate Mystery Meat*<sup>50</sup> investigated 28 different locations across 3,000 km<sup>2</sup> producing soy in Brazil and Bolivia. It showed that Cargill was one of the two largest customers of industrial-scale deforestation. Our 2019 report *Cargill: The Worst Company in the World*<sup>51</sup> highlights the company’s lack of action when alerted to specific deforestation cases, and lack of due diligence to determine deforestation in its supply chain.

**"Suppliers to Cargill were responsible for approximately 66,000 hectares of clearance and deforestation"**

Mighty Earth’s Rapid Response Tracker has found more than 60 separate cases of deforestation linked to Cargill between January 2019 and July 2020, including the five following cases:

- 1.** In Bahía, between 15 January and 14 April 2019, 1,632 hectares of deforestation were identified on Fazenda Bananal in the Cerrado, another protected biome in Brazil. The land is owned by the UK investment firm Genagro Ltd, based in London.<sup>52</sup>
- 2.** Fazenda São José Parcela 24, also in Bahía, saw 1,702 hectares of Cerrado savannah deforested between 10 March and 9 May 2019; Cargill is estimated to have bought approximately 24 per cent of the farm’s soy crop.<sup>53</sup>
- 3.** In Piauí state, in Uruçuí municipality in the Cerrado, 3,784 hectares were deforested for soy plantation across Fazenda Serra Branca I, Fazenda Piquizeiro, Fazenda Berwanger II - Part 1; all had direct business links with Cargill.<sup>54</sup>
- 4.** Between 20 January and 27 May 2020, on Fazenda Palmeira in Tasso Fragoso municipality in Maranhão state, 4,667 hectares of the Cerrado were cleared. Fazenda Palmeira was a direct supplier of Cargill soy.<sup>55</sup>
- 5.** Close to the Santa Ana farm unit, also in the town of Cláudia in Mato Grosso, Fazenda Primavera saw 536 hectares of Amazon forest destroyed between 16 February and 15 July 2020; Cargill is alleged to have bought 45 per cent of the soy produced on this farm.<sup>56</sup>

In 2020, an investigation by Unerthed and The Bureau of Investigative Journalism (TBIJ) revealed 800 km<sup>2</sup> of deforestation and 12,000 fires since 2015 on land used by Cargill soy suppliers in the protected Cerrado.<sup>57</sup> In 2022, a subsequent investigation by Unerthed, TBIJ, Repórter Brasil and Ecostorm uncovered Cargill's links with another farm growing soy beans on deforested land in the Brazilian Amazon.<sup>58</sup>

While the Amazon and the Cerrado burn, Cargill Agrícola reported revenues of BRL 71 billion (approx. USD \$13.7 billion) in 2020 and BRL 103 billion (approx. USD \$19 billion) in 2021.<sup>59</sup> Until key actors in the supply chain such as Tesco stop doing business with them, deforestation will continue to be good business for Cargill.

In response to the findings in our report, Cargill confirmed that it bought soy from the farm unit during the period the state embargoes were active but asserts that the farm was compliant. In its response, outlined below, Cargill failed to address our questions regarding the internal investigations they conducted on the farm, as laid out in its 'Soy Toolkit'.<sup>60</sup>

**"Until key actors in the supply chain such as Tesco stop doing business with them, deforestation will continue to be good business for Cargill."**

Cargill's recent letter to Mighty Earth said:

*"Cargill has robust procedures to ensure respect for socio-environmental restrictions - Slave Labor, Soy Moratorium, Green Grain Protocol and embargoes by federal and state bodies. We constantly monitor our suppliers and can confirm that the farm in question was compliant during the period in which Cargill did business with it. Through our grievance procedure, we investigate all allegations received, and if we find any violations of our policies and commitments, the producer is immediately blocked from our supply chain, as expressed in our Supplier Code of Conduct."*

*In accordance with our process, when the supplier was added to the Soy Moratorium list in May 2021, Cargill immediately blocked purchases from the farm in question. As reported in our Soy Report, once a farm is blocked, there is a robust process in place that must be followed for a farm to be unblocked. In this case, in the following year, the farmer proved compliance with the Soy Moratorium, which was validated by the governing organizations and NGOs. As a result, in June 2022, the farmer was removed from the Soy Moratorium embargo list and, therefore, unblocked in Cargill's system. The supplier remains compliant with the Soy Moratorium rules."*

*At Cargill, we have been deforestation-free in the Brazilian Amazon since the Amazon Soy Moratorium was established. At COP27, we also committed to being deforestation-free in the full Amazon, Cerrado and Chaco biomes by 2025. We are doing this through our strategy focused on protecting native vegetation, managing production in a sustainable way, and restoring altered land, as well as continued innovations through the Land Innovation Fund."*

## **From Farm to Tesco**

The UK imports 3 million metric tons of soy each year, 90 per cent of which is used for animal feed.<sup>61</sup> 70 per cent of the soy exported from Brazil to the UK was supplied by Cargill, and the company has held a dominant position in the UK for some time.<sup>62</sup> Previous investigations by Greenpeace UK and *The Guardian* have established<sup>63</sup> that Brazilian soy is rife within the supply chains of major supermarkets and fast-food outlets, including Tesco, ASDA, Lidl, Sainsbury's, Morrisons, McDonald's, KFC and Nando's. Tesco estimates that 99 per cent of its soy footprint is used to feed the livestock for its meat products.<sup>64</sup>

**"Tesco estimates that 99 per cent of its soy footprint is used to feed the livestock for its meat products."**

Cargill PLC is known to have supplied soy-based animal feed to farms supplying Avara Foods, the third-largest poultry producer in Britain,<sup>65</sup>

and a major supplier of chicken to UK supermarkets and other food companies and restaurant chains, as well as to independently owned animal feed manufacturers. Established in 2018 as a joint venture between Cargill and Faccenda Foods, by 2021 Avara claimed a 20 per cent share of the market, producing 4.5 million chickens a week.<sup>66</sup>

## "Cargill holds a 70 per cent share of soy exports from Brazil to the UK"

Other organisations' previous investigations into the company's practices have revealed severe overcrowding and alleged welfare abuses in chicken farms contracted to Avara.<sup>67</sup> These abuses have occurred against a backdrop of increasing numbers of US-style megafarms in the UK to meet rising demand for cheap chicken.<sup>68</sup>

Most recently, pollution from Avara's large poultry units in Herefordshire has been identified as a significant source of severe run-off from phosphorus rich poultry manure in the River Wye, which runs through the county. Herefordshire, where an estimated 20 million birds<sup>69</sup> are farmed in the river's catchment, is known as the chicken capital of the UK.

By 2019, Avara Foods became Tesco's largest supplier of fresh chicken<sup>70</sup> and, given the integrated supply chain, it is little surprise that, according to Tesco's 2021 disclosure of its soy footprint,<sup>71</sup> the largest single source of soy in its food supply links back to Cargill.

Our investigations in January and February 2023 established that the Avara Herefordshire animal feed mill supplies animal feed to poultry farms in the region. Following grain transports from Avara's Herefordshire feed mill to their final destination, we were able to confirm that the feed was delivered to several poultry farms including some very large intensive facilities housing between 250,000 and 550,000 birds.<sup>72</sup> These poultry farms, in turn, are known to have supplied live chickens to Avara/Cargill, who then process the chickens via local abattoirs and on to its direct customer, Tesco. Avara supplies Tesco directly; its fresh, frozen and pre-prepared chicken products include chicken nuggets and tenders.<sup>73</sup>

### Chicken breast sold on Tesco shelf, product codes 4104<sup>74</sup> (Avara) and 4667 (Faccenda) sources<sup>75</sup>



Source: Mighty Earth, taken March 2023, Lee Valley Tesco Extra store

To become a signatory to the UK Soy Manifesto, Avara developed the following policy: *“For the soy that we do use, we only buy certified zero-deforestation soy, traceable back to sub-regional level in Brazil and we’re on track to only use verified zero-deforestation soy by 2025”*.<sup>76</sup> But there is no evidence to indicate how ‘on track’ Avara really is against its verified DCF pledge; given that its parent company and feed supplier, Cargill, has prolonged its zero-deforestation target to 2030, there is room to question whether Avara can live up to its claim to be at the *“forefront of UK soy purchasers”*<sup>77</sup> aiming to be deforestation-free by 2025.

## A systemic problem

Chicken is not the only British agricultural sector linked to deforestation-contaminated soy, or to Cargill. Previous investigations by Unearthed<sup>78</sup> have highlighted how parts of the dairy industry—including companies that make some of the country’s most well-known cheese and confectionary brands, such as Cathedral City Cheddar, Anchor Butter and Cadbury chocolate—were purchasing Cargill soy for use as cattle feed.

Cargill’s dominant position in the UK soy import sector means that the contamination of its supply, discovered during this investigation, has far-reaching consequences for a range of suppliers and meat products found in UK supermarkets.

New evidence from our investigation uncovered how the British pork sector also has links, via feed suppliers, to Cargill and therefore to Amazon deforestation. Pictures obtained at the ForFarmers Burston feed mill in Norfolk show grain deliveries being made by Frontier Agriculture, a joint Cargill-Associated British Foods venture.<sup>79</sup> ForFarmers is one of the UK’s leading animal feed producers, with feed mills situated nationwide in strategic locations. The company has previously admitted<sup>80</sup> that approximately 14 per cent of its UK soy is sourced from Brazil. Our investigations have established that ForFarmers supplies some pig farms producing meat for pork firm BQP in East Anglia. BQP is a trading division of Pilgrim’s UK, and according to a recent Human Rights Assessment report prepared on behalf of the company, an estimated 65 per cent of Pilgrim’s UK pork was supplied by BQP.<sup>81</sup>

### Grain transfer between Cargill’s Frontier Agriculture business and ForFarmers animal feed company



Source: Ecostorm, taken December 2022



ForFarmers states that all of the soy it procures is benchmarked<sup>82</sup> under the auspices of the European Feed Manufacturers' Federation (FEFAC) tool,<sup>83</sup> which recognises six soy certification schemes, including Cargill's controversial "Triple S" scheme.<sup>84</sup> Triple S is a "mass balance" certification scheme, which means certified, sustainable products must be in the supply chain, but the supplier is permitted to mix these in with uncertified soy from deforested farms.<sup>85</sup>

Additionally, in its own annual report for 2022, ForFarmers admits that currently only 75% of its soy is "responsibly sourced", meaning a quarter of their total purchases are not.

But while Pilgrim's UK boasts<sup>86</sup> that it is a member of the UK Roundtable on Responsible Soy (RTRS) and a signatory to both the Cerrado Manifesto and the UK Soy Manifesto, in a previously unpublished submission to the UK Government consultation on deforestation and commodity products—obtained through a Freedom of Information request<sup>87</sup>—it admits that it does not have accurate data on the source of all of its soy, that it is common for pig producers in the UK not to know the origin of its soy and that, as an "industry leader", the firm is able only to trace soy to a UK feed mill level (and not back to specific growing farms). Pilgrim's UK also disclosed to the government that, as with ForFarmers, its mass balance soy is also benchmarked to the European Feed Manufacturers' Federation (FEFAC) guidelines,<sup>88</sup> which support continued deforestation by hiding it in a mix of soy from several farms and suppliers. It noted:

**"The use of Any Origin soya by pig producers in the UK and lack of transparent data makes it difficult for companies to develop systems to control, trace and verify whether forest and ecosystem risk commodities have been produced legally."**

In addition, although all signatories to the UK Soy Manifesto agreed to publicly disclose its progress annually, Pilgrim's 2021 Sustainability report fails to detail its commitment or its progress towards a deforestation and conversion-free soy supply chain.<sup>89</sup>

Neither Pilgrim's UK or ForFarmers denied that Cargill Brazilian soy could be in their respective supply chains when approached by Mighty Earth. Pilgrim's UK's admitted deforestation in Brazilian soy supply chains continues to be an issue. Both Avara and Pilgrim's UK default to its use of 'certified' soy, whilst admitting the challenges of non-certified soy contaminating supply. Full responses from Avara, Pilgrim's UK and ForFarmers can be found in Appendix 1-3 of this report.

Pilgrim's UK currently controls 25 per cent of the UK pork market, according to its website. Pilgrim's UK parent company Pilgrim's Pride is majority owned by the controversial Brazilian meat giant JBS,<sup>90</sup> whose beef operations in Brazil are allegedly responsible for even greater levels of deforestation than Cargill.<sup>91</sup>

Whilst Pilgrim's UK is not willing to publicly disclose its soy footprint and deforestation risk, given the high quantities of Cargill imports to the UK, and especially Pilgrim's UK support for Cargill's mass balance soy supply, it is highly likely that its supplier BQP's animal feed comes from, or is mixed with Cargill soy and linked to cases of deforestation in Brazil. Whilst the company said it did not procure soy directly from Cargill, it conceded that its suppliers may do so.

The lack of public transparency and the self-declared gaps in traceability in its soy supply chains are worrying. But this also begs the question: with so little evidence of action and just two years to go, how do these companies, and the retailers that they supply, intend to meet the 2025 zero-deforestation target?

## Tesco's murky supply chains

Tesco widely promoted its role as a founding member of the Consumer Goods Forum (CGF) and in 2010, vowed to eliminate deforestation from its supply chain by 2020<sup>92</sup>—a deadline that was missed and quietly readjusted to 2025, a target that, as this report highlights, will also likely be missed. Its 2019 announcement of £10 million for farmers in the Cerrado in Brazil<sup>93</sup> also failed to materialise.<sup>94</sup>

Tesco's website boasts active participation and leadership in forums including the Retail Soy Group (RSG), Soy Transparency Coalition, CGF's Forest Positive Coalition, and that it is a signatory to the Cerrado Manifesto and the UK Soy Manifesto. Tesco continues to claim that it is 100 per cent compliant with its own "UK Zero Deforestation Soy Transition Plan",<sup>95</sup> still referenced, but recently removed the plan from its website.

Despite its leading role in many of these forums, Tesco has failed to take any commercial action against suppliers proven to engage in deforestation.<sup>96</sup> Despite numerous alerts of contamination, and an array of evidence linking its suppliers to cases of deforestation, Tesco does not appear prepared to stop doing business with known forest destroyers, making it knowingly complicit in the razing of pristine rainforests. Tesco's rhetoric to "protect forests" is not matched with relevant action to deliver on its promises.

Tesco's link to Cargill is undeniable. Its own data shows that Cargill is its largest known soy supplier; at almost 100,000 tonnes, Cargill made up almost a quarter (22 per cent) of Tesco's 2021 soy footprint. However, the largest proportion of Tesco's footprint, some 262,602 tonnes (or 64 per cent) is "not yet attributable".<sup>97</sup> With so much doubt over the origin of its soy footprint, it appears impossible for Tesco to stand by its claim that it has "achieved 100% compliance with our UK Zero Deforestation Soy Transition Plan",<sup>98</sup> which confirms that Tesco expects to obtain 60 per cent of its soy from verified zero deforestation areas by 2023.<sup>99</sup>

Tesco uses its "less than 1% market share of global soy"<sup>100</sup> position to play down its ability to transform the global soy industry. But this figure is significant. In assessing the financial risks associated with Cargill's deforestation risk, Chain Reaction Research<sup>101</sup> estimate that "every one per cent loss in its revenues or every one per cent extra operational cost would lead to USD 64 million less EBITDA"—that is, Earnings Before Interest, Taxes, Depreciation, and Amortization, a metric used to evaluate a company's operating performance. Tesco's ability to transform the UK soy sector and meet its public promises would be accelerated if it used its leverage as a major buyer of Cargill's soy to demand verified DCF, or to move elsewhere.

## "Failure to act"? in context

Tesco's failure to act where a known problem exists, can be seen in the context of other failures of its supply chain due diligence. The retail giant has been involved in a range of scandals regarding its ethical, environmental sustainability and human rights credentials,<sup>102</sup> evidence of alleged modern-day slavery from Thai clothing suppliers,<sup>103</sup> greenwashing in advertising for its plant-based food products<sup>104</sup> and, most recently, significant criticism regarding its links to deforestation in the Amazon.<sup>105</sup>

"Tesco has failed to take any commercial action against suppliers proven to engage in deforestation."

## "Tesco's link to Cargill is undeniable."

Tesco's commitment to increase meat alternatives in its product range by 300 per cent by 2025<sup>106</sup> (albeit from an undisclosed baseline figure in 2018) is positive. Tesco's support for the UK Soy Manifesto's joint commitment to eliminate soy from deforested or degraded land from its animal feed and product supply chains by 2025 is important. But despite its appealing, headline engagements, the UK Soy Manifesto is a flawed voluntary commitment that relies on self-policing and self-reporting from the same agribusiness traders who are driving the destruction of forests in the first place. It also gives retailers years to implement changes, when in fact these could and should be enacted immediately.

Indeed, exercising group-level responsibility to ban or remove from its supply chains the suppliers and agribusiness traders, such as Cargill, who are known to trade in deforested soy, would be a significant signal that Tesco's public promise to source only from verified deforestation-free suppliers is acted upon.

Tesco responded to the findings of our report:

*"We are committed to eliminating deforestation and conversion in our supply chains. As a founding member of the UK Soy Manifesto, we continue to work hard to tackle the issue. We have made significant progress through this initiative and others to drive greater transparency, accountability and action across industry. This includes our active participation in industry groups such as the Responsible Commodities Facility, the Consumer Goods Forum Forest Positive Coalition, the Soy Transparency Coalition, the Roundtable on Responsible Soy (RTRS) and the Retail Soy Group (RSG).*

*Our work in these forums forms an important part of delivering our commitment to ensure all soy sourced in our UK supply chains is from whole regions that are verified as deforestation and conversion-free by 2025. Critical to achieving this commitment is our continued, direct engagement with all our suppliers who use soy. Our work is intended to demonstrate that verified deforestation and conversion free soy will be a minimum market entry requirement.*

*Upon receiving your letter, we immediately raised the issues you've outlined with Cargill, and have asked that they urgently investigate. We have also contacted all relevant suppliers to notify them of the allegations and seek their engagement and follow-up as a matter of priority.*

*We require any supplier to Tesco to thoroughly investigate allegations of this nature and will take appropriate action including calling for the immediate suspension of supply from Fazenda Santa Ana farm complex if these allegations are found to be true.*

*We're also working with industry colleagues and partners across the UK food industry to implement the UK Soy Manifesto to align UK sustainable soy demand, integrate our commitments within our supply chains and create the leverage which will ensure all soy coming into the UK is verified deforestation and conversion free by 2025.*

*I trust this letter has given you the information you need and highlights the importance and urgency we place on this issue."*

## UK legislation

Tropical deforestation is a critical environmental issue. Left largely unchecked, as it has been for so many decades, it has become one of the largest sources of anthropogenic greenhouse gas emissions<sup>107</sup> and a major driver of biodiversity loss, threatening the survival of many species of plants and animals.<sup>108</sup> The destruction of habitats and ecosystems has direct consequences for Indigenous Peoples' rights and livelihoods.

The UK Government's proposal to introduce supply chain due diligence requirements in the Environment Act 2021 for commodities such as soy<sup>109</sup> acknowledges the significant role the UK has in the global deforestation problem and is intended to help improve the sustainability of forest risk commodities. However, the Department for Environment, Food & Rural Affairs' 2020 consultation<sup>110</sup> on the introduction of due diligence legislation lacked detail, and concrete proposals have been slow to emerge. UK legislation, unlike the EU's new, ground-breaking Deforestation Regulation (EUDR), fails to encompass legal deforestation. Incoming Brazilian laws, engineered under the Bolsonaro regime and currently being debated, weaken Indigenous land rights, dilute definitions of land grabbing, and ease approval of environmental assessments. ClientEarth estimated that, should the full suite of laws pass, *"an additional 178 million hectares of 'legal' deforestation on private land and up to 115 million hectares of 'legal' deforestation in currently protected Indigenous territories—a total area more than 12 times the size of the United Kingdom"* could be permitted.<sup>111</sup> Under the UK's Environment Act 2021, this newly defined 'legal' Brazilian deforestation would not be covered by UK due diligence requirements.

Despite UK Government rhetoric describing the legislation as "world-leading",<sup>112</sup> its failure to encompass cases of so-called 'legal deforestation' in the country of origin—including examples that violate voluntary pacts, such as the Amazon Soy Moratorium and the Cerrado Manifesto, but without breaking any local laws—means that such cases could not be prosecuted under this UK legislation.

**"UK legislation ... fails to encompass legal deforestation."**

In addition, omitting legal deforestation puts UK law out of step with the new European Deforestation Regulation (EUDR), which bans legal and illegal deforestation. This raises the risk of the UK becoming a leakage market; soy that does not meet EU standards could be exported to the UK because these lax laws still allow legal deforestation. This, in turn, raises the 'demand' for soy from deforested areas.

Cases of Brazilian deforestation detailed in our investigation may not be covered by upcoming UK law and could be qualified as 'legal deforestation'—as landowners wheel and deal around the paperwork via family members and continue to deforest at an alarming rate.

Similarly, both the UK and EU's ability to monitor cases of deforestation will rely on data from soy traders, such as Cargill's SoyWise™ system, to assess risks of deforestation. Cargill claims 96 per cent of directly sourced Brazilian soy is estimated to be deforestation and conversion-free, and 100 per cent of its direct soy supply is polygon mapped. However, no data are available on DCF estimates for the 6,216 indirect suppliers, representing 42 per cent of its total soy supply from Brazil and more than 57 million tonnes in 2022.<sup>113</sup>

Furthermore, Cargill's laggard 2030 zero deforestation target, which caused notable disruption to the eagerly anticipated Agricultural Trader Roadmap at COP27 last year,<sup>114</sup> further emphasised its out-of-touch ambition with its customers, suppliers and signatories of the Forests, Agriculture and Commodity Trade (FACT) dialogue.<sup>115</sup> The UK and US governments responded with disappointment to the Roadmap's clear lack of ambition, and stressed:

**“But this is an urgent agenda. Forests and other ecosystems continue to be destroyed and degraded by agricultural expansion, and the Amazon is being pushed closer to critical tipping points, putting our collective climate goals at risk .... Therefore, greater ambition and accelerated action is needed.”<sup>116</sup>**

In an open letter to the five biggest soy trader CEOs,<sup>117</sup> the Retail Soy Group (RSG) went further to highlight the Roadmap as “inadequate, inconsistent and insufficient”, emphasising Cargill’s 2030 zero deforestation date and the failure to include legal deforestation in its global policy, and further singling out Cargill’s unambitious position as untenable:

**“However, an additional critical step is to ensure this does not occur regardless of legality towards 100% verified deforestation-and conversion-free soy by 2025 at the latest. Whilst some of you have already adopted commitments that are aligned with this scope, we would like to see the whole sector move immediately to this point.”**

Whilst good legislation can provide encouragement for importers to reduce the risk of deforestation from their supply chains, the current proposals are not sufficiently robust to support industry’s stated ambition to eradicate deforestation by 2025. As secondary legislation detailing the practical application and enforcement is still being developed, and an implementation period of up to 24 months is foreseen, retailers relying on legislation to be the silver bullet that will help them meet their 2025 goals are sleepwalking into yet another missed deadline for ending deforestation. For retailers to meet their goals, Cargill must first bring its target date forward to 2025, and make the necessary improvements in traceability, transparency and enforcement to ensure that it meets that target.

## **What's Next for Tesco?**

When it comes to tropical deforestation and the UK soy supply chain, the ongoing relationship between Cargill and Tesco represents a highly destructive alliance. The only way to break the chain of deforestation is to end that relationship—and the onus falls on Tesco to make the first move.

**“Retailers are sleepwalking into yet another missed deadline for ending deforestation.”**

Tesco is a business with enormous resources and power to effect change within the supply chain. It is the ninth-biggest supermarket in the world by revenue,<sup>118</sup> and holds the largest share—some 27 per cent—of the UK retail market.<sup>119</sup> If Tesco aspires to be a leader in ending tropical deforestation, crowd-pleasing but ultimately meaningless pledges will not cut it. Tesco must take action now on several different fronts:

## Deforestation

To meet its deforestation target, Tesco must:

- Enforce its commitment to a 2020 cut-off target by publicly announcing immediate suspension, at a group level, against specific suppliers, such as Cargill, found to be complicit in deforestation.
- Suspended parties must meet the strict criterion set by the Accountability Framework initiative (AFi)<sup>120</sup> before supply is resumed.

## Transparency

Increased transparency and accountability is needed to ensure targets can be met and verified, these include:

- Full disclosure of Tesco's soy footprint—there should be 100% monitoring and traceability by August 2023, including indirect suppliers.
- Annual reporting against progress made according to the 'Tesco UK Zero Deforestation Soy Transition Plan' ambition showing progress to date.
- Disclose Tesco's plant-based sales annually from 2018 and progress against the 300% from 2018 target.

## Net Zero

Tesco's plans to reach its 2040 net zero ambition cannot be met without significant reductions in its Scope 3 and methane emissions. This requires the group to:

- Publicly disclose the approved Net Zero Plan.
- Commit to a methane reduction target of at least 30% by 2030.

## Plant-based transition

Alongside disclosure of its plant-based sales, Tesco needs to outline the steps to deliver:

- A 50% reduction of meat and dairy own-brand sales by 2030, as recommended by the Government GRI Health Strategy<sup>121</sup>
- Replicate Co-op's price-match plant-based against meat equivalent to better encourage shoppers to replace meat with planet-based alternatives and help reduce Tesco's Scope 3 emissions at the source.

## Regenerative Agriculture

Retailers have a key role to play in the transition to a system of agroecology and regenerative agriculture that works with nature. Tesco must:

- Set public targets for the use of alternatives in animal feed in Tesco meat.
- Adopt a restoration commitment and plan which compensate for past direct and indirect deforestation related to Tesco.

## Conclusion

The rate of global commodity-driven deforestation has shown little sign of decline since 2001.<sup>122</sup> Soy ranks as one of the UK's top imported agricultural commodities with the highest deforestation risk.<sup>123</sup> An estimated 77 per cent of soy imported into the UK comes from locations with high deforestation risk, comprising vulnerable ecosystems in South America, including the Amazon and Cerrado.<sup>124</sup>

Far too much of today's damaging economic activity is shrouded in appealing but largely empty promises to 'fix' the problem of deforestation while looking the other way as deforestation rates increase. Left largely unchecked, as it has been for so many decades, tropical deforestation has become one of the largest

sources of anthropogenic greenhouse gas emissions and a major driver of biodiversity loss, threatening the survival of many species of plants and animals.<sup>125</sup> Between 2002 and 2020, more than 68 million hectares of primary tropical forest are estimated to have been lost.<sup>126</sup> Inaction on the issue of deforestation and the shocking emissions from the meat industry threaten to derail Net Zero plans and undermine any remaining hope of restricting global temperature rise to 1.5°C, as agreed in the Paris accord.

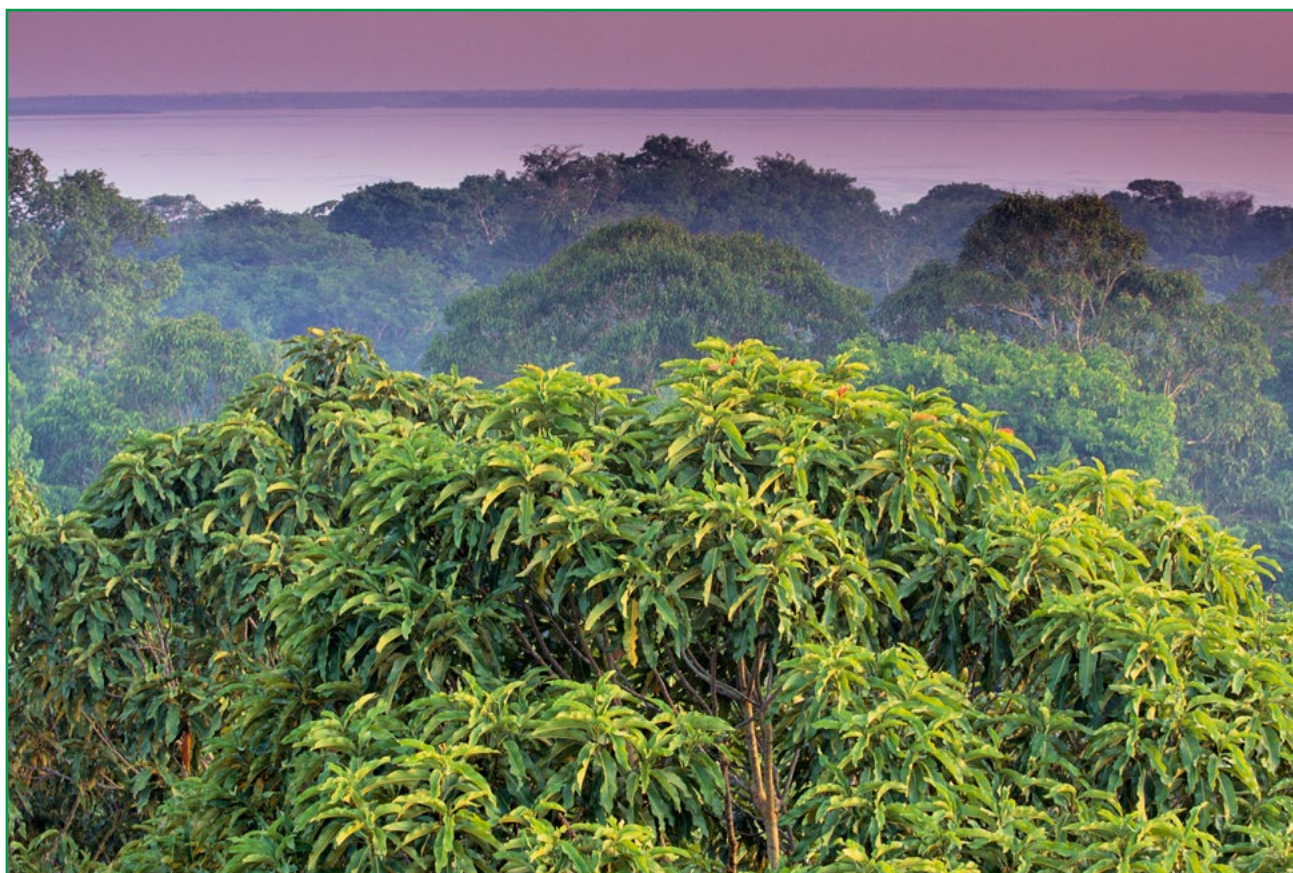
## We have the solutions to fix the problem

According to the World Resources Institute, in Latin America alone there are 1.6 billion acres<sup>127</sup> of degraded land where agriculture could be developed without threatening natural ecosystems—more than enough to meet any conceivable demand for agriculture.

Through increased monitoring and traceability technology, combined with a stronger corporate lobby for better government policies on monitoring trade and farming activities, companies such as Cargill could adequately track its soy supply and provide accurate data to suppliers, and stamp out the deforestation in its supply chains. By enacting more robust enforcement mechanisms, Cargill would send a strong signal to the suppliers: deforestation will not be tolerated.

Tesco, the UK's biggest supermarket, could better use its significant leverage to demand verified DCF from its supplier or begin to move its business elsewhere. Our 2021 YouGov poll showed that 88 per cent of Tesco customers believe supermarkets should not do business with deforesters.<sup>128</sup> The retail giant's admirable rhetoric has failed to produce any meaningful progress, and talking shops such as the UK Soy Manifesto are close to becoming another greenwash badge to convince consumers that Tesco is doing all it can to eliminate deforestation, when the reality is that it could, and should, do so much more.

### Amazon rainforest treetops



Source: Getty Images

## Appendix 1 - Avara's Response to Mighty Earth's report findings

"Thank you for providing us with opportunity to comment, however we do not disclose our customer relationships or any information that we consider to be commercially sensitive, which would include soya tonnages and suppliers. Further, it would be inappropriate for us to comment on the specific farm complex to which you refer, as we have no knowledge of the farm or its practices.



We have purchased only soya that is certified as deforestation- and conversion-free since 2019 and this is currently certified, under a mass balance system, to sub-national level. Clearly, the challenge is that there are still non-certified farms growing soya in high risk areas and a demand for their produce. Given the UK comprises less than 1.5% of annual Brazilian soya exports, it highlights the importance of global action to eliminate demand for soya that has been grown on deforested land.

As members of the UK Soy Manifesto group, we have set ourselves the target of using only verified deforestation and conversion free soya by 2025. The manifesto group is working with traders to better understand the origins and risks of the soya we use, and to identify practicable ways of improving the traceability and sustainability through the supply chain. Alongside this work, we have trialled and implemented different diet formulations to reduce the amount of soya in our poultry feed. At present, soya accounts for less than 25% of our birds' diets.

We accept that, for all our progress, there is still work to do if we are to achieve our 2025 goal. We will play our part, working collaboratively with others in the sector and beyond, but we also know that this will not be enough, if others do not also make similar commitments."

## Appendix 2 - Pilgrim's UK Response to Mighty Earth's report findings

"I am writing in response to your recent letter to Pilgrim's UK President Ivan Siqueira in relation to your research into the Brazilian-UK soy supply chain.

Pilgrim's UK is Britain's leading higher welfare pig producer and pork processor and is proud of its history of leading the industry in the area of sustainability. Indeed, we are committed to driving our sustainability agenda deeper and quicker than many in our sector, as indicated by our best-in-class record in soy usage and our pledge to be net zero by 2030 - ten years ahead of the industry-wide target set by the NFU.



As a fully integrated farm-to-fork food company, Pilgrim's UK has direct control over soya sourcing decisions for its own higher welfare agricultural operations, BQP. We have significantly lower levels of soya in our pig feed than the European average and our R&D teams are continually testing a range of alternative proteins to help reduce this even further.

We've pledged to use only verified deforestation and conversion-free sustainable soy to feed our pigs by 2025 and we are founding signatories to the UK Soy Manifesto. Since 2017, 100% of our soya has been covered by RTRS credits - and for a number of years we accounted for 99% of all the responsibly sourced soya in the pork sector in Europe. As of January 2023, 100% of the soya procured by Pilgrim's UK is certified as mass balance, which means there is a physical link with certified soya entering our supply chains (albeit co-mingled with non-certified soya) whereas book and claim credits offer no physical connection.

Standardly, pig producers use origin soya from Argentina, USA and Canada because of its nutritional properties. There may be exceptional times when Brazilian soya may enter the pig supply chain in the event of shortage of supply elsewhere in the market.



We do not purchase directly from Cargill but recognise that our suppliers may source from Cargill at some times. In addition, the fact that Brazilian soya is only used for pigs in exceptional circumstances, our risk of exposure to deforestation-linked soy is extremely low. Nevertheless, we remain committed to working with others to drive greater levels of traceability across the entire supply chain.

I hope this provides some clarity in respect of our operations and I wish you every success in your on-going research."

### **Appendix 3 - ForFarmers Response to Mighty Earth's report findings**

I confirm that we have received your mail of yesterday.

Based on the information in your mail we will look into what you claim. We will do this carefully and thoroughly, and hence do not want to do this under the time pressure you have laid down. You can read in our annual report 2022 that our strategy focuses, amongst other things, on providing sustainable solutions, such as solutions with alternative proteins in order to combat deforestation. In addition, you can read up on our sustainability strategy on pages 37 – 55 in our annual report (see [230223\\_Annual\\_Report\\_ForFarmers\\_2022.pdf](#) ([forfarmersgroup.eu](http://forfarmersgroup.eu))).



## Endnotes

1. Boulton CA et al. (2022) *Pronounced Loss of Amazon Rainforest Resilience Since the Early 2000s*, Nature Climate Change, 12: 271-78. Also Smith C, Baker JCA, Spracklen DV (2023) *Tropical deforestation causes large reductions in observed precipitation*, Nature 615(7951): 270-275; <https://pubmed.ncbi.nlm.nih.gov/36859548/>
2. Gatti LV et al. (2021) *Amazonia as a Carbon Source Linked to Deforestation and Climate Change*, Nature, 595: 388-93
3. The UK Soy Manifesto; <https://www.uksoymanifesto.uk>
4. Lomeli LG and Anderson J (2016) *Restoring Degraded Land in Latin America Can Bring Billions in Economic Benefits*, World Resources Institute
5. IPCC Sixth Assessment Synthesis Report (2023); <https://www.ipcc.ch/assessment-report/ar6/>
6. Junk WJ et al. (2006) *Biodiversity and its Conservation in the Pantanal of Mato Grosso*, Brazil, Aquatic Sciences, 68: 278-309
7. Greenpeace Map, *Location of Mato Grosso in the Amazon Region*; <https://www.greenpeace.org/usa/wp-content/uploads/legacy/Global/usa/planet3/PDFs/location-of-mato-grosso-in-the.pdf>
8. The Santa Ana farm complex, owned by the Lucion family, consists of seven farms: Santa Ana I, Santa Ana II, Santa Ana V, Agropecuária Viva I, Agropecuária Viva II, Agropecuária Viva III and Barra Mansa.
9. Data from SojaMaps, which combined cloud computing and Google Earth Engine to map areas of Soybeans in Mato Grosso Brazil using satellite imagery; <https://pesquisa.unemat.br/gaaf/plataformas>
10. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil; <https://reporterbrasil.org.br/2023/04/cargill-amaggi-e-cofco-compram-soja-de-familia-com-area-embargada-e-incendiada-no-mato-grosso/>
11. Prohibitions on commercial farming are regulated by Presidential Decree 6514/2008, Art.3 VII; [https://www.planalto.gov.br/ccivil\\_03/\\_ato2007-2010/2008/decreto/d6514.htm](https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2008/decreto/d6514.htm)
12. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
13. Spring J (2018) *Brazil Fines Five Grain Trading Firms, Farmers Connected to Deforestation*, Reuters
14. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
15. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
16. Ibid.
17. Spring J and Brito R (2021) *Brazil Bans Fires, Redeploys Military to Protect Amazon Rainforest*, Reuters
18. Infoamazonia (2021) *COP26: Nearly 500 million trees cut down in the Brazilian Amazon in 2021*
19. World Wide Fund for Nature, Forests and Trees: The Giant Kapok Tree, the Creeping Aroids, and Other Resident Architects of the Amazon Rainforest; [https://wwf.panda.org/discover/knowledge\\_hub/where\\_we\\_work/amazon/about\\_the\\_amazon/wildlife\\_amazon/plants/](https://wwf.panda.org/discover/knowledge_hub/where_we_work/amazon/about_the_amazon/wildlife_amazon/plants/).
20. Hofmeister N and Campos A (2022) *JBS Compra Gado de Fazenda com Desmatamento que Depois Foi Alvo de Incêndio*, Repórter Brasil, 11 November 2022 (in Portuguese)
21. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
22. Signatories to the Soy Manifesto: <https://anec.com.br/uploads/cl0igbvus005wbjtxf4u72tkl.pdf>
23. The Soy Moratorium was introduced in 2006; the cut-off date was changed to 2008 in 2013 to align with the Forest Code. Abiove statement: <https://abiove.org.br/en/sustentabilidade>. Historical notes on the ASM: [https://web.archive.org/web/20100314051542/http://www.abiove.com.br/ss\\_moratoria\\_br.html](https://web.archive.org/web/20100314051542/http://www.abiove.com.br/ss_moratoria_br.html)
24. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
25. Ibid.
26. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
27. Ibid.
28. Cargill (2022) ESG Report 2022, USA: Minneapolis, MN
29. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
30. Valdiones AP et al. (2022) *Soja E Desmatamento Ilegal: Estado da Arte a Diretrizes Para Um Protocolo Ampliado de Grãos em Mato Grosso*, Instituto Centro de Vida (ICV), p.7 (In Portuguese)
31. Instituto Centro de Vida (ICV) (2022) *Soja e Desmatamento Ilegal: Estado da Arte e Diretrizes Para um Protocolo Ampliado de Grãos em Mato Grosso*, Instituto Centro de Vida, p.7 (In Portuguese)
32. Instituto Centro de Vida (ICV) (2019) *Impunidade Impulsiona Desmatamento Ilegal em MT*, (in Portuguese). See also Vasconcelos A et al. (2020) *Illegal Deforestation And Brazilian Soy Exports: The Case of Mato Grosso*, Trase, Imaflora and Instituto Centro de Vida
33. Cargill (2021) *South American Soy Sustainability Report 2021 Mid-year Update*
34. Vasconcelos A et al. (2020) *Illegal Deforestation And Brazilian Soy Exports: The Case of Mato Grosso*, Trase, Imaflora and Instituto Centro de Vida
35. MapBiomas (2022) *Deforestation in 2021 Increased by 20%, With Growth in All Biomes*,
36. Hofmeister N and Campos A (2023) *Cargill, Amaggi e Cofco compram soja de família com área embargada e incendiada no Mato Grosso*, Repórter Brasil
37. Chain Reaction (2019) *Cargill's New Policies Insufficient to Fully Mitigate Deforestation Risks in Brazil*
38. Data gathered by FIND from Companhia Docas do Pará 2021 annual report (Relatório da Administração 2021, in Portuguese)
39. Data compiled and analysed by FIND from 'Contrato de arrendamento CDP No. 25/1999', accessible on the CDP's website.
40. Mighty Earth (2020) *UK Market exposure to deforestation in Brazil*; <https://www.mightyearth.org/wp-content/uploads/UK-English-Data-sheets.pdf>.
- Information provided by Cargill to the Competition and Markets Authority in 2018; <https://assets.publishing.service.gov.uk/media/5a4f4f38ed915d59547337c9/cargill-faccenda-2018.pdf>
41. Data compiled and analysed by FIND from Panjiva. Panjiva provides samples of export data and cannot be considered exhaustive.
42. Data compiled and analysed by FIND from H M Land Registry and Cargill. List of locations: <https://www.cargill.co.uk/en/locations>
43. Plume K (2022) *Cargill fiscal 2022 revenue jumps 23% to record \$165 billion*
44. Cargill Agrícola (2020) *Annual Report 2018-2019*, São Paulo: Brazil
45. Consumer Goods Forum (2010) *Consumer Good Industry Announces Initiatives on Climate Protection*
46. Mighty Earth (2121) *Mighty Earth's New Monitoring Data Reveals Deforestation Connected to Soy Trader and Meatpackers in Brazil More Than Doubled Over Two-Year Period*, Press Release
47. Meyer G and Schipani A (2019) *Cargill Warns Goal of Halting Deforestation Will be Missed*, Financial Times

48. Cosgrove E (2019) *Cargill CEO Says Industry Will 'Fall Short' of 2020 Goals to End Deforestation*, Supply Chain Dive
49. Jordan L et al. (2020) *Cargill: The Company Feeding the World by Helping Destroy the Planet*, Unearthed
50. Mighty Earth (2017) *The Ultimate Mystery Meat*
51. Mighty Earth (2019) *Cargill: The Worst Company In the World*
52. Mighty Earth (2019) *Rapid Response Soy and Cattle Report 4*; [https://www.mightyearth.org/wp-content/uploads/Rapid-Response\\_Soy-and-Cattle\\_Report-4-1.pdf](https://www.mightyearth.org/wp-content/uploads/Rapid-Response_Soy-and-Cattle_Report-4-1.pdf)
53. Mighty Earth (2019) *Rapid Response Soy and Cattle Report 6*; [https://www.mightyearth.org/wp-content/uploads/Rapid-Response\\_Soy-and-Cattle\\_Report-6.pdf](https://www.mightyearth.org/wp-content/uploads/Rapid-Response_Soy-and-Cattle_Report-6.pdf)
54. Mighty Earth (2020) *Rapid Response Soy and Cattle Report 18, 2020 Fires in Brazil*; <https://www.mightyearth.org/wp-content/uploads/RR-Special-Fires-Brazil-part-22.pdf>
55. Mighty Earth (2020) *Rapid Response Soy and Cattle Report 14*; [https://www.mightyearth.org/wp-content/uploads/RR\\_Report\\_June\\_2020.pdf](https://www.mightyearth.org/wp-content/uploads/RR_Report_June_2020.pdf)
56. Mighty Earth (2020) *Rapid Response Soy and Cattle Report 18, 2020 Fires in Brazil*; <https://www.mightyearth.org/wp-content/uploads/RR-Special-Fires-Brazil-part-22.pdf>
57. Heal H et al. (2020) *Soya Linked to Fires and Deforestation in Brazil Feeds Chicken Sold on the British High Street*, Unearthed
58. Jordan L et al. (2022) *Agribusiness Giant Again Linked to Amazon Deforestation*, Unearthed
59. Statista (2023) *Net revenue of Cargill Agricola S.A. in Brazil from 2012 to 2021*; <https://www.statista.com/statistics/807565/revenue-cargill-brazil/>
60. Cargill (2019) *Cargill South American Soy Action Plan - June 2019*, USA: Minneapolis, MN
61. West C (2022) *Resilience of the UK Food System Regarding Demand for Soy- Policy Brief*, Stockholm Environment Institute (SEI)
62. Mighty Earth, *Soy and Cattle Deforestation Tracker*; <https://www.mightyearth.org/wp-content/uploads/Mighty-Earth-Brief-V5.pdf>
63. Watts J et al. (2020) *Revealed: UK Supermarket and Fast-Food Chicken Linked to Deforestation in Brazil*, *The Guardian*; also Greenpeace (2020) *Winging It: How the UK's Chicken Habit is Fuelling the Climate and Nature Emergency*, London
64. Tesco (2022) *Sourcing Soy Responsibly*, Online Factsheet
65. Information provided by Cargill to the Competition and Markets Authority in 2018, accessed at: [assets.publishing.service.gov.uk/media/5a4f4f38ed915d59547337c9/cargill-faccenda-2018.pdf](https://assets.publishing.service.gov.uk/media/5a4f4f38ed915d59547337c9/cargill-faccenda-2018.pdf)
66. Davies J (2022) *Avara Foods' Results Outline Investment in People and Technology*, Poultry Network
67. Lubin R (2019) *Chickens 'Kicked and Abused on Farms Supplying Likes of Nando's, Lidl and Asda'*, *The Mirror*; also Dalton J (2021) *Chickens Died of Thirst and Dead Birds Left to Rot at Suppliers to Tesco, Sainsbury, Lidl and KFC*, *The Independent*
68. Davies M and Wasley A (2017) *Intensive Farming in the UK, by Numbers*, The Bureau of Investigative Journalism
69. UK Environment Audit Committee (2022) *Water Quality in Rivers - Fourth Report of Session 2021-22*, House of Commons
70. Ryan C (2019) *Avara Takes Over from 2 Sisters as Tesco's Biggest Chicken Supplier*, Poultry News
71. Tesco (2021) *Tesco Forest Risk Commodities Mapping (Palm and Soy)*
72. Wasley A and Davies M (2017) *The Rise of the "Megafarm": How British Meat is Made*, The Bureau of Investigative Journalism
73. Tesco Stores UK, Supplier list: [https://www.tescopl.com/media/758347/primary-supplier-list\\_jan-2022.pdf](https://www.tescopl.com/media/758347/primary-supplier-list_jan-2022.pdf); Avara Foods, *What We Make*: <https://www.avarafoods.co.uk/What-we-make/Chicken>; e.g., Tesco Simply Chicken Nuggets: <https://www.tesco.com/groceries/en-GB/products/308105895> or Tesco Simply Chicken Tendlers: <https://www.tesco.com/groceries/en-GB/products/312835819>, accessed 16 March 2023
74. Greenpeace media; <https://media.greenpeace.org/archive/Tesco-Meat-Products--with-UK-4014-EC-code-27MDHUSBAG.html>
75. Open Food Facts; <https://world.openfoodfacts.org/packager-code/uk-4667-ec>
76. Avara Foods (2021) *Our further commitment to Sustainable Soy*, News Release
77. Avara Foods (2020) *Statement Regarding Avara's Soy Supply Chain*; <https://www.avarafoods.co.uk/News/November-2020/Statement-regarding-Avara%E2%80%99s-soy-supply-chain>
78. Boren Z et al. (2021) *British supermarket Cheese Linked to Catastrophic Deforestation in Brazil*, Unearthed
79. Frontier, *About Frontier*; <https://www.frontierag.co.uk/about>
80. Wasley W et al. (2021) *British Supermarket Cheese Linked to Catastrophic Deforestation in Brazil*, The Bureau of Investigative Journalism
81. Sausages sold by Tesco: <https://www.tesco.com/groceries/en-GB/shop/fresh-food/fresh-meat-and-poultry/sausages?page=1>
82. ForFarmers, *Responsible Sourcing*: <https://www.forfarmersgroup.eu/en/sustainability/our-going-circular-strategy/feed-resources/responsible-sourcing.aspx>
83. European Feed Manufacturers' Federation (FEFAC) (2021) *Launch Of Soy Benchmarking Tool For FEFAC Soy Sourcing Guidelines 2021*, FEFAC
84. Wasley W et al. (2021) *British Supermarket Cheese Linked to Catastrophic Deforestation in Brazil*, The Bureau of Investigative Journalism
85. EFECA *Soya Certification Options*; <https://www.efeca.com/wp-content/uploads/2020/04/Soya-Certification-Options-Briefing-2020.pdf>
86. Pilgrim's UK (2022) *Pilgrim's UK Deforestation Policy*
87. Department for Environment, Food & Rural Affairs and The Rt Hon Lord Goldsmith (2022) *Forest Risk Commodities EIR2021/28736*, Freedom of Information Release, 7 July 2022; <https://www.gov.uk/government/publications/forest-risk-commodities-eir202128736>
88. FEFAC (2021) *Soy Sourcing Guidelines*
89. Pilgrim's (2022) *An Appetite for Good: 2021 Pilgrim's Sustainability Report Summary*
90. JBS, *Our Locations: United Kingdom*; <https://jbsfoodsgroup.com/locations/united-kingdom>. Also Levitt T et al. (2022) *Revealed: World's Biggest Meat Firm Appears to Have Avoided Millions in UK Tax*, *The Guardian*
91. Chain Reaction (2020) *JBS: Outsized Deforestation in Supply Chain, COVID-19 Pose Fundamental Business Risks*
92. The Consumer Goods Forum (2010) *Consumer Goods Industry Announces Initiatives on Climate Protection*
93. Tesco (2019) *Our Contribution to Funding For Soy Farmers in the Cerrado*; <https://www.tescopl.com/blog/funding-for-soy-farmers-in-the-cerrado>
94. Confirmed by personal communication from Tesco to Mighty Earth
95. Tesco (2018) *UK Zero Deforestation Soy Transition Plan*; [http://web.archive.org/web/20220205170427/https://www.tescopl.com/media/755387/tesco-zero-deforestation-soymeal-transition-plan\\_dec-2019.pdf](http://web.archive.org/web/20220205170427/https://www.tescopl.com/media/755387/tesco-zero-deforestation-soymeal-transition-plan_dec-2019.pdf)
96. Numerous examples spanning years, including the original 2017 Mighty/Ecostorm Burger King investigation, the 2020 TBIJ/Guardian chicken chain investigation, two 2021 TBIJ/Guardian pieces, here and here.
97. Tesco (2021) *Tesco Forest Risk Commodities Mapping (Palm and Soy)*
98. Tesco (2022) *Sourcing Soy Responsibly*, Online information, accessed 19 August 2022
99. Tesco (2018) *UK Zero Deforestation Soy Transition Plan*; [http://web.archive.org/web/20220205170427/https://www.tescopl.com/media/755387/tesco-zero-deforestation-soymeal-transition-plan\\_dec-2019.pdf](http://web.archive.org/web/20220205170427/https://www.tescopl.com/media/755387/tesco-zero-deforestation-soymeal-transition-plan_dec-2019.pdf)

100. Tesco (2022) *Sourcing Soy Responsibly*, Online information
101. Chain Reaction (2019) *Cargill's New Policies Insufficient to Fully Mitigate Deforestation Risks in Brazil*
102. Johnson S (2021) *Tesco and Next Among Brands Linked to Labour Abuses in India Spinning Mills*, *The Guardian*
103. Nazir A (2020) *Tesco Addresses Migrant Worker Abuse at Thai and Malaysian Stores*, *Retail Gazette*
104. Advertising Standards Authority (2022) *ASA Ruling on Tesco Stores Ltd t/a Tesco, ASA*
105. Greenpeace (2021) *Tesco's Burning Secret*, Press Release
106. Tesco (2020), *Tesco Commits to 300% Sales Increase in Meat Alternatives*, Press Release
107. Pendrill F et al. (2019) *Agricultural and Forestry Trade Drives Large Share of Tropical Deforestation Emissions*, *Global Environmental Change*, 56: 1-10
108. Benton TG et al. (2021) *Food System Impact on Biodiversity Loss*, Chatham House
109. Department for Environment, Food and Rural Affairs (Defra) (2020) *Government Sets Out World-leading New Measures to Protect Rainforests*, Press Release
110. Department for Environment, Food and Rural Affairs (Defra) (2020) *Due Diligence on Forest Risk Commodities: Consultation Document*
111. ClientEarth Policy Briefing (2021) *Brazilian legal reforms and implications for the UK's proposed law on forest risk commodities*: <https://www.clientearth.org/latest/documents/policy-briefing-brazilian-legal-reforms-and-implications-for-the-uk-s-proposed-law-on-forest-risk-commodities/>
112. Department for Environment, Food & Rural Affairs, Forestry Commission, Environment Agency, Natural England, and The Rt Hon George Eustice MP (2021), *World-leading Environment Act Becomes Law*, Press Release
113. Cargill (2022) *ESG Report 2022*, USA: Minneapolis, MN
114. Tropical Forest Alliance (2021) *Agriculture Sector Roadmap To 1.5°C*
115. UN Climate Change Conference (2021) *Forests, Agriculture and Commodity Trade: A Roadmap for Action*
116. Department for Business, Energy & Industrial Strategy (2022) *Message to Agricultural Commodity Traders at COP27*
117. Retail Soy Group (2022), *Eliminating Deforestation and Conversion from Soy Production*
118. World Economic Forum, Tesco: <https://www.weforum.org/organizations/tesco>
119. Bedford E (2023) *Market Share of Grocery Stores in Great Britain from January 2017 to December 2022*, Statista
120. Accountability Framework (2019) *Operational Guidance on Supply Chain Management*
121. Global Resource Initiative (2020) *Final Recommendations Report - Executive Summary*
122. Curtis PG et al., *Classifying Drivers of Global Forest Loss*, *Science*. 2018; 361(6407): 1108-1111.
123. Pendrill F et al. (2022), *Deforestation Risk Embodied in Production and Consumption of Agricultural and Forestry Commodities 2005-2017 (1.0) [Data set]*, Zenodo
124. World Wildlife Fund and Royal Society for the Protection of Birds (2017) *Risky Business: Understanding the UK's Overseas Footprint for Deforestation-risk Commodities*
125. Benton TG et al. (2021) *Food System Impact on Biodiversity Loss*, Chatham House
126. Global Forest Watch Dashboard, accessed 6 February 2023; <https://www.globalforestwatch.org/dashboards/global>
127. Lomeli LG and Anderson J (2016) *Restoring Degraded Land in Latin America Can Bring Billions in Economic Benefits*, World Resources Institute
128. Mighty Earth (2021 ) *YouGov Poll Results: UK Consumer Views on Deforestation*; <https://www.mightyearth.org/wp-content/uploads/YouGov-poll-results-UK.pdf>

## Amazon rainforest



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