



Food, Forests and Injustice:

The Hidden Link Between
Wales and Brazil

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A dense, lush tropical forest with various green palm fronds and leaves, creating a vibrant and textured background.

1. Executive Summary

Tropical forests are essential to global climate stability, biodiversity, and human well-being. They store half of the world's forest carbon, regulate rainfall, and support millions of people. Yet despite the COP26 commitment to halt and reverse deforestation by 2030, global forest loss continues at an alarming pace. In 2024, 6.7 million hectares of tropical forest were destroyed. The consequences are profound: worsening droughts, biodiversity collapse, displacement of Indigenous Peoples, and escalating climate impacts worldwide.

As the world prepares for COP30 in Belém, Brazil, dubbed the “Forest COP”, deforestation has emerged as a defining test of international climate action. Brazil holds one-third of the planet's tropical forests, and its leadership on halting deforestation is essential to achieving the 1.5°C Paris Agreement target. Yet cattle ranching, soy expansion, and weak land governance remain the primary drivers of deforestation. These global commodity chains directly connect to consumption patterns in Wales.

Wales imports around 190,000 tonnes of soy and 12,000 tonnes of beef per year.

Nearly three-quarters of the soy import land footprint falls in countries that are high or very high-risk for deforestation and/or social issues, such as the abuse of Indigenous Peoples' rights, including Paraguay, Brazil, and Argentina. Meeting Welsh demand for beef requires a land area equivalent to the size of the Brecon Beacons every year, with 26 per cent coming from high-risk countries for deforestation and social issues, in particular Brazil.¹ These supply chains link Welsh consumption to deforestation, human rights abuses, and habitat

destruction overseas. Approximately 80 per cent of soy imported into Wales is used as animal feed for the poultry and dairy sectors, generating more than 1.1 million tonnes of CO₂e emissions annually. At home, this system contributes to phosphorus pollution in Welsh rivers, highlighting the environmental costs of intensive livestock farming and the interdependence between global and local ecosystems.

Wales has made some progress in embedding global responsibility through policy and practice. Public procurement reforms, led by Caerphilly County Borough Council and Monmouthshire County Council, have established national models for deforestation-free food supply chains. Over 30 schools have achieved Deforestation Free Champion status so far, engaging young people in shaping sustainable food choices. These initiatives demonstrate practical leadership and the potential for systemic change.

However, further action is required to align national policies with Wales' global responsibility commitments, and wider well-being goals, under the Well-being of Future Generations Act (WFG Act). For example, key gaps remain in the Sustainable Farming Scheme, particularly in addressing imported deforestation-risk soy in animal feed, and in public procurement and public sector pension investments still exposed to deforestation-linked industries.

¹ https://sizeofwales.org.uk/wp-content/uploads/2022/12/wwf_risky_b_wales.pdf

The report calls on the Welsh Government and the Welsh Public Sector to:



Ensure that **the public sector becomes deforestation free** by 2028, ensuring supply chains do not contribute to global deforestation, habitat loss or human rights violations.



Align the Sustainable Farming Scheme with deforestation free and regenerative feed systems, **reducing reliance on imported soy.**



Call on the UK Government to introduce urgently needed due diligence systems and **remove deforestation from UK supply chains**, building on powers under the UK Environment Act.



Champion sustainable diets through public procurement – prioritising “less but better quality” meat and dairy, Welsh produce, and diverse plant-based options.



Strengthen international solidarity, supporting Indigenous Peoples and forest communities with long term, direct funding as key partners in global climate action.

By embedding these measures across government, procurement, and agriculture, Wales can demonstrate global leadership at COP30, showing that a small nation can make a significant contribution to halting deforestation, protecting biodiversity, and securing a just and sustainable future for all.



2. Introduction



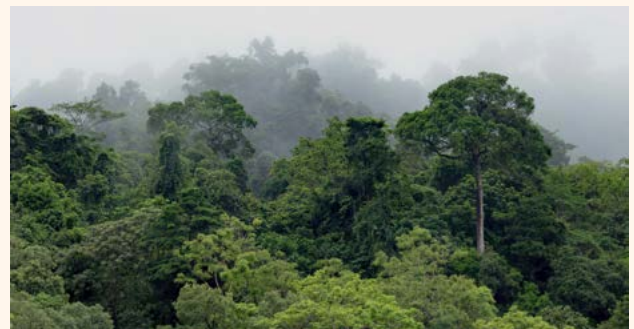
Tropical forests are crucial for life on Earth. Covering around six per cent of the Earth's land surface, they contain half of all carbon stored in the Earth's forests² and 80 per cent of the world's documented plant and animal species.³ They are home to millions of people and provide the conditions for life to thrive on our planet.

Created by healthy, functioning forest biomes, these 'ecosystem services' help to regulate our climate, prevent droughts, flooding and landslides, limit the spread of disease, purify drinking water, provide shelter, food and medicine, and enrich our lives with spiritual connection, awe and inspiration.

Despite covering only about 1 per cent of the planet's land, the Amazon is home to roughly 10 per cent of all known wildlife species and countless more yet to be discovered.

It remains one of Earth's last refuges for jaguars, harpy eagles, and pink river dolphins, and provides habitat for thousands of birds, butterflies, and unique mammals such as southern two-toed sloths, pygmy marmosets, saddleback and emperor tamarins, and Goeldi's monkeys. The health and well-being of tropical forests is intrinsically linked with our own; their survival is critical for our survival.

However, despite over 140 countries committing to halting and reversing deforestation and land degradation by 2030 at COP26 in Glasgow, the world remains far from this zero-deforestation pathway. While some gains have been made, forest losses remain alarmingly high. In 2024 alone, we lost 6.7 million hectares of primary tropical forest, mostly to fire and deforestation.⁴ Forest fires triggered by rising temperatures were responsible



for 50 per cent of all primary tropical forest loss in 2024, releasing more than four times the emissions from all air travel in 2023.⁵ This release of CO₂ contributes to devastating climate impacts, such as record-breaking droughts in the Amazon⁶, leaving communities stranded and killing untold numbers of animals, whilst also displacing Indigenous Peoples from their lands.⁷ The Amazon is at risk of reaching an irreversible tipping point.⁸ An estimated 17 per cent of Amazon forests have been converted to other uses and an additional 17 per cent degraded.⁹ The pressures on the Amazon are intensifying. We need to act now. Without the Amazon, we lose the fight against climate change.

While in Wales, we have experienced multiple heatwaves and reduced rainfall, increasing the risk of flash floods, water shortages and heat-related deaths.^{10,11}

2 <https://gfr.wri.org/biodiversity-ecological-services-indicators/forest-carbon-stocks>

3 https://www.panda.org/discover/our_focus/forests_practice/importance_forests/tropical_rainforest/

4 <https://www.wri.org/news/release-global-forest-loss-shatters-records-2024-fueled-massive-fires>

5 <https://www.wri.org/news/release-global-forest-loss-shatters-records-2024-fueled-massive-fires>

6 <https://www.imperial.ac.uk/news/251057/climate-change-made-unprecedented-amazon-rainforest/>

7 <https://news.mongabay.com/2023/11/deforestation-in-the-brazilian-amazon-falls-22-in-2023/>

8 www.wwf.org.uk/sites/default/files/2022-11/RISKING%20THE%20AMAZON_final.pdf

9 <https://www.wwf.org.uk/where-we-work/amazon>

10 <https://www.metoffice.gov.uk/about-us/news-and-media/media-centre/weather-and-climate-news/2025/uk-on-track-for-one-of-its-warmest-summers-on-record>

11 <https://www.lishtm.ac.uk/newsevents/news/2025/nearly-600-heat-related-deaths-expected-uk-heatwave-researchers-estimate>

Over 273,000 homes are at risk of flooding, while extreme weather threatens our ability to grow and access food, with events such as droughts and flooding costing Welsh farmers millions of pounds each year.¹² In a recent study, 55 per cent of farmers believed that addressing extreme weather linked to climate change is the priority for UK food security.¹³ As well as impacting farmers directly, the impact of climate change in 2022-23 increased the average household food bill in the UK by £361.¹⁴

If we are serious about limiting global warming to 1.5°C – the limit agreed in the Paris Climate Agreement – we must halt and reverse tropical deforestation and habitat conversion.

If we do not do this, we are on course for catastrophic global heating, which will affect all life as we know it. 2024 was the first year on record that the average global temperature exceeded 1.5°C above pre-industrial levels.¹⁷ We cannot let this become the norm. We must act, together, to prevent further deforestation, global warming and runaway climate impacts. We must slow down our consumption of the planet.

In a year when the world is experiencing more and more extreme weather events as a result of human-driven global warming,^{18,19} political leaders, scientists, investors, state, civil society and business representatives from across the globe will convene at the COP30 summit in Belém in November 2025, at the mouth of the Amazon River in Brazil. Dubbed the forest COP, priorities will include biodiversity and forest protection – such as assessing where we are on our zero deforestation by 2030 pathway.²⁰

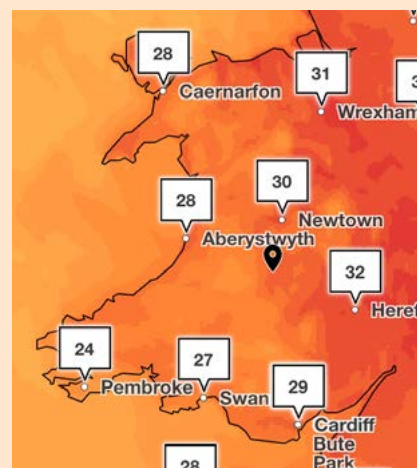


Fig. 1. Heatwave, Wales, July 2025
(Source: Met Office)¹⁵



Fig. 2. Amazon drought, Brazil, September 2024¹⁶

12 https://www.wwf.org.uk/sites/default/files/2024-03/5126%20-%20FARMING%20IN%20WALES_REPORT_v3.pdf

13 <https://eciu.net/media/press-releases/2025/majority-of-farmers-report-feelings-of-anxiety-and-depression-in-face-of-drought-and-flooding>

14 <https://eciu.net/analysis/reports/2023/climate-fossil-fuels-and-uk-food-prices-2023>

15 Image credit: Met Office. Retrieved from: <https://futuregenerations.wales/news/name-heatwaves-like-storms-says-future-generations-commissioner-for-wales-derek-walker-as-met-office-forecasts-soaring-temperatures-again/> [online resource]

16 Image credit: Observatório do Clima. Retrieved from: <https://www.brasildefato.com.br/2024/09/09/from-the-amazon-to-southern-brazil-find-out-about-the-climate-crisis-hitting-the-country/> [online resource]

17 <https://climate.copernicus.eu/copernicus-2024-first-year-exceed-15degc-above-pre-industrial-level>

18 <https://www.worldweatherattribution.org/2025/>

19 <https://essd.copernicus.org/articles/17/2641/2025/>

20 <https://forestsnews.cifor.org/93254/brazil-cop30-agenda-key-themes?fnl=en>



Mutirão comes from Tupi-Guarani Indigenous word “motirõ” which refers to a community coming to work on a shared task. By sharing this invaluable ancestral wisdom, COP30 presidency invites the international community to join Brazil in a global “Mutirão” against climate change, bringing together governments, civil society and the private sector to co-create climate solutions.

Fig. 3. The Brazilian presidency of COP30 invites the world to join forces in a major global effort for climate action / Image: Audiovisual COP30/Secom

Brazil contains about one-third of the world’s tropical forests²¹, making it the single largest share held by any country. This makes Brazil pivotal: global efforts to curb deforestation and stay within climate targets cannot succeed without significant and lasting reductions in forest loss there.

Even with recent declines in deforestation rates due to stronger enforcement and policies, Brazil remains the world’s largest contributor to tropical forest loss, surpassing countries such as Indonesia and the Democratic Republic of Congo.

The primary drivers of deforestation in Brazil are cattle ranching, soy cultivation, fires, and weak land governance.

Hosting COP30 in Belém presents a historic opportunity to place tropical forests at the heart of global climate negotiations, secure stronger protections and funding, and demonstrate that halting deforestation is essential to keeping the goal of limiting global warming to 1.5°C within reach.

Wales, like many countries, contributes to tropical deforestation through its consumption habits and global supply chains. Brazilian beef, including processed products such as corned beef, is exported to Wales, while soy grown in Brazil – much of it linked to conversion – is used as animal feed for livestock on Welsh farms. These supply chains connect everyday choices in Wales to forest and nature loss thousands of miles away, highlighting the global nature of the deforestation crisis.

Given this clear and destructive link between Welsh consumption and tropical forests, urgent action is needed to ensure that Wales responds effectively to the climate and nature crisis. By addressing consumption habits, improving traceability, and adopting deforestation and conversion free practices, Wales has the opportunity to contribute meaningfully to protecting the Amazon, and other tropical forests such as the Atlantic forest, playing its part for global climate stability, people and nature.



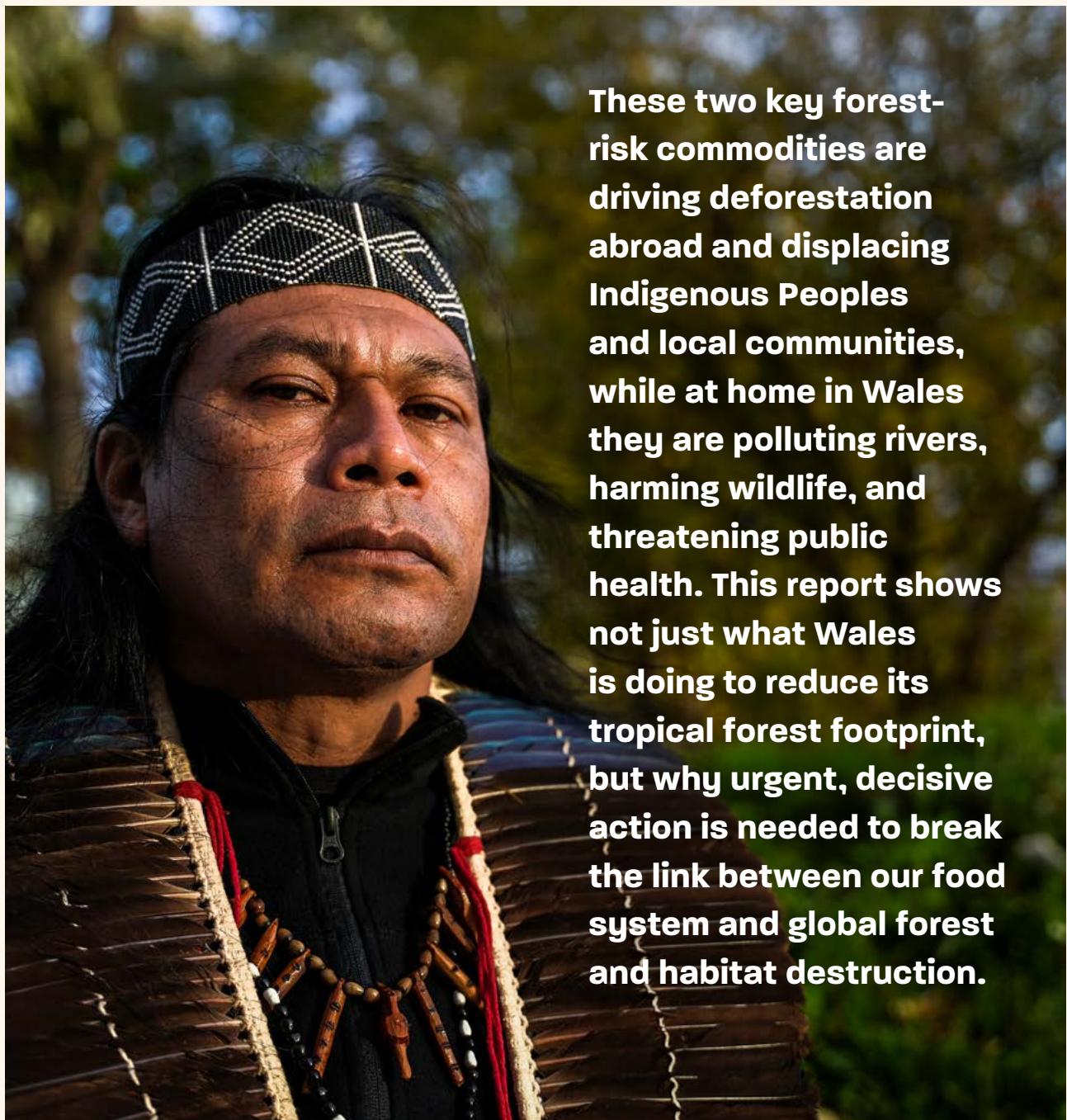
© Araquém Alcântara / WWF-Brazil

²¹ The Food and Agriculture Organization’s (FAO) State of the World’s Forests 2024 (SOFO 2024) report, states that Brazil is home to approximately 420 million hectares of tropical forests. Given that the total global tropical forest area is estimated at 1.8 billion hectares, Brazil’s share is about 23.3% of the world’s tropical forests. <https://www.donorplatform.org/wp-content/uploads/2024/11/SOFO-2024.pdf>



3. Tracing Wales' Global Forest Footprint in Brazil

In the sections that follow, we expose the destructive impacts of soy and beef production, which are responsible for the lion's share of deforestation in the Brazilian Amazon, and reveal how Wales' consumption directly fuels them.



4. The Story of Soy

Traditionally, farm animals in Wales were fed with what was freely and locally available on the land – pasture, but also hay, food waste and grains, such as by-products from milling for human consumption.²² However, with the advent of industrialised farming, feeding shifted from forage-based diets to concentrated feeds intended to maximise growth and efficiency. After the 1996 BSE crisis²³ and the banning of mammalian meat and bone meal (MBM) in animal feed, attention shifted to imports of protein-rich soybeans to fill the gap left behind.

Over the last 50 years, global meat production has more than tripled, accompanied by a sharp increase in soy cultivation for animal feed.²⁴ Chicken represents the largest share of this in the UK: they are the most widely slaughtered animals for meat and the primary consumers of soy.

Wales imports 190,000 tonnes of soy a year.²⁵

Approximately 80 per cent of Welsh soy imports are fed to livestock.

Nearly 50 per cent of soy imported for feed in Wales is consumed by poultry, compared to 20 per cent by dairy cattle and 19 per cent by sheep.²⁶ Overall, chicken accounts for more than one-third of global soy use, while humans consume roughly one-fifth directly (i.e., not through animal products).²⁷ This dependency reflects both the rising



demand for chicken meat – over 76 billion chickens were slaughtered in 2023 (see fig.6), and the predominance of fast-growing breeds that require protein-rich diets. Intensive poultry production relies heavily on soy to meet these nutritional needs and would not be feasible without it.²⁸

22 <https://www.cambridge.org/core/journals/journal-of-applied-animal-nutrition/article/review-of-the-feed-industry-from-a-historical-perspective-and-implications-for-its-future/A655939BDBB386140F15ECB577F5711C>

23 The 1996 BSE crisis was a public health crisis sparked by the acknowledgement of a connection between BSE (“mad cow disease”) and a new variant of Creutzfeldt-Jakob disease (vCJD) in humans. This led to a ban on British beef exports by the European Union, the mass slaughter of cattle and the banning of mammalian meat and bone meal (MBM) in animal feed.

24 Hannah Ritchie, (2021), Drivers of Deforestation. Available at: <https://ourworldindata.org/drivers-of-deforestation#is-our-appetite-for-soy-driving-deforestation-in-the-amazon>

25 www.wwf.org.uk/sites/default/files/2021-11/wwf_risky_b_wales.pdf

26 www.wwf.org.uk/sites/default/files/2021-11/wwf_risky_b_wales.pdf

27 <https://ourworldindata.org/drivers-of-deforestation>

28 <https://www.soilassociation.org/causes-campaigns/stop-poison-poultry/>

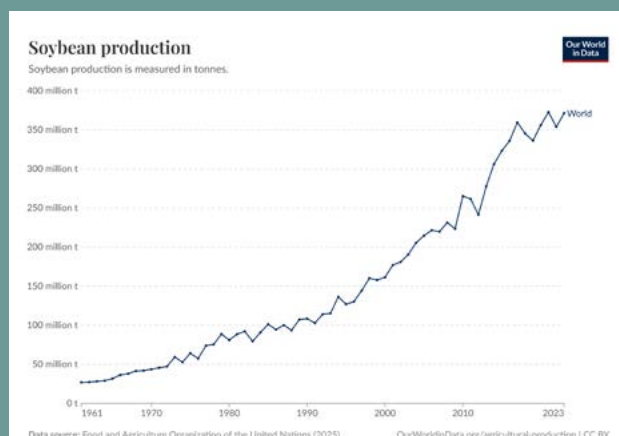


Fig. 4. Soybean production, source: Our World in Data²⁹

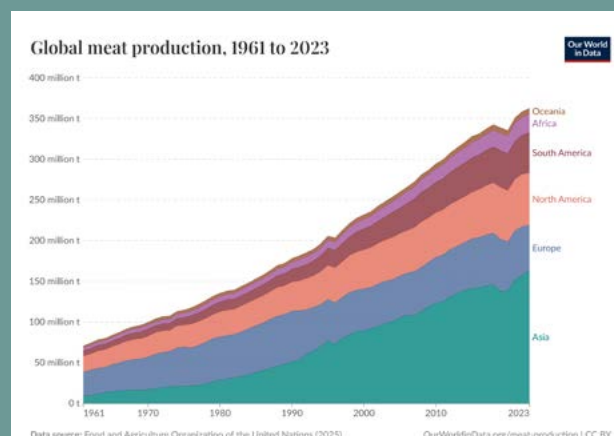


Fig. 5. Global meat production, 1961 to 2023, source: Our World in Data³⁰

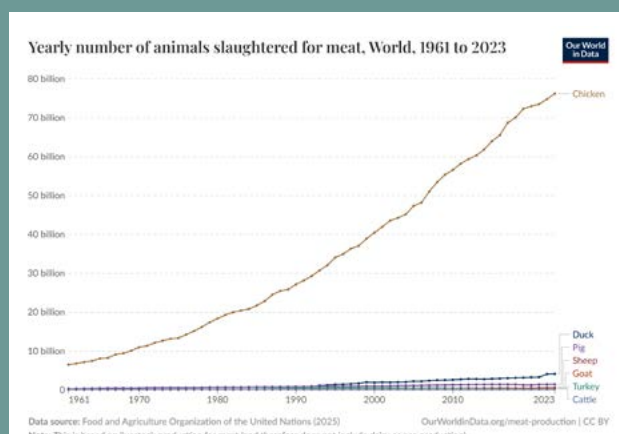


Fig. 6. Yearly number of animals slaughtered for meat, World, 1961 to 2023. Source: Our World in Data³¹

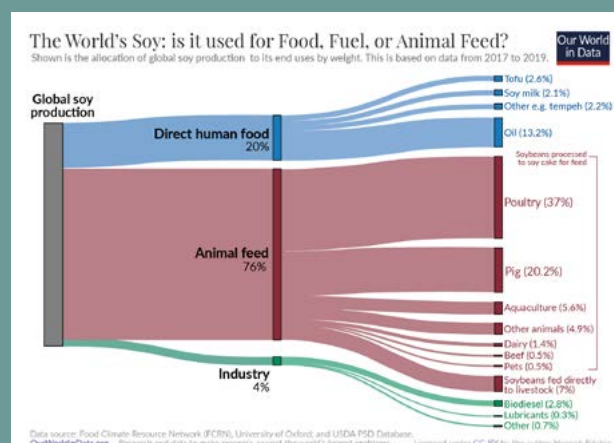


Fig. 7. The World's Soy: is it used for Food, Fuel, or Animal Feed? Source: Our World in Data³²

In the first five months of 2025, Brazil became the top soy bean exporter with 51.53m tonnes, a 5 per cent increase from the same period of 2024.³³ This intensive production, along with the conversion of forested land into pasture for beef cattle, is driving deforestation, conversion and nature loss, particularly in the Amazon, Atlantic Forest and the Cerrado – the world's largest and most biodiverse savannah.

Indigenous Peoples and other traditional communities have been particularly impacted by soy production. In Western Paraná, over 60 per cent of the Avá-Guarani's Indigenous Land is dominated by agribusiness, leaving just one per cent for traditional farming. Much of their ancestral territory overlaps with the Atlantic Forest, one of the most threatened biomes in the world – now reduced to just 12 per cent of its original size.

29 "Data Page: Soybean production", part of the following publication: Hannah Ritchie, Pablo Rosado, and Max Roser (2023) – "Agricultural Production". Data adapted from Food and Agriculture Organization of the United Nations. Retrieved from <https://archive.ourworldindata.org/20250909-093708/grapher/soybean-production.html> [online resource] (archived on September 9, 2025).

30 "Data Page: Total meat production", part of the following publication: Hannah Ritchie, Pablo Rosado, and Max Roser (2023) – "Agricultural Production". Data adapted from Food and Agriculture Organization of the United Nations. Retrieved from <https://archive.ourworldindata.org/20250909-093708/grapher/global-meat-production.html> [online resource] (archived on September 9, 2025).

31 Food and Agriculture Organization of the United Nations (2025) – with major processing by Our World in Data. "Number of cattle slaughtered for meat – UN FAO" [dataset]. Food and Agriculture Organization of the United Nations, "Production: Crops and livestock products" [original data]. Retrieved from: <https://ourworldindata.org/grapher/animals-slaughtered-for-meat>

32 Hannah Ritchie (2021) – "Drivers of Deforestation" Published online at OurWorldinData.org. Retrieved from: <https://ourworldindata.org/drivers-of-deforestation> [Online Resource]. Source: Food Climate Resource Network (FCRN), University of Oxford; and USDA PSD Database [original data].

33 <https://www.theguardian.com/global-development/2025/sep/29/agriculture-deforestation-farming-soya-cultivation-eating-brazil-amazon>

“Agribusiness came and ran over everything, destroying everything. Today agribusiness is considered the “agropop,” but, in fact, it has killed all of nature. Today they need to expand, they need more, because agribusiness dies if it does not expand. That is why they want to expand in any way they can. To do so, they must go over Indigenous lands, so much so that they are fighting for it. That is why the Avá Guarani territory has dramatically diminished and has become the land we see, with very little forest. The springs disappeared because agribusiness ran over them. Many forest areas that were there no longer exist because they destroyed them little by little, until they uprooted everything. Then is when too much heat comes, because there is no longer that tree that protects the land. It is the same thing as the human being: if the human being does not put on some clothes today, the skin starts to peel, the skin starts to peel off, and it starts to dry out. And the land is also like this – the land today is dehydrated. It has reached its limit. It does not have any shade, it does not have those trees that used to make the land breathe. Because the land also needs to breathe, and today it is not breathing; it needs water, it needs shade, and there is no shade anymore”.

Karai Okaju, who currently lives in Tekoha Y’Hovy, in Guaíra, reporting on the destruction of this territory by agribusiness.



Guarani corn which signifies cultural survival and resilience for the Guarani People

violently taken from Indigenous peoples like the Avá Guarani, whose ancestral territories have been cleared for soy monocultures, cattle ranching, and eucalyptus plantations. As their forests and gardens are destroyed, and access to traditional hunting, fishing, and gathering grounds is lost, many Avá Guarani communities face severe food insecurity, depending on Federal Government food donations to survive.

This situation exposes the paradox of industrial agriculture: it produces vast quantities of commodities for export, mainly to feed livestock or produce biofuels, while local communities go hungry on their own land. The Guarani, however, are not passive victims. Across Brazil, they are organising to defend their land rights through legal actions, land occupations, and alliances with environmental and human rights organisations. In parallel, they are working to recover Indigenous agroecological practices, revitalise traditional seed varieties, and rebuild diverse, sustainable food systems rooted in Guarani cosmology and reciprocity with the land. These actions represent both an ecological alternative to extractive agribusiness and a political act of resistance, reclaiming sovereignty over food, territory, and knowledge.

The Amazon Soy Moratorium, established in 2006, has been crucial in reducing deforestation caused by soybean cultivation in Brazil. By pledging not to buy soybeans grown on land deforested after 2008, major traders have significantly limited direct deforestation for soy. However, recent legal challenges seeking to suspend the moratorium put its future at risk just ahead of COP30.

Brazilian agribusiness is often celebrated as the “breadbasket of the world,” exporting soy, beef, and corn to global markets under the banner of feeding humanity. Yet this narrative hides deep inequalities and environmental destruction. Much of this “productivity” comes from land that has been

“In the old days, my family ate food from their crops. They planted cassava, corn, beans, and even rice. Now there is very little, and some families can’t plant because they don’t even have space to live in”. – Tupã Karai

Industrial-scale soy cultivation eliminates natural habitats for wildlife that control pests, forcing the heavy use of chemical pesticides. The Avá Guarani people report that villages near soy plantations are routinely sprayed, sometimes deliberately, with pesticides reaching their homes, fields, and communities. Except for three villages in the urban area, all Tekoha (villages) in Guasu Guavirá border soybean fields, sometimes with less than two meters between the plantations and their homes. As a result, exposure to pesticide drift is constant, causing health problems such as stomach pains, headaches, and diarrhoea.

Pesticide use also contaminates local water sources, affecting drinking water quality and aquatic life. The loss of natural habitats and heavy chemical application reduces biodiversity, harming beneficial insects, birds, and other wildlife that help control pests, and threatening the health of domestic animals in the villages.

“They take advantage of these tools and use them as if they were chemical weapons. We had this problem where farmers sprayed poison on the community and made everyone sick. It’s already happened in at least two communities, they sprayed poison with a tractor and once by plane.”

“Often, some people get sick, the animals die, like chickens always end up dying. Every time pesticides are used, people in the community get headaches, nausea, and sometimes vomiting and diarrhoea. And since we don’t have quality basic sanitation, we are more exposed.”

Brazil’s vast soybean plantations, which cover an area the size of Germany³⁴, have made it the world’s biggest market for pesticides and for highly hazardous pesticides (HHP), classified as extremely damaging to human health or the environment.³⁵ Soybean farming is the biggest user of agrochemicals in Brazil, accounting for 50

per cent of sales. Almost two-thirds of Brazilian spending on highly hazardous pesticides was for use on soy, grown to supply global demand for animal feed, including from Europe.³⁶ Brazil now uses about

20 per cent of all pesticides sold globally. This situation has been exacerbated by the approval of the controversial “Poison Package” law enacted in December 2023. This legislation significantly weakens existing regulations on pesticide approval and usage, allowing the registration of chemicals previously banned in the European Union due to their hazardous nature.

**“Do they
need to kill
us to feed
the world?”**

Between 2014 and 2017, over 1,300 Brazilian municipalities found all 27 monitored pesticides in their water supply, many of which are highly toxic or linked to cancer, birth defects, and hormonal disorders.³⁷ A 2022 study by Western Paraná State University and Harvard University confirmed widespread drinking water contamination in Paraná, with pesticide levels far above European safety limits and strongly correlated with cancer cases.³⁸

According to data from the Brazilian Ministry of Health³⁹, between 2014 and 2017, 1,396 Brazilian municipalities detected in the water all 27 pesticides required by law to be tested. Brazilian Health Regulatory Agency (Anvisa) classified 16 as extremely or highly toxic, while 11 are associated with the development of chronic diseases such as cancer, fetal malformation, and hormonal and reproductive dysfunctions. Among these 27 pesticides, the European Union banned 21 due to the risks to health and the environment; the U.S. Environmental Protection Agency classified five as “probable carcinogens”; and the European Union has identified six as causing endocrine disorder.

34 <https://justicepesticides.org/en/2021/05/10/eu-mercotur-the-vicious-circle-of-pesticides/>

35 <https://unearted.greenpeace.org/2020/02/20/brazil-pesticides-soya-corn-cotton-hazardous-croplife/>

36 <https://unearted.greenpeace.org/2020/02/20/brazil-pesticides-soya-corn-cotton-hazardous-croplife/>

37 <https://portrasdoalimento.info/2019/04/15/coquetel-com-27-agrotoxicos-foi-achado-na-agua-de-1-em-cada-4-municipios/#>

38 <https://www.sciencedirect.com/science/article/pii/S0160412022002483?s=08#>

39 <https://portrasdoalimento.info/2019/04/15/coquetel-com-27-agrotoxicos-foi-achado-na-agua-de-1-em-cada-4-municipios/#>

Many of these pesticides are banned in the UK due to their extreme toxicity, such as diquat – closely related to paraquat. However, whilst banned for use in the UK, it is still produced here and exported to Brazil where it is causing untold harms to farm workers, Indigenous Peoples, local communities and biodiversity. For example, Greenpeace reports⁴⁰ that Reglone, a popular weedkiller brand in Brazil, containing 20 per cent diquat⁴¹ is manufactured in Huddersfield⁴² by the Swiss-headquartered agrochemical company Syngenta. Diquat has been banned from use on both British and Swiss farms since 2020, after EU experts⁴³ concluded it posed a ‘high-risk’ to people living near fields where it was sprayed. However, British law allows Syngenta to keep making the weedkiller in the UK, for export to countries with weaker regulations.

Cases of diquat poisonings have increased in Paraná in recent years, where use of the pesticide on soy plantations has risen to help increase yields.⁴⁴

If ingested, diquat damages the gastrointestinal tract, affecting multiple organs including the brain, kidneys, heart and liver.⁴⁵ Its close cousin paraquat may be associated with increased risk of Parkinson’s disease.⁴⁶ It bioaccumulates in the soil and is highly water soluble, making it extremely damaging to aquatic ecosystems and land-based biodiversity.⁴⁷

The herbicide glyphosate also illustrates this disparity: Brazil allows residue levels 200 times higher than the EU, and its usage in Paraná far exceeds European levels. Research highlights a global contradiction: the UK and European Union restrict many pesticides at home but continue producing and exporting them to countries like Brazil, where weaker regulations enable intensive use. Through the global

trade in commodities, there is a risk that these toxic substances make their way through supply chains to consumer countries.^{48,49} There is an urgent need for the UK to align its export practices with its domestic standards to ensure the protection of human and environmental health worldwide.



Fig. 8. Avá Guarani children watching a pesticide sprayer, credit: CGY

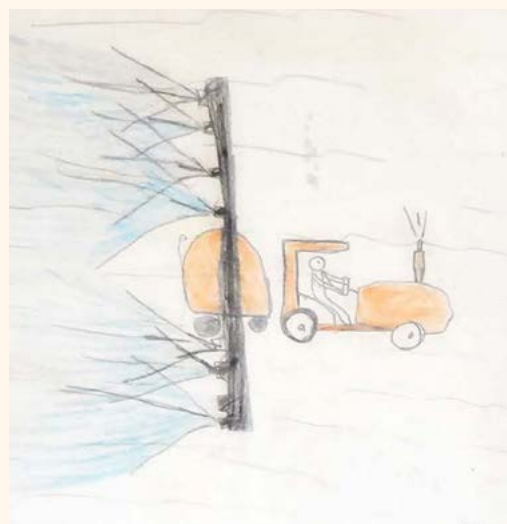


Fig. 9. Avá Guarani child's drawing of a pesticide sprayer

40 <https://uneearthed.greenpeace.org/2024/12/08/brazil-farmers-poisoned-banned-pesticide-diquat-syngenta-export-uk/>

41 <https://www.syngenta.com.br/product/crop-protection/herbicida/reglone>

42 <https://www.syngentaturf.co.uk/huddersfield>

43 <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1532&from=PL#:~:text=The%20approval%20of%20the%20active%20substance%20diquat%20is%20not%20renewed.&text=Member%20States%20shall%20withdraw%20authorisations,May%202019%20at%20the%20latest>

44 <https://uneearthed.greenpeace.org/2024/12/08/brazil-farmers-poisoned-banned-pesticide-diquat-syngenta-export-uk/>

45 <https://usrtk.org/healthwire/diquat-herbicide-poisons-the-gut-may-severely-damage-other-organs/>

46 <https://www.frontiersin.org/journals/pharmacology/articles/10.3389/fphar.2025.1562182/full>

47 <https://www.mdpi.com/2076-3921/14/6/721>

48 https://www.cell.com/cell-reports-sustainability/fulltext/S2949-7906%2824%2900067-3?utm_source=chatgpt.com

49 <https://www.soilassociation.org/causes-campaigns/stop-poison-poultry/>

From Deforestation to River Pollution: The Global Soy Connection

The soy grown in Brazil, often on deforested land, is not only a driver of biodiversity loss and ecosystem destruction overseas, but also has direct impacts on Welsh rivers and land. Much of this soy ends up in animal feed for intensive livestock systems in Wales, particularly poultry and dairy farms.

Imported animal feed, particularly soy, is high in phosphorus. After being consumed by livestock, this phosphorus is excreted in nutrient-rich manure. When this manure is spread on farmland, these excess nutrients leach into rivers and groundwater, linking deforestation abroad to freshwater pollution at home.⁵⁰ This global-local connection highlights how consumption patterns in Wales contribute to both environmental degradation and human rights abuses overseas and river pollution domestically, demonstrating the need for more sustainable feed sourcing and farming practices.

Freshwater pollution is a serious issue in Wales, with recent Natural Resources Wales (NRW) data showing that only 40 per cent of Welsh waterbodies reach good ecological status and seven out of nine of our protected rivers, designated as Special Areas of Conservation, are failing due to nutrient pollution.⁵¹ An increase from five out of nine in 2021. As well as a 70 per cent decline in salmon over the past 10 years.⁵²

Although there are several drivers of freshwater pollution in Wales, the agriculture and land management sector accounts for a high proportion of pollutants in Welsh watercourses, which is a widespread and persistent problem.⁵³ When it rains, applications made to land (slurry and manures, chicken litter, synthetic fertiliser) and degraded soil are washed down farm tracks, through gates, and into field drains and rivers. These nutrients also percolate deep into the ground, polluting groundwater. Excess nutrients in our rivers contributes to a process called eutrophication which blocks sunlight leading to algal blooms, oxygen depletion and ultimately the death of aquatic life. This not only affects Welsh rivers and the wildlife that inhabit them, but also means that farmers are losing a valuable resource in the soil and nutrients that are washed away.



Almost 90 per cent of land in Wales is dedicated to farming, and therefore, agriculture has a critical role to play in improving water quality and subsequently keeping our rivers healthy.

⁵⁰ <https://www.soilassociation.org/media/27139/stop-killing-our-rivers.pdf> (p5, p31, p33).

⁵¹ <https://naturalresources.wales/about-us/news-and-blogs/news/new-water-quality-data-sheds-light-on-health-of-wales-s-waters/?lang=en>

⁵² <https://naturalresources.wales/about-us/news-and-blogs/news/vulnerable-salmon-and-sea-trout-continue-to-decline-despite-conservation-efforts-from-anglers-and-nets/?lang=en>

⁵³ <https://research.senedd.wales/media/v3fl5zes/23-12-water-quality-in-wales.pdf>



In the Wye and the Usk the phosphorus load (a key nutrient) of 72 per cent and 67 per cent⁵⁴, respectively, is reported from rural land use. In the Teifi and Dee, this is reported at 28 per cent and 24 per cent⁵⁵, a lower but still significant issue. NRW reports that over 60 per cent of waterbodies assessed in Wales failed on phosphorus targets.⁵⁶

Farming significant numbers of animals in a relatively small catchment, for example poultry in Intensive Poultry Units (IPUs) or dairy cattle in slurry-based systems, creates large amounts of animal manure which needs to be used or disposed of. The higher the numbers of animals in a catchment, the harder it is to use the waste produced in a way that is beneficial to the land.

This destructive cycle is often controlled by large multinational companies. For example, in the Wye catchment area, IPUs house over 20 million birds at any given time, with over three-quarters produced under contract to Avara Foods – a chicken producer supplying meat to many of the British supermarkets. Avara contracts around 100 chicken farms in the Wye catchment and are a subsidiary of Cargill⁵⁷, a large multinational food giant, who trade and process soybeans for feed around the globe.⁵⁸

This example highlights the harm caused by our current food system and why urgent change is needed. Intensive livestock production creates social and environmental impacts at both ends of the supply chain: in Brazil, where soy is grown on deforested land displacing Indigenous Peoples and local communities, and in Wales and Herefordshire, where many IPUs are concentrated. At the time of writing, Avara Foods and Dŵr Cymru / Welsh Water are defendants in a legal claim brought by law firm Leigh Day, alleging responsibility for algal blooms and eutrophication in the River Wye.⁵⁹ The case centres on the large volumes of chicken manure spread across the landscape, which leaches phosphorus and other nutrients into the river, fuelling pollution and ecological decline.

It is a clear example of how global supply chains and local farming practices are tightly connected, with destructive consequences possible for both people and nature.

54 <https://www.gov.wales/sites/default/files/publications/2022-07/tackling-phosphorus-pollution-in-special-area-of-conservation-sac-rivers-information-and-evidence-pack.pdf> p.32 p.29

55 <https://naturalresources.wales/evidence-and-data/research-and-reports/water-reports/water-quality/compliance-assessment-of-welsh-river-sacs-against-phosphorus-targets/?lang=en>

56 <https://www.gov.wales/relieving-pressures-special-areas-conservation-sac-river-catchments-support-delivery-affordable#:~:text=Phosphorus%20pollution%20in%20Wales%27%20SAC,SAC%20rivers%20failing%20phosphate%20targets>

57 <https://www.poultrynews.co.uk/business-politics/business/exclusive-interview-avara-foods-opens-up.html>

58 <https://www.cargill.co.uk/en/agriculture>

59 <https://www.leighday.co.uk/news/news/2025-news/wye-pollution-legal-claim-filed-at-high-court/>

Wales' soy footprint

The Wales and Global Responsibility report⁶⁰ commissioned by Size of Wales, WWF Cymru and RSPB estimates that Wales imports around 190,000 tonnes of soy each year, requiring a land area larger than Monmouthshire.



Nearly three-quarters of the soy import land footprint falls in countries that are at high or very high-risk for deforestation and/or social issues, including Paraguay, Brazil, and Argentina. This generates over 1.1 million tonnes of CO₂e each year, most of which result from habitat conversion.

Approximately 80 per cent of Welsh soy imports are fed to livestock, with poultry consuming 48 per cent, dairy 20 per cent and sheep 19 per cent. Welsh imports of soy account for six per cent of the UK's total soy imports. This is high considering Wales' share of UK GDP and population and is explained by Wales' comparatively large livestock sector, particularly dairy, beef and lamb.⁶¹ Some of this soy is certified as sustainable under the Round Table on Responsible Soy (RTRS). However, many feed suppliers, including Wynnstay⁶², use the Mass Balance RTRS system, where certified soy is mixed with uncertified soy and companies purchase certificates to cover their usage. While this approach supports more sustainable production without the higher costs of fully segregated supply chains (Identity Preserved or Segregated systems), it does not guarantee that certified soy is actually fed to livestock.

This system is problematic because, similar to carbon offsetting, it allows business-as-usual practices to continue without real reductions in Wales' deforestation footprint overseas or in consumption-related emissions. Given that roughly 70 per cent of tropical deforestation and a large share of associated emissions is caused by agriculture, failing to address Wales' food supply chains could undermine nationwide efforts to reduce production emissions.

Reducing soy imports for animal feed could therefore help clean up Welsh rivers and mitigate the impacts of tropical deforestation.

Moving away from costly farm inputs could also help farmers in Wales. Costs of feed, fuel and fertiliser have risen sharply over the past five years due to global price pressures, increased demand, and higher energy costs. Animal feed, which is a particular concern for dairy, beef and sheep farms, saw a 44 per cent increase in costs for dairy and 39 per cent increase for beef and sheep farms between December 2019 and May 2024.⁶³

60 https://www.wwf.org.uk/sites/default/files/2021-11/wwf_risky_b_wales.pdf

61 https://sizeofwales.org.uk/wp-content/uploads/2022/12/wwf_risky_b_wales.pdf

62 <https://www.wynnstay.co.uk/blog/what-is-certified-sustainable-soya/>

63 <https://ahdb.org.uk/news/farm-input-costs-have-risen-sharply-over-past-five-years>

Infographic showing how the rising demand for chicken meat and selection of fast-growing breeds drives deforestation and social impacts in Brazil.

1

RISING DEMAND
for chicken meat



2



WALES IMPORTS
deforestation risk soy from Brazil



3

Poultry
consumes
nearly of

50%

all soy imported
for livestock
feed



4

Intensive poultry units in Wales produce
TENS OF MILLIONS
of birds every year



5

FAST GROWING BREEDS
rely heavily on protein-rich soy
to fuel accelerated growth



6

Intensive soy production causes

**DEFORESTATION
AND SOCIAL IMPACTS IN BRAZIL**



5. The True Cost of Beef



Brazil is the world's second largest beef producer and the largest exporter. In 2021, it produced 9.7 million tonnes of beef⁶⁴ from the slaughter of 39 million cattle. Of this, 2.4 million tonnes of beef (26 per cent) was exported.

Beef production is the single largest driver of deforestation in Brazil, particularly in the Amazon and Cerrado biomes, with

90 per cent of deforestation in the Brazilian Amazon being caused by conversion to pasture to produce cattle meat and leather.⁶⁵

This reflects how the global demand for cheap beef and leather fuels large-scale forest clearance. The amount of land directly converted to pasture for cattle increased from about 590,000 hectares in 2016 to 948,700 hectares in 2020 – a 60 per cent increase.⁶⁶ Vast tracts of forest are burned and cleared to create grazing land, releasing huge amounts of carbon dioxide stored in trees and soils and pushing species closer to extinction. This land use change caused 46 per cent of Brazil's national emissions in 2020.⁶⁷

JBS is one of the world's largest meat processing companies, headquartered in São Paulo, Brazil, and a leading global beef producer. The company processes millions of cattle each year, supplying fresh and processed beef to domestic and international markets. While JBS dominates global beef exports, it has faced significant criticism for its environmental and social impacts, including links to alleged deforestation in the Amazon and Cerrado, sourcing cattle from illegally cleared lands, and conflicts with Indigenous Peoples.

In 2017, the meatpacking giant JBS was penalised with a R\$24.7 million (about £3.2million) fine for its role in illegal deforestation within the Amazon, though the company rejected the accusations. In 2017, an investigation by Brazil's Federal Police alleged that JBS executives had bribed inspectors to alter meat expiry dates, allowing products to be sold both domestically and abroad. The company's supply chain has also been linked to ranches accused of using forced labor. Since then, new controversies have continued to emerge. According to Trase data, JBS had a deforestation exposure of 231,808 hectares in 2020, up from 206,428 ha in 2016.⁶⁸

Despite these issues, corned beef exports to the UK have remained strong. By 2018, UK imports of corned beef reached 28,550 tonnes, with Brazil supplying 95 per cent of that total and nearly half originating from JBS operations. The trade was worth an estimated £42 million, marking an increase of almost 25% compared to the previous year.⁶⁹

⁶⁴ https://www.abiec.com.br/wp-content/uploads/Beef-Report-2022_atualizado_jun2022.pdf

⁶⁵ Chandrakant Singh, Simon Croft, Lydia Marsden et al (2025) Amazon's deforestation footprint across global food and financial systems [Manuscript submitted for publication], Chalmers University of Technology

⁶⁶ <https://trase.earth/insights/brazilian-beef-exports-and-deforestation>

⁶⁷ <https://www.frontierspartnerships.org/journals/pastoralism-research-policy-and-practice/articles/10.3389/past.2025.14461/full#B78>

⁶⁸ <https://trase.earth/insights/brazilian-beef-exports-and-deforestation>

⁶⁹ <https://www.earthsight.org.uk/news/idm/brazil-corned-beef-jbs-uk-supermarkets-deforestation-amazon>

Beyond environmental damage, the cattle industry is linked to serious human rights concerns, including land grabbing, violence against Indigenous Peoples and local communities, and exploitative labour practices. A recent investigation carried out by Greenpeace Brazil has revealed that beef from cattle raised illegally on protected Indigenous land in the Amazon may have allegedly ended up on the plates of consumers all around the world, after entering the supply chains of Brazilian beef giant JBS.⁷⁰

International supply chains connect beef and leather from deforested areas in Brazil to supermarkets, fast-food chains, and fashion brands worldwide. While some companies have made zero-deforestation pledges, weak enforcement and opaque supply chains allow cattle raised on deforested land to enter global markets. As a result, beef consumption continues to be one of the most powerful drivers of deforestation and climate change, with far-reaching impacts for biodiversity, Indigenous communities, and the stability of the global climate.

Wales' imported beef footprint

Welsh imports total 12,000 tonnes of beef equivalent each year, half of which is fresh or chilled and the rest is frozen or in processed products such as corned beef. Meeting this demand requires an average of 136,300 hectares of land overseas annually – an area equivalent to the Brecon Beacons. Of this, 26 per cent falls in high-risk countries for deforestation and social issues, such as Brazil.⁷¹ Although Wales represents a small share of the UK's population and GDP, its beef imports account for 5 per cent of the UK total which is comparatively high. Wales also has a higher proportion of its beef land footprint in Brazil compared to the rest of the UK (15 per cent versus 12 per cent), largely due to higher levels of corned beef consumption, which is almost exclusively sourced from Brazil.

Welsh public sector procurement contracts currently purchase corned beef from Hertford Fine Foods, which is a brand of JBS Global.⁷²



OF WALES' BEEF LAND FOOTPRINT ABROAD IS IN BRAZIL, WHICH IS HIGH RISK FOR DEFORESTATION.

Source: Wales and Global Responsibility⁷³

⁷⁰ <https://www.greenpeace.org/international/publication/78760/jbs-beef-exports-illegal-cattle-indigenous-land/>

⁷¹ https://www.wwf.org.uk/sites/default/files/2021-11/wwf_risky_b_wales.pdf

⁷² <https://www.hertfordfinefoods.com/products/hertford-corned-beef/> <https://www.jbsglobal.co.uk/brands/>

⁷³ https://sizeofwales.org/wp-content/uploads/2022/12/wwf_risky_b_wales.pdf

6. Driving Change: Deforestation Free Action in Wales



Four years ago at COP26 in Glasgow, over 140 countries committed to halting deforestation by 2030. The then Minister for Climate Change, Julie James, supported that commitment and stated that *"I am absolutely determined that Wales is going to be a nation that does not deforest the planet. I'm going to change what I do and we're going to change what Wales does"*.



Fig. 10. Pamuk Ayatke (Vice President of the Wampis Nation) with Julie James, Climate Change Minister. Credit: WG

Her determination was reinforced by meeting with a leader of the Wampis Indigenous Nation from the Peruvian Amazon during the summit. Hearing first-hand about the devastating impacts of deforestation on Indigenous Peoples, their lands, and their culture, highlighted the urgency of acting not only for the climate and biodiversity, but also for global justice. That encounter underscored the need for Wales to play its part in reducing tropical deforestation and being a globally responsible nation.

In Wales, there are many ways we can reduce our deforestation footprint, including through deforestation free public procurement, sustainable food and farming practices, ethical pensions and international solidarity. So what progress has been made since 2021?



A key vehicle to bring about deforestation free supply chains is public procurement.

Some progress has been made in Wales, although further action is needed. The Welsh Government has included deforestation and conversion criteria in its Procurement Sustainability Risk Assessment tool, which public bodies are expected to complete for contracts over £25,000, though this is not mandatory. The Social Partnership and Procurement Act has embedded Wales' well-being goals (WFG Act) into public procurement, with the Welsh Government committing to strengthening global responsibility criteria within the statutory guidance, due to be finalised in 2026.

At the local government level, there has been significant leadership shown to promote deforestation and conversion free procurement practices. In 2023, Caerphilly County Borough Council (CCBC) embedded mandatory deforestation free criteria into a £228 million food procurement framework⁷⁴ covering 20 public bodies in mid and south Wales and 21 suppliers. These criteria include reducing the use of ultra-processed foods, sourcing higher welfare and organic meat and

dairy, requiring RSPO-certified palm oil where reduction is unavoidable, ensuring seafood is MSC/ASC certified, promoting Fairtrade coffee and cocoa, and increasing the variety of seasonal and plant-based foods. Contracts under this framework have now been awarded, with monitoring and evaluation processes being developed to see if these criteria are being met. Monmouthshire County Council has gone a step further, becoming Wales' (and possibly the world's) first Deforestation Free Champion Council⁷⁵ by unanimously adopting a Deforestation Free Charter.⁷⁶ The Council has already acted to improve sourcing in school meals, including using only Fairtrade cocoa, sourcing all beef from Wales, introducing new deforestation free plant-based dishes and reducing palm oil, with further action needed to reduce embedded soy.

The Future Generations Commissioner for Wales has recommended in their five year report⁷⁷ that the Welsh public sector must become deforestation free by 2028, providing a clear target for national action. Supporting this, Cardiff Council has implemented a Socially Responsible Procurement Strategy⁷⁸, embedding environmental, ethical, and social considerations into all procurement decisions, including measures to reduce deforestation risk. Together, these initiatives highlight a growing momentum across Welsh public authorities to lead by example on sustainable and responsible procurement.

⁷⁴ <https://bidstats.uk/tenders/2023/W26/801636815>

⁷⁵ <https://sizeofwales.org.uk/news/monmouthshire-county-council-becomes-worlds-first-deforestation-free-champion-council/>

⁷⁶ <https://democracy.monmouthshire.gov.uk/documents/s40491/Deforestation%20Free%20Charter%20and%20Action%20Plan.pdf>

⁷⁷ <https://futuregenerations.wales/cym/wp-content/uploads/2025/05/Future-Generations-Report-2025.pdf>

⁷⁸ <https://www.cardiff.gov.uk/ENG/Business/Tenders-commissioning-and-procurement/social-responsibility/socially-responsible-procurement-policy/Documents/Socially%20Responsible%20Procurement%20Policy.pdf>



Schools have been at the forefront of Wales' progress on deforestation free procurement, acting as the main driver for wider system change, with over 32 becoming Deforestation Free Champion Schools. Pupils have audited their school menus to assess the deforestation risk of the ingredients used and their environmental impacts. Thanks to support from the Cook Along Clwb, they have also designed and created sustainable dishes that they learnt to cook themselves, replacing the more high-risk ingredients with forest-friendly alternatives. In the case of Monmouthshire, this led to the creation of a deforestation free chickpea korma, which was showcased at the Abergavenny Food Festival in 2024 and put on the school menu.⁷⁹ The following year at the festival, the pupils went on to explore the past, present, and future of food using time travel to explore the story of corned beef. This included developing a deforestation-free corned beef pasty, using beef sourced from Square Farm, a local organic farm that no longer uses soy feed. The pupils, with the help of the Cook Along Clwb, redesigned the recipe using less but better quality beef and bulking this out with organic vegetables from Square Farm, creating a more sustainable twist on traditional recipes.⁸⁰

This work has put young people at the heart of the deforestation free initiative, actively shaping the school's food choices and having a real voice in decision-making.

This approach ensures that children are the co-creators of sustainable solutions, rather than passive recipients, and demonstrates the power of engaging young people in driving practical, meaningful action on climate and global responsibility.

Alongside public sector initiatives, Welsh businesses are also taking steps to drive improvements in their supply chains. Suppliers of public procurement contracts have begun auditing high-risk products, such as soy in animal feed, and sustainability networks have been established to explore alternatives and strengthen responsible sourcing. In addition, several businesses have now committed to becoming Deforestation Free Champions, showing that momentum on sustainable supply chains is growing beyond the public sector.



© Luis Barreto / WWF-UK

The latest version of Wales' Sustainable Farming Scheme (SFS), set to launch in January 2026, introduces a three-tiered structure: Universal, Optional, and Collaborative Layers. While the Universal Layer mandates 12 core actions for all participating farms, including soil health, habitat maintenance, and animal welfare, it does not explicitly address the sourcing of animal feed, such as soy-based feeds. This omission means that, under the current framework, there is no requirement for farmers to reduce or eliminate the use of imported soy in animal feed as part of their participation in the scheme. The optional and collaborative layers, which offer additional support for more ambitious environmental practices, may provide opportunities for farmers to engage in actions that reduce reliance on imported soy. However, currently, there are no explicit references to this in the scheme's documents. This gap highlights a missed opportunity to align the SFS with broader environmental goals, such as reducing the environmental footprint of animal feed and supporting the transition to more sustainable farming practices.

⁷⁹ <https://www.youtube.com/watch?v=wgD6BnlgEDI>

⁸⁰ <https://www.monmouthshirebeacon.co.uk/news/green-for-go-as-students-create-deforestation-free-pasties-for-food-festival-833527>

Local initiatives demonstrate the potential for change. Monmouthshire County Council's Deforestation Free Communities pilot included a farm mentoring scheme promoting regenerative practices and the reduction of deforestation-risk feed. As a result, Lower House Farm successfully removed soy from its cattle feed, showing that practical steps can help reduce Wales' overseas land footprint. Supporting innovation in feed alternatives, phasing out industrial chicken, and promoting higher welfare, agroecological systems are essential next steps for the Welsh Government to help farmers transition toward more sustainable production.

Welsh public sector pensions, managed through the Wales Pension Partnership (WPP), have significant investments in companies linked to deforestation risks, including those involved in the soy and beef industries. Research commissioned by Size of Wales indicates that:

Over half (54 per cent) of WPP's investments are in clients or holdings exposed to deforestation-risk,

with nearly 10 per cent invested in high-risk deforestation-linked activities, such as soy and beef trading.⁸¹ The WPP has completed its first pool-level annual climate report, as well as an updated analysis of deforestation exposure within its listed-equity Sub-Funds. However, it is yet to make significant changes to its investment portfolios to ensure that investments do not contribute to environmental degradation or human rights violations associated with deforestation.

Promoting global solidarity and climate justice is key to preserving and restoring forests across the world. The Welsh Government has been a key partner in the Mbale Tree Growing programme in Uganda, supporting communities on the frontline of the climate crisis to distribute over 25 million trees since the programme began. The trees have sequestered an estimated 1.4 million tonnes of CO₂ – equivalent to 25 per cent of Wales' annual transport emissions. This is a meaningful contribution to the global fight against climate change, arguably the greatest threat facing humanity.



The Welsh Government has also allocated funding to work with the Indigenous Peoples of the Wampís Nation to construct the first solar powered boat in the Peruvian Amazon and continues to support them to monitor and protect their territory and also promote sustainable livelihoods, recognising their vital role as custodians of the world's forests. The Wampís territory covers over 1.3 million hectares of tropical forest, storing 522 million tonnes of CO₂e equivalent (equivalent to around 15 years worth of Wales' current emissions⁸²) and absorbing an additional 57 million tonnes CO₂e per year.⁸³ Indigenous Peoples make up less than five per cent of the global population and play a key role in protecting vital forests and biodiversity, yet they receive only one per cent of climate finance.

Long term support and direct financing for Indigenous Peoples and local communities is vital for forest protection and the preservation of global biodiversity. This is not charity; it is climate action at scale. This is also critical to our own health and well-being in Wales. Like viruses, we know that climate change does not respect boundaries – efforts to protect, reforest and maintain a stable climate benefits humanity as a whole. Climate instability anywhere affects economic, migration, and health systems everywhere. Droughts and crop failures in Africa can lead to global food price volatility, displacement, and instability, which ripple into Europe and Wales.

We can only thrive if we all thrive.

81 <https://sizeofwales.org.uk/wp-content/uploads/2024/05/Saving-for-the-future-Size-of-Wales-public-pension-report.pdf>

82 https://stats.wales.gov.wales/Catalogue/Environment-and-Countryside/Greenhouse-Gas/emissions-of-greenhouse-gases-by-year?utm_source=chatgpt.com

83 <https://nacionwampis.com/wp-content/uploads/2021/10/Wampis-Climate-Strategy-final3.pdf>

7. Recommendations

We call on the Welsh Government and Welsh public bodies to act urgently to do everything within their decision making ability and power to help eliminate deforestation, habitat loss and associated social impacts from Wales' supply chains through the following actions:

1. Sustainable Farming Reform

- Align the new Sustainable Farming Scheme (SFS) with deforestation free goals: support farmers to move away from a system propped up by imported soy animal feed that is driving deforestation and habitat loss overseas and promote local alternatives such as UK grown legumes and grass fed systems. Support should also be offered to transition to lower impact production models. This will ultimately reduce the consumption of soy animal feed used in agriculture and reduce Wales' global deforestation footprint.
- Put in place robust oversight of activities in river catchments by including all high input-high output livestock farming in the Environmental Permitting Regulations (EPR), as well as reducing the threshold at which current agricultural permits fall within EPR. Effective requirements should also be included in the planning system to prevent the cumulative effect of multiple livestock units in the same catchment.



© Aled Llywelyn / WWF Cymru

2. Food & Procurement

Deforestation Free Procurement and Ethical Supply Chains

- Ensure that mandatory deforestation and exploitation-free supply chain standards are included in the Statutory Guidance for the Social Partnership and Procurement Act. This is in line with the Future Generations Commissioner’s recommendation that “the public sector must become deforestation free by 2028”.
- Mandate public bodies to procure ethically and responsibly sourced food and materials:
 - Promote the procurement of less but better-quality meat and dairy, whilst increasing the provision of plant-based proteins. Meat and dairy products should come from nature-friendly farming, such as regenerative, agroforestry, organic or grass fed systems to ensure animal feed is deforestation free.
 - End the procurement of beef from high deforestation-risk regions, such as South America.



Choosing certified sustainable animal products can help remove or significantly reduce the risk of embedded deforestation and habitat conversion. For example, the Pasture for Life standard prohibits soy-based feeds; and under the Soil Association Organic standard, if farmers cannot source 100 per cent organic feed, pigs and poultry may be fed up to five per cent non-organic protein. Therefore, if any soy feed is present, at least 95 per cent must be grown under organic standards, significantly reducing the risk of embedded deforestation.

Develop a National Food Resilience Plan with Global Impact

- Create a cross-departmental food resilience plan that supports local, sustainable “farm to fork” supply chains and ethically sourced imports.
 - Set targets for local, regenerative, and nature-friendly produce, such as organic.
 - Promote “less, but better quality” meat, dairy and eggs.
 - Expand access to community land for growing to support food access and equity. e.g., gardens, allotments and orchards.
 - Support local food systems, such as horticulture for the production of pulses and diverse plant proteins;
- Assist Welsh food businesses in adopting deforestation free policies using practical tools like Size of Wales’ **Deforestation Free Business toolkit**.



Transform School Food and Embed Global Citizenship

- Update the Healthy Eating in Schools (Wales) Measure 2009 to include provisions for environmental and social sustainability.
- Fund climate education programmes that promote global citizenship and deforestation free practices for the whole school community.
- Embed practical food education across the curriculum, including food production from farm to fork, food preparation and cookery, farm visits and growing projects, with sufficient time to share nutritious food.



Pupils designing and cooking deforestation free dishes

3. UK Law – Advocate for Mandatory Due Diligence

- Put pressure on the UK Government to utilise legal powers gained from the passage of the Environment Act in 2021 to operationalise a law to establish a due diligence system and remove illegal deforestation from UK supply chains.



© Peter Caton / WWF-UK

4. Show Global Solidarity and Support Indigenous Peoples

- Continue to promote global solidarity initiatives, supporting communities on the frontline of the climate crisis to protect, sustain and restore tropical forests.
- Support Indigenous Peoples and local communities through long term and direct funding, recognition and promotion of their rights to protect tropical forests and biodiversity. This includes greater funding for their work, such as forest mapping and tree planting, recognition and promotion of their rights, such as advocating for demarcation and protection of ancestral lands and the practice of Free, Prior and Informed Consent (FPIC), and learning from their wisdom and knowledge, which has led them to be the best guardians of Earth's forests.



Chief Rivelino Popygua of the Commissao Guarani Yvyrupa at COP26

8. Case Studies

Aled Evans, Rest Farm

Aled Evans is a pioneering grassland manager who farms regeneratively in partnership with his brother, Iwan, on 500 acres of land nestled between the Preseli mountains and rural Carmarthenshire.

Growing up on a farm, Aled and Iwan's father instilled into them an appreciation of the natural world and always told them that if they looked after the land, the land would look after them.

Rest Farm had previously been run as a conventional dairy farm, but Aled and Iwan saw an opportunity to do things differently to mitigate the notorious volatility of farming. They wanted to cut down on inputs such as imported animal feed and fertilisers, optimise stocking rates, rather than maximise. They wanted to develop a stable farming system that could be replicated year on year rather than moving from boom to bust.

They decided to base their farming on three pillars:

1. **Legacy** – looking after the environment and the community
2. **Lifestyle** – not working more than a 50-hour week on average, having every other weekend off and holidays
3. **Profit** – making a good living growing quality food.

The drought of 2018 made them think more carefully about grassland management, root systems and soil. They realised that some of their grasses had very shallow roots and that this was not good for drought resistance.



Grazing for their 480 strong herd of Aberdeen Angus, Hereford and Belgian Blue is planned out a month in advance. Cattle get moved daily and grass is given a long resting period of 30-100 days.

'It mimics more natural grazing systems like bison in the wild where the cattle move on when they have finished grazing an area... We have 50 conversations a day about grass... we are obsessed'. Said Aled



“We’re developing a farming business that we are really proud of, developing the environment, people, community – and having fun whilst doing it.” Aled Evans

Roots across the farm are now much deeper, pulling in more nutrients. They have trialled direct planting and have fields with a variety of plants – chicory, plantain, timothy, red and white clover and some bird’s-foot-trefoil. They now use no nitrogen fertilizers at all. The recent increasing cost of fertiliser has therefore not affected the business and they have made a 5-figure saving by not buying in fertilizer and feed like soy. As their farming system is now more resilient to the impacts of climate change, their grass production was not significantly affected by the drought of 2022.

Rest Farm is now ‘Certified Regenerative by AGW’ (A Greener World) and have been through a thorough holistic certification process that looks beyond soil carbon to healthier food, biodiverse systems, clean air and water, good working conditions and animal welfare. Critically the certification involves an ongoing plan and annual auditing and gives them and their suppliers the confidence that they are doing the right thing.

“More diversity of plants bringing in more nutrients has given us much more control across the system... which is now much more resilient with less expensive inputs and more drought resistance...”

Further afield, through grassland work they got to know the HONEST burger company, based in London, who were looking to invest in developing a more sustainable beef supply chain. They now supply directly to HONEST burger, along with two ethical butchers in London. They are also selling to the community through a meat box scheme.

Financially they are a profitable beef unit that offers quality employment and keeps a family going. The increasing cost of fertilizers and other inputs has not really affected the business. Now because of grazing management, they use no fertilizer at all and very little feed which has made a huge saving on the farm.

In 2021, in recognition of their pioneering, profitable, with nature farming approach, Aled and Iwan won Beef Farmer of the Year in the Farmer’s Weekly awards.

Nantclyd Farm

Liz farms in partnership with her son Oliver at Nantclyd farm in Ceredigion. She is a first-generation farmer and self-starter who, over 30 years, has developed a highly successful and sustainable mixed farm business supplying eggs, poultry, fruit and veg, grain, lamb and beef.



They sell eggs locally and nationally, meat and veg boxes from the farmgate, attend farmers' markets and supply local shops along the Ceredigion coast road and in so doing, provide employment for three people.

They have two sites, Nantclyd, where chickens are kept and Ffrwdwenith Isaf, where grain and legumes are grown for animal feed, fruit and veg for the local market, and cattle and sheep reared for meat and to add fertility. They farm holistically, working with nature and aim to be a closed system as much as possible, meaning they minimise the amount of external inputs and produce most of what they need on their farm. They do not import animal feed such as soy, which may be driving deforestation overseas, and instead feed their chickens grain grown on the farm and sheep and cows grass grown in their fields.

To achieve a regular weekly income for the family, two sheds of laying hens arrived in 1999. They built up the poultry business to a total of 1000 hens, though now they have scaled back to 600, which they believe is the maximum number of chickens that can be kept on their holding without the build-up of excess nitrogen affecting the local area. The chicken manure is composted along with other organic matter.

'We adopted biodynamic practices as a means of farming holistically – it was a system of farming that did not depend on purchasing inputs. We started with nothing and we had to look after the land the best we could and we found we could do this by farming biodynamically.'



At Ffrwdwenith Isaf they have a flock of around 20 Dorset breeding ewes and a small herd of Hereford beef cattle, all 100% pasture fed. The sheep help manage the wheat fields and the grazers in general help build fertility. There are also two acres of field with strawberries, potatoes, roots, squash and brassicas as well as arable crops including wheat, peas and naked oats for poultry feed. The farm is largely self-sufficient in poultry feed and they have also grown a small acreage of Hen Gymro, or 'Old Welshman' wheat.



The main output of the farm is eggs sold to local shops but also via Organic Farm Foods, Black Mountain Foods and Abel & Cole. They also sell chicken meat and 100% pasture fed lamb and beef in local meat boxes. Boxes are sold from the farmgate along with supplying local shops.

'Selling directly at the markets provides an opportunity to talk to people about the way we farm. It's important people understand about the food we grow.'

'I am just a custodian of the land. For me it's about leaving behind something better than we found... something that will feed future generations... it's about the children and the future.'

