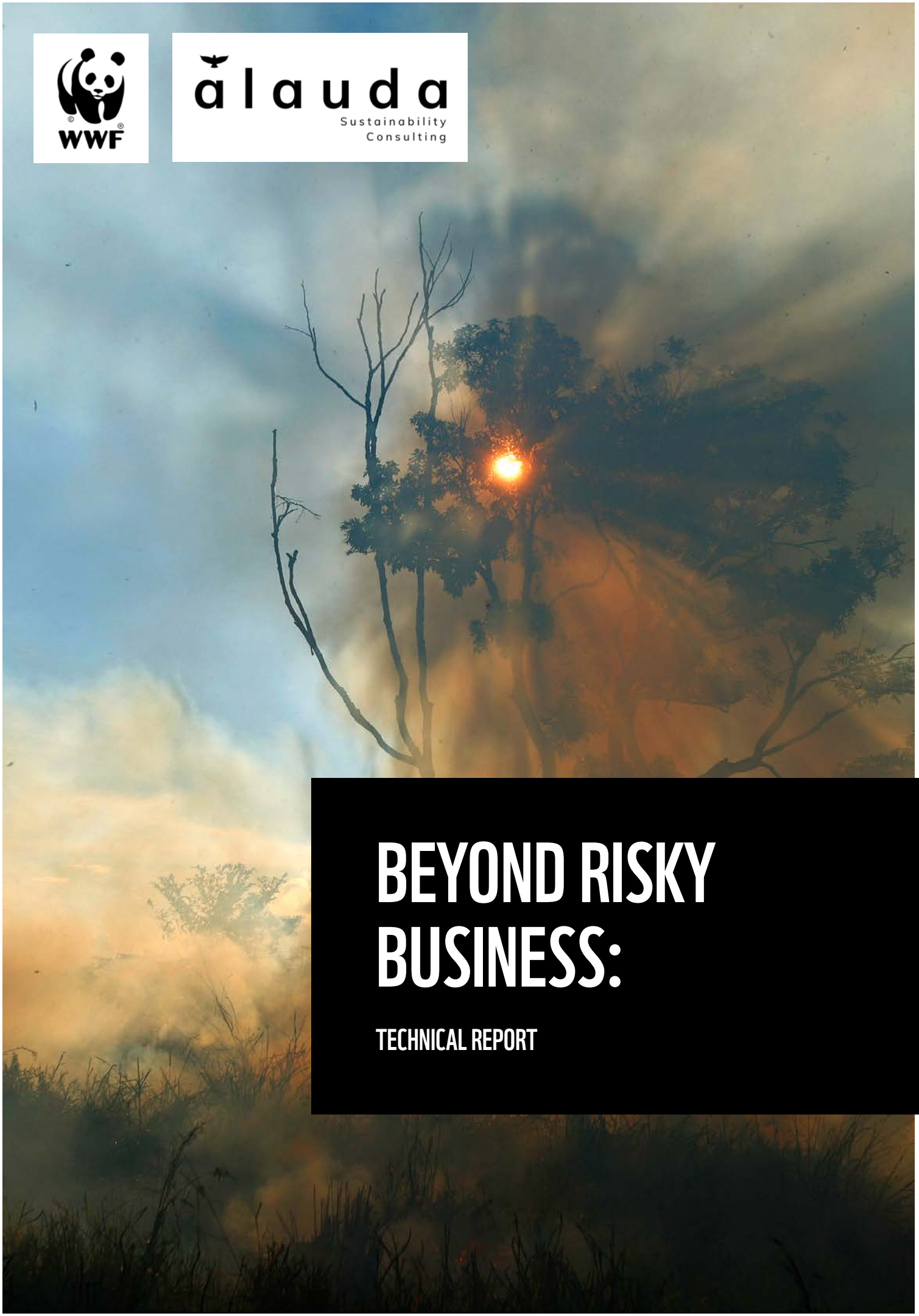


BEYOND RISKY BUSINESS:

TECHNICAL REPORT

This report updates and extends our 2020 assessment, Riskier Business,[1] which focused on the deforestation risks resulting from the UK's trade in the same seven agricultural and forest commodities: beef & leather, cocoa, palm oil, pulp & paper, rubber, soy, and timber. We present new analyses of the potential impacts of the UK's imports of these commodities and add an eighth commodity, coffee, to the analysis. The report includes data up until 2025, which was the most recent available at the time of our analysis.

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Lead authors:
Alauda Consulting Ltd.: Dr Steve Jennings
WWF-UK: Dr Lilly Da Gama and Lucy Young

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[1] WWF and RSPB (2020). Riskier Business: the UK's overseas land footprint. https://www.wwf.org.uk/riskybusiness

1. Key findings

Between 2011 and 2025, the UK required an average overseas land footprint of 19.3 million hectares, equivalent to three-quarters of the total UK land area, to meet demand for just eight agricultural and forest commodities: beef & leather, cocoa, coffee, palm oil, pulp & paper, rubber, soy, and timber.

Overall, the UK's overseas land footprint fell by 7% between 2011 and 2025. This decrease is largely driven by a decline in beef & leather and pulp & paper imports, whilst imports of timber products and soy have increased significantly.

By far the largest of all the land footprints are those associated with timber and pulp & paper, requiring an average of 6.66 million hectares and 4.48 million hectares per year respectively.

We ranked the countries from which the UK imports directly according to their risk, using a composite of four factors: extent of tree cover loss, rate of deforestation, rule of law, and labour standards. Our assessment found that 8.13 million hectares of the UK's overseas land footprint, an area four times the size of Wales, is located in countries assessed as having a 'very high' or 'high' risk of deforestation, conversion of natural ecosystems and/or human rights abuses. Soy, palm oil, coffee and natural rubber all have more than 60% of the land area supplying the UK located in countries considered to have high and very high risk.

Greenhouse gas emissions from land-use change associated with these imports is estimated to average 24.2 million tonnes of CO_2e per year, equivalent to around 7% of the UK's annual emissions. While these emissions are included in UK environmental accounts, they are not currently reflected in the UK's carbon budgets or climate targets.

While some commodities, notably palm oil, have been under the spotlight for many years, there are hidden deforestation risks associated with lesser-known sectors in the UK. Pet food contains an estimated 461,000 tonnes of embedded soy annually, generating around 1.2 million tonnes of CO_2e from land-use change, while Scottish salmon production uses around 42,300 tonnes of soy meal, with much of the associated land footprint in high-risk countries. The largest impact is from poultry, where soy used in UK chicken and egg production requires an estimated 1.13 million hectares of land and is associated with around 10.1 million tonnes of CO_2e annually. Although some companies have introduced deforestation- and conversion-free soy commitments, gaps remain in certification and supply-chain traceability, meaning significant deforestation risk remains across these sectors.

Tropical forests and other natural ecosystems are essential for biodiversity, climate regulation, ecosystem services and human wellbeing, yet they continue to face severe pressure from deforestation, conversion and degradation. In 2025, more than 4.3 million hectares of primary tropical forest were lost, while agricultural commodity production is estimated to drive around half of global forest loss and land conversion. Agriculture, forestry and other land-use activities also contribute up to one-fifth of global greenhouse gas emissions, meaning protecting and restoring natural ecosystems is critical to addressing both the biodiversity and climate crises.

2. Priorities for UK deforestation regulation

Despite significant commitments from governments and businesses through international agreements and voluntary action to eliminate deforestation from supply chains, they have failed to deliver the scale and pace of change required. Governments therefore have a critical role to play in accelerating the transition towards sustainable, deforestation- and conversion-free trade through robust and effective regulatory frameworks.

In November 2026, it will be five years since the UK Government introduced new legislation in the Environment Act to tackle illegal deforestation in UK supply chains. Schedule 17 of the Environment Act introduced three core requirements on regulated businesses: prohibition from using forest-risk commodities or derived products in breach of relevant local laws; to establish and implement a due diligence system; and an annual report on their due diligence exercise. Secondary legislation is necessary to operationalise the requirements of Schedule 17.

In June 2026, the Government announced its intention to introduce regulations under Schedule 17 alongside reforms to strengthen the UK Timber Regulation and a consultation with businesses, civil society and international partners on the substance of this proposed Great Britain policy. The EU Deforestation Regulation (EUDR) will apply in Northern Ireland in phases from 30 December 2026 as part of arrangements which ensure Northern Ireland's unique access to the EU single market is maintained.

The forthcoming consultation will be a key opportunity to ensure a strong, enforceable and inclusive regulatory framework that reduces the UK's overseas deforestation footprint while supporting producer countries and smallholders to produce and trade agricultural commodities without driving further deforestation or market exclusion.

We call on Government, businesses, financial institutions, civil society and the public to help shape an ambitious, effective and inclusive regulatory framework, guided by the following key priorities:

Raise ambition: The announcement confirms a shift from voluntary action to mandatory requirements for businesses using forest-risk commodities. However, the proposed approach should be seen as a step towards, not the completion of, the regulatory framework needed to tackle the UK's deforestation and conversion footprint. While the initial Great Britain framework is expected to focus on illegal deforestation, the government need to set out a clear, time-bound pathway towards a full deforestation- and conversion-free standards, supported by defined milestones and a review mechanism.

Maintain broad scope: Align commodity and product coverage with EUDR/Northern Ireland where this raises ambition and reduces business complexity with flexibility to update over time. Alignment with EUDR should be treated as a baseline, not a ceiling. The regulation should cover all major forest-risk commodities and derived products materially associated with the UK's deforestation and conversion footprint, with a mechanism for adding commodities and products as evidence and trade patterns evolve.

Strengthen traceability: Require robust origin, geolocation and legality evidence, with clear and proportionate information-sharing requirements throughout the supply chain. Credible certification should be used only as supporting assurance, not as a substitute for due diligence.

Ensure credible enforcement: Regulators must be given sufficient resources and powers to undertake risk-based checks, require corrective action and investigate non-compliance. Penalties should be effective, proportionate and dissuasive, with public reporting of company due-diligence statements and enforcement outcomes. This will help ensure the framework drives meaningful change throughout the supply chain rather than paper compliance.

Support inclusive implementation: Alongside regulations, the government should support producer countries, smallholders, and Indigenous Peoples and local communities through wider climate and forest finance commitments, assistance to improve market access, while reducing the risk of displacements. The regulations should require businesses to avoid transferring compliance costs unfairly to small-scale producers, provide accessible grievance and remedy mechanisms, and prioritise continued engagement, capacity-building and remediation.

Drive transformation: Due diligence must drive transformation across supply chains and production landscapes, not simply create permanent "clean" channels for regulated markets while deforestation and conversion continue elsewhere. Segregated and traceable supply chains may demonstrate compliance in the short term, but they should be a stepping stone towards wider market transformation, and not a means of shifting to easier-to-trace suppliers while excluding smallholders or higher-risk regions that need support. Ambitious UK regulation, combined with diplomatic, trade and development partnerships, should encourage compatible approaches in other consumer markets while supporting implementation in producer countries. This would help reduce fragmented requirements, limit leakage into less-regulated markets and accelerate systemic change.

Align finance and investment: Firstly, complement supply-chain regulation with measures requiring UK financial institutions to understand, disclose and act on deforestation and land conversion risks as part of wider nature risk analysis in their lending, investment and underwriting portfolios. This means requiring TNFD-aligned disclosures and climate-nature transition plans. Secondly, ensure that financial crime regulation and enforcement takes account of the relationship between deforestation and financial crime, building on the growing awareness of this issue within the UK and global finance sector. Finally, work with other jurisdictions to implement further measures to ensure adequate scrutiny of financial institutions links to deforestation and land conversion.

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3. Introduction

3.1 We are facing global biodiversity and climate emergencies

Tropical forests and habitats are critical to planetary and global public health. They play a key role in tackling climate change, by absorbing carbon dioxide from the atmosphere, and providing essential ecosystem services, such as air and water purification, temperature regulation, and sources of shelter, food and medicine. Forests are home to over 80**%** of the world's land-based species of animals, plants, and insects.[1]**,** while around two billion people depend on them, directly or indirectly, on forests to fulfil their needs for food, fibre and shelter.[2]

Despite their importance, the world lost over 4.3 million hectares of primary[3] tropical forest in 2025, equivalent to 11 football pitches every minute.[4] Although this was lower than the previous year, it remains the fourth highest year since 2002.[5] **The urgency required to halt deforestation, conversion and habitat degradation can hardly be overestimated**. To take the Amazon forest as an example, over 17% of the forest has undergone conversion, while an additional 17% is classified as being heavily degraded[6].The region is now about 1.2°C warmer than the pre-industrial global average temperature, exceeding the global average of 1.1°C.[7] If the present rate of conversion continues, the Amazon could reach its tipping point between 2030-2040.[8], triggering widespread and potentially irreversible ecosystem change and catastrophic impacts for people, biodiversity, regional and global climates, as well as regional economies. Early warning indicators suggest that, in the last ten years, one third of the Amazon biome has already experienced at least one of the tipping point thresholds.[9]

Half of all forest loss and land conversion globally is caused by the production of agricultural commodities.[10] These include commodities that are commonly found in our everyday lives, such as the "hidden" soymeal that is fed to the chicken, pork and salmon we eat, the palm oil used in soap or margarine, and the coffee we drink.

At the same time, agriculture, forestry and other land activities contribute up to a fifth of global man-made GHG emissions,[11] greatly hindering our ability to mitigate climate change. However, if forests and other critical natural ecosystems are properly preserved and degraded areas restored and enhanced, they could contribute significantly to limiting global warming to 1.5°C.[12,13]

There have been increasing voluntary commitments to remove deforestation from commodity supply chains. The Consumer Goods Forum's Forest Positive Coalition – which brings together 22 of the largest consumer goods manufacturing and retail companies in the world – adopted a resolution to achieve net-zero deforestation across commodity supply chains by 2020.[14] In 2014, the New York Declaration on Forests (NYDF) was endorsed by actors from the private sector, governments and civil society, who committed to halving deforestation from agricultural supply chains by 2020 and eliminating it by 2030.[15] Many UK corporate actors have made commitments and are actively working to reduce the deforestation and conversion – and the associated greenhouse gas emissions – in their supply chains. For example, 86**%** of palm oil in UK retailer supply chains is deforestation and conversion free,[16] and signatories of the UK Soy Manifesto, who together represent nearly 60% of the UK's total soy consumption, are committed to removing deforestation and conversion-linked soy from feed and food supply chains.

Building upon this and commitments made under the Paris Agreement,[17] in 2021, the UK joined 146 major consumer country governments in signing the Glasgow Leaders' Declaration on Forests and Land Use,[18] committing to "halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation. More recently, the UK government adopted an official statistic which links UK consumption to deforestation risk.[19]

Despite high-level commitments and voluntary initiatives, including sustainability certification, corporate pledges and market incentives, commodity-driven land use shows little sign of slowing., This continues to have negative impacts on Indigenous Peoples**,** local communities and nature**.** At the same time, legislation that should play a fundamental role in bringing these high-level commitments into reality have been delayed. The EU Deforestation Regulation (EUDR) has been deferred and is now expected to be implemented from 30 December 2026 for large and medium operators and 30 June 2027

for small enterprises. This is important for the UK because many deforestation-risk commodities (e.g. palm oil) arrive in the UK from countries such as the Netherlands, and the EUDR includes the stipulation that imports *and exports* of the commodities within its scope should be deforestation free.

Global demand for deforestation-risk commodities continues to grow. Unless we can decouple future agriculture, aquaculture and forestry from deforestation, conversion and ecosystem degradation, this demand will drive further nature loss, and the decline of valuable ecosystem services.

3.2 We need further action in the UK

The UK imports significant quantities of agricultural and forest commodities, some of which are driving deforestation, habitat destruction and social impacts overseas. These commodities are both consumed within the UK and traded on to other countries.

According to their own assessment, the UK government has recognised that deforestation, conversion and habitat degradation threaten the resilience and security of the supply chains that the UK population relies upon, driving up food prices and creating supply chain volatility.[20]

Despite this official acknowledgement of some of the consequences of deforestation and conversion, there has been a significant delay in passing the secondary legislation in Westminster that would bring the UK Forest Risk Commodities (UK FRC) Regulation into being. At the time of writing, **the UK government has confirmed that it will introduce the secondary legislation with further details to be announced over the coming months**, which is encouraging. Equally encouraging is the expansion in the commodities to be covered, and the suggestion of alignment with the EUDR.[21]

The EUDR will also be introduced in Northern Ireland in phases from 30 December 2026 under arrangements that maintain its access to the EU single market. In the five years since the Environment Act 2021 was passed, the primary legislation that provides legal framework and mandate for the UK FRC, UK supply chains have continued to be associated with deforestation and conversion. Introducing secondary legislation, and ensuring that it is fit for purpose, therefore remains a priority.

3.3 About this report

The first Risky Business report, published in 2017, highlighted key socio-environmental risks associated with the UK trade of the following seven forest and agricultural commodities: beef & leather, cocoa, palm oil, pulp & paper, rubber, soy and timber.[22] The analysis was updated in 2020, extendingcoverage to 2018 while retaining the 2011 baseline.[23] In this report, we reassess the UK's trade of the same commodities and the associated risks, from 2011 to 2025, also adding coffee to the analysis. These supply chains continue to be associated with deforestation, conversion and habitat degradation, both globally and through UK imports.[24] We provide estimates of GHG emissions due to direct land-use change from the production of these commodities. In addition to our global analysis, we include case studies for three UK sectors: the poultry sector, the pet food sector and the aquaculture sector, and provide preliminary estimates to their exposure to deforestation risk. These three sectors were chosen as they represent 'hidden' impact, meaning many consumers are simply and understandably unaware of the deforestation risk embedded in these products.

4. Findings per commodity

4.1 Soy

Global soy production has increased more than elevenfold since the 1960s with the global harvested area increasing fourfold.[25] Production – and the expansion of soy cultivation – is concentrated into a smaller number of countries, specifically Brazil (accounting for 36% of global production), the USA (30%) and Argentina (11%).[26] China, in itself a major producer, is also by far the largest importer globally.

Soy is imported as soy meal, soy beans, soy oil, as an ingredient in products (e.g., tofu or soy sauce) and embedded within imported livestock products that have been fed soy (e.g., chicken meat). More than 90% of the soy imported into the UK in any form is used as animal feed.[27] It is primarily fed to monogastric animals (poultry and pigs), usually as compound feed (i.e., combined with other ingredients) and is used widely for fish feed in aquaculture. It forms a smaller part of the diet of intensive beef and dairy cattle. Soybean meal is the predominant form used for animal feed, but a small proportion of whole soybeans are also used in livestock feed.

Between 2011 and 2025, the UK imported an average of 3.46 million tonnes of soy each year. Most imports are in the form of meal (69%) and beans (22%) for livestock feed. Only around 9% of imports are in products that are directly consumed by humans, almost all of which are embedded soy in imported meat or dairy products, but which also include soya products such as soy sauce.

UK soy imports have increased steadily since 2011, with an average year-on-year increase of nearly 70,000 tonnes (Figure 1).

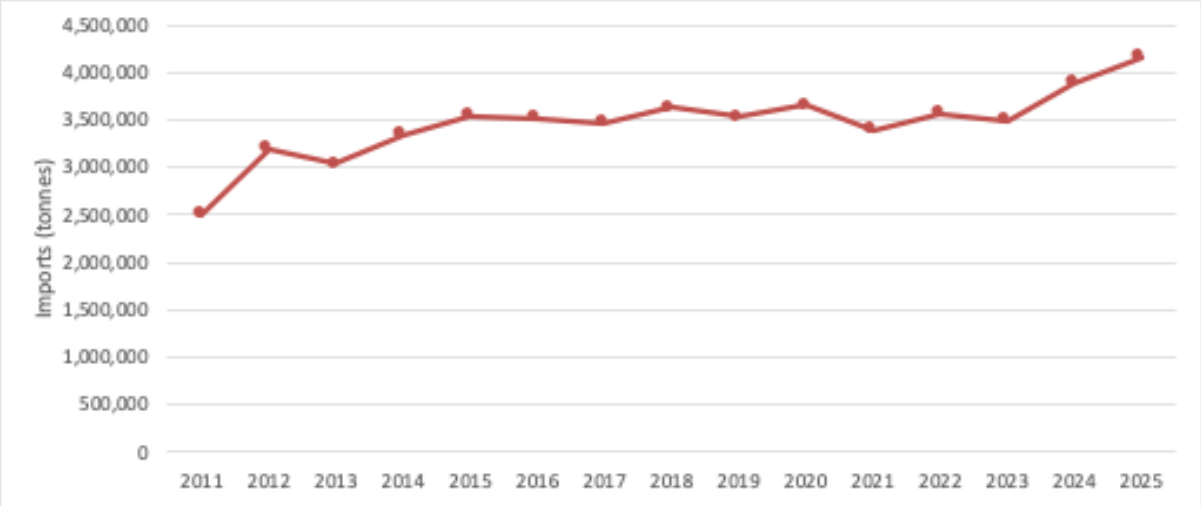


Figure 1: The UK's imports of soy 2011-25. A linear regression is statistically significant at p<0.02, signifying that the increase over time is not the result of random fluctuations in imports.

The increase is largely driven by the growth in the UK's poultry population, with more of them housed in intensive poultry units (IPUs), which focus on high-protein feed, of which soy is a major ingredient. Between 2011 and 2025, the UK poultry population has increased by 13% to 183 million birds,[28] driven by increased domestic consumption.[29] Other major users of soy include pigs and dairy cows (Table 1).

Table 1: Soy use by livestock type. Source: Efeca (2020).[30]

Livestock	Proportion of soy
Poultry	55%
Eggs	10%
Pigs	15%

Sheep	1%
Beef	<1%
Dairy	12%
Other species	7%

The average overseas land area required to produce UK soy imports each year is 2.11 million hectares. This is equivalent to an area the size of the Scottish Highlands. As the quantity of imports has increased over the period, so has the land required to produce the soy that the UK imports. In 2025, this area of land stands at 2.8 million hectares (Figure 2).

More than two-thirds of this footprint is located in countries that are high or very high risk for deforestation and/or social impacts, including Paraguay, Brazil, and Argentina. The sourcing profile has remained largely unchanged over time, with the concentration of supply from high- and very-high risk countries (Figure 2). The only major sourcing countries that have a medium risk profile are the USA, which accounts for 11% of the footprint and Canada, which accounts for 3%.

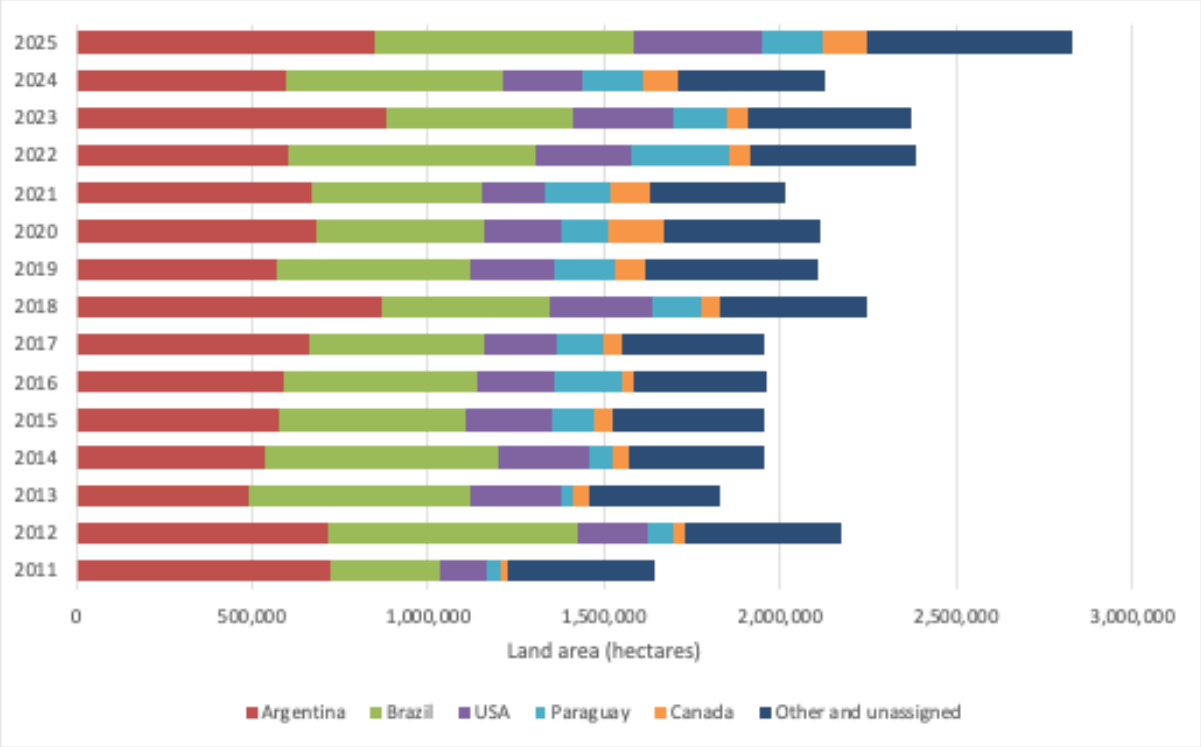


Figure 2: Overseas land footprint for the UK's imports of soy 2011-25

GHG emissions from land-use change associated with the UK soy imports averaged 19.3 million tonnes of CO_2e each year. Almost all of these emissions come from Latin America, particularly Argentina and Brazil. This is roughly equivalent to the annual emissions of the population of the City of Birmingham.

A recent estimate suggests that just 22% of the UK's soy imports are verified as deforestation- and conversion-free.[31] A further 46% is covered through mass-balance certification or the purchase of certification credits. However, these approaches do not guarantee that the soy physically imported into the UK is free from deforestation, conversion or serious social impacts. [2]A second estimate for soy meal

[2] Certification systems have a range of supply chain options. Identity Preserved keeps the certified material from a particular producer separate throughout the supply chain. Segregated certified aggregates certified material but keeps this separate from non-certified material. Both of these options provide some guarantee that the physical material imported is certified. The next option is mass balance, whereby certified and non-certified material are mixed, with a proportion claimed as certified depending on the proportion going into the factory or silo. Credits are where a purchaser pays a credit to a certified farmer but

(not all soy) was that 39% of imported meal was compliant with the European Feed Manufacturers Federation (FEFAC) deforestation and conversion standards through mass balance and segregated supply chains.[32]

Some soy products are included within both the proposed UK FRC regulation and the EUDR. If implemented respectively, these measures could significantly reduce the environmental impacts of the UK soy imports. Around 18% of the UK's soy imports are both imported from the EU and within the scope of the EUDR, so if sourcing patterns remain, this share of imports should be deforestation-free from 30 December 2026, when the regulation begins to apply to large and medium-sized operators.

takes procession of the commodity from the open market. In these later two cases, there is no guarantee that the physical material is certified.

4.2 Palm oil

Although a widespread crop in the tropics, global production of palm oil is highly concentrated in just two countries: Indonesia (59% of global production) and Malaysia (30%). The third largest producer, Thailand, accounts for just 5% of global production.[33]

Between 2011 and 2025, the UK imported an average of 1.1 million tonnes of palm oil, palm kernel oil and palm kernel meal, either as commodities or embedded in imported products. Most imports were in the form of meal (38%), which is used as animal feed, and palm oil (36%), which is widely used in food products, including bakery items, ready meals, chocolate and confectionery, as well as health and beauty, and household products. Most of the remaining imports were manufactured goods containing palm-derived ingredients, such as cosmetics, margarine, chocolate and bakery products.

Imports have declined since 2011 (Figure 3). The drivers behind this are unclear but may reflect a combination of factors, including restrictions on the promotions of foods high in fat, salt and sugar (HFSS), greater use of alternative oils, and the influence of emerging regulation and continuing voluntary commitments to address deforestation.[34]

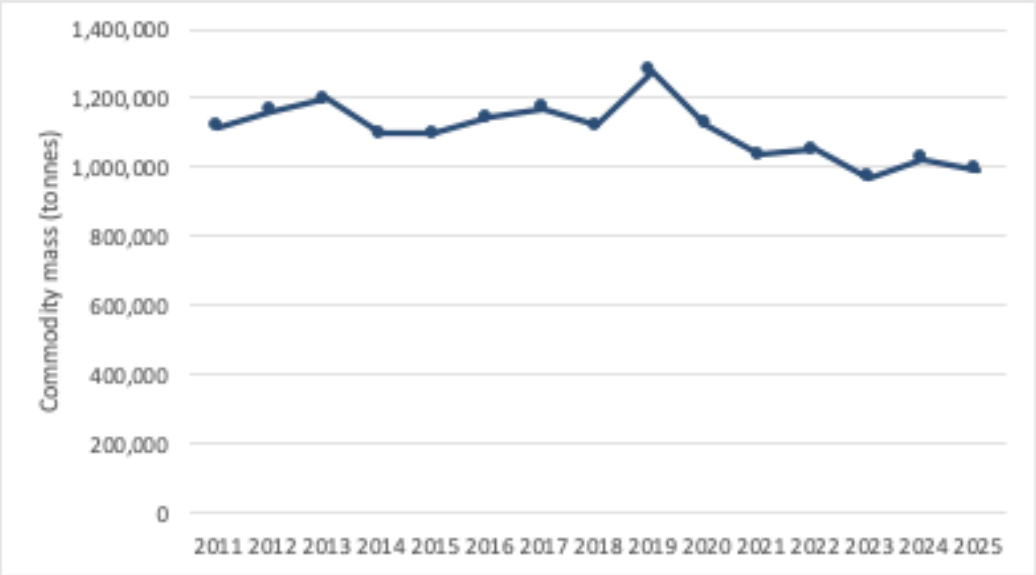


Figure 3: The UK's imports of palm oil, palm kernel oil and palm kernel meal 2011-25. A linear regression is statistically significant at p<0.02, signifying that the decline over time is unlikely to be the result of random fluctuations in imports

UK palm oil imports are associated with an average overseas land footprint of 1.02 million hectares, an area roughly twice the size of Northumberland.

Over the period analysed, 80% of this land footprint has been in countries with a high or very high risk of deforestation and/or social impacts, including Indonesia, Malaysia and Papua New Guinea. The Solomon Islands, the fourth-largest source country, could not be assigned a risk score due to insufficient data. The sourcing profile has remained largely unchanged over time, with most imports continuing to originate from high- and very-high risk countries (Figure 4).

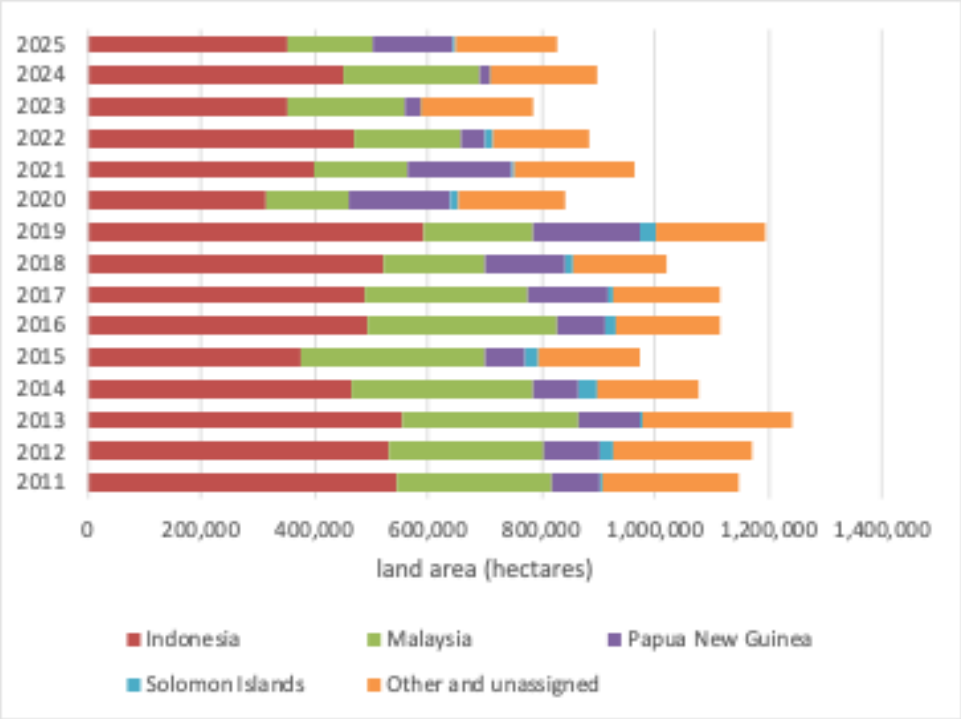


Figure 4: Overseas land footprint for the UK's imports of palm products 2011-25

Landuse change associated with UK imports of palm oil, palm kernel oil and palm kernel meal generates an average of 4.06 million tonnes of CO_2e each year. This is roughly the equivalent to the annual emissions of Nottingham's population. Nearly two-thirds of these emissions (63%) are linked to deforestation in Indonesia.

Around 84% of UK imports of palm oil and palm kernel oil are certified under the Roundtable on Sustainable Palm Oil (RSPO) Segregated supply chain model,[35],[iii] which provides some degree of assurance that production is not associated with deforestation, or the use of child or forced labour. However, these figures on certified imports cover only 22% of all oil palm product imports, as they do not include palm kernel meal nr palm oil used as an ingredient in imported manufactured products.

Some palm oil products fall within the scope of both the proposed UK FRC regulation and also part of the EUDR. If these laws are implemented as planned, these measures could significantly reduce the environmental impacts associated with UK palm oil imports of palm oil. Around 13% of the UK's total palm oil imports arrive via the EU and are covered by the EUDR, meaning they would be required to meet the regulation's deforestation-free requirements.

[iii] This reports that 92% of palm oil and palm kernel oil is certified, of which 91.6% is segregated certified (i.e., 84% of the total palm oil and palm kernel oil). See also footnote 32, above for a description of the different supply chain models used by certification systems.

4.3 Beef and leather

Beef production is almost ubiquitous, with leather production (a lucrative co-product of both beef[4] and milk production) similarly widespread. The grazing area dedicated for beef cattle globally encompasses an estimated 1.6 billion hectares[5] – more than one and a half times the size of the European continent. The three largest producers are the USA (18% of global production), Brazil (15%) and China (10%).[36] The world's largest leather producer is China (18%), followed by the USA (15% and Brazil (13%).[37]

Cattle ranching is the single largest cause of deforestation and land conversion globally, [38] and is particularly strong driver of deforestation and conversion in South America.[39]

Between 2011 and 2025, the UK imported an average 197,000 tonnes of beef and 141,000 tonnes of bovine leather each year.. There has been a steady decline in beef imports since 2011 (Figure 5). More than half the imports were fresh or chilled beef (51%), while frozen beef accounted for 22%, with the remainder consisting of processed meat products such as corned beef. The decline reflects reduced beef consumption in the UK,[40] driven by a combination of changing dietary preferences and the rising price of beef[41] during a prolonged cost-of-living crisis.

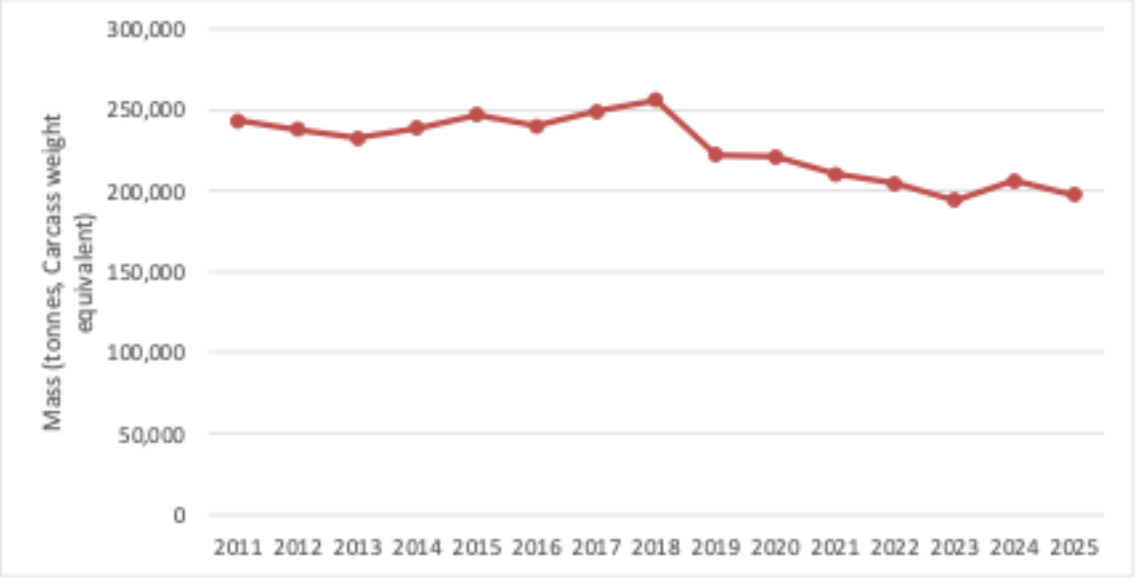


Figure 5: UK imports of beef 2011-25. A linear regression is statistically significant at p<0.02, signifying that the decline over time is unlikely to be the result of random fluctuations in imports.

Leather imports have also fallen, from around 169,000 tonnes in 2011 to 103,200 tonnes in 2025. The reasons for this decline are not wholly clear, but similar trends have been observed across the EU and may reflect reduced consumer spending due to the cost-of-living crisis.[42]

The average overseas land area required to satisfy the UK for beef and leather imports was 3.64 million hectares a year over the period analysed. Over 2.3 million hectares, nearly two-thirds of the total footprint, was linked to beef production.

The sourcing profile has changed over time. In 2011, Brazil, a country with a high risk of deforestation from beef, supplied around one-third of the UK's beef imports. By 2025, that figure had fallen to one-quarter. (Figure 6). Leather imports follow a different sourcing pattern. Ireland, Germany and France are the only countries that account for more than 2% of total overseas land footprint. Overall, leather imports

[4] Leather is approximately 10 per cent of the slaughter value of beef cattle. Almost no cattle are raised solely for their hides, but it nonetheless makes a worthwhile contribution to the overall profitability of beef farming. See Brack, D. Glover, A., and Wellesley L. (2016) Energy, Environment and Resources Agricultural Commodity Supply Chains Trade, Consumption and Deforestation. Chatham House Research Paper.

[5] Estimated by the author from FAOSTAT by apportioning national pasture area between beef, dairy and sheep/goats based on national production data and food conversion and food conversion ratios.

carry a higher risk profile than beef imports, with 49% of the associated land area coming from high-risk countries, particularly China (Figure 7). This contrasts with import volumes, most of which come from low- and medium-risk countries, especially within the EU. For example, Ireland contributes 27% of the leather import volumes and Germany 11%. India is also an important leather sourcing country for the UK. However, because cattle are not typically linked to dedicated pasture systems, the country's leather imports do not generate a measurable land footprint in the same way as other major sourcing countries.

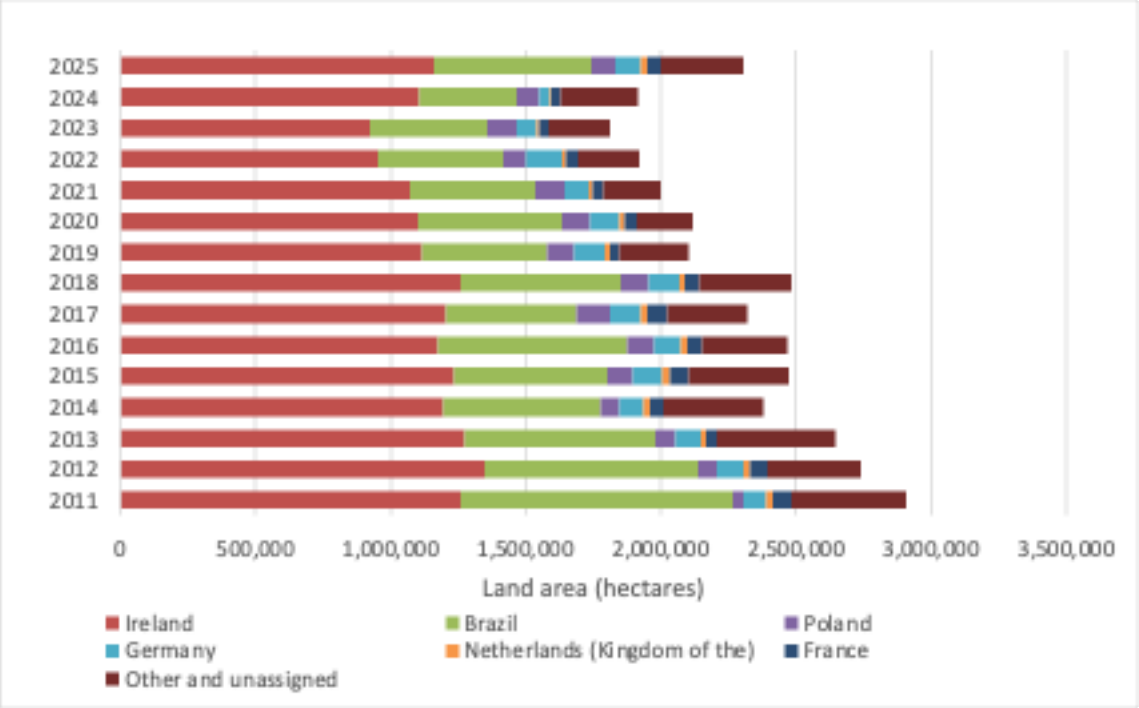


Figure 6: Overseas land footprint for the UK's imports of beef 2011-25

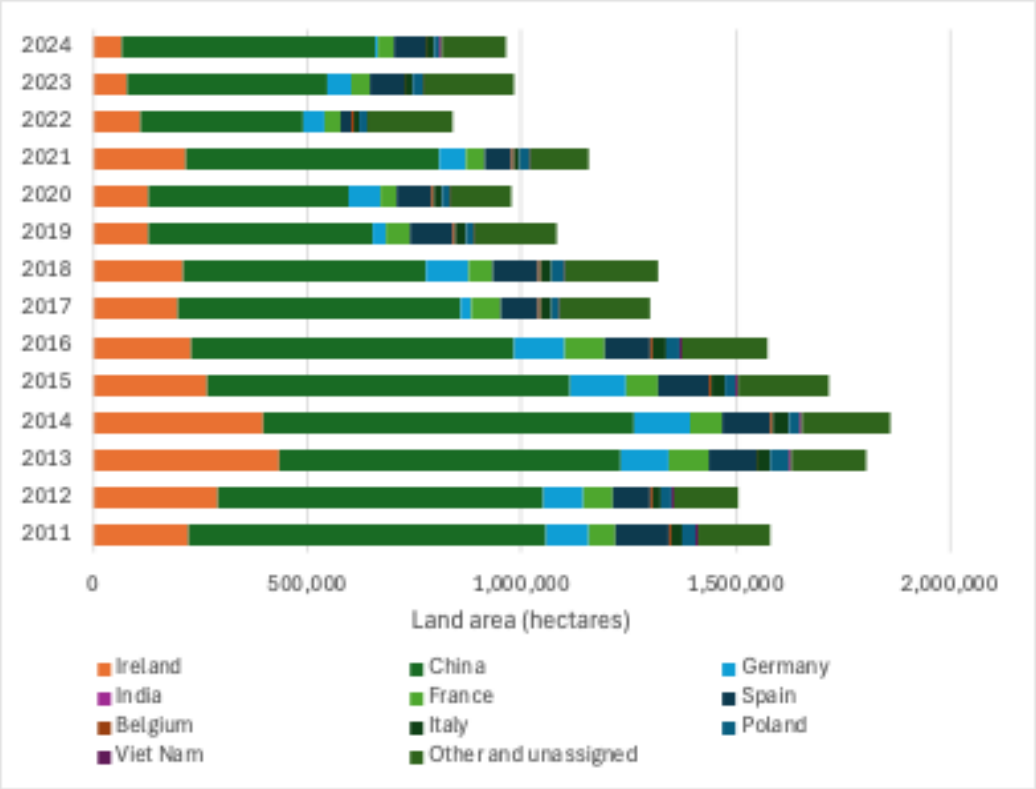


Figure 7: Overseas land footprint for the UK's imports of leather 2011-24 (note that the trade data of leather was somewhat inconsistent for 2025, and so has been excluded)

Unlike palm or soy, there are currently no voluntary certification schemes for beef or leather that operate at significant scale, limiting the options available for companies buying beef from high-risk countries. In 2025, WWF launched the Deforestation-Free Leather Fund, which aims to pool the resources of member companies to eliminate deforestation and land-conversion from leather supply chains.[43] Some beef products, although not leather,[44] are included within the scope of the EUDR, while some products of both are included within the proposed UK FRC regulation.

4.4 Cocoa

The world's cocoa land footprint is about 10.99 million hectares,[45] an area approaching the size of England. The major producers are Côte d'Ivoire and Ghana, producing 36% and 10% of the global output respectively. The majority of global consumption is in Europe and the USA, although demand in other markets is increasing.

Between 2011 and 025, the UK imported an average of 291,000 tonnes of cocoa each year. There has been no discernible change in the quantity imported between 2011-25 (Figure 8). Cocoa enters the UK in a variety of forms, including whole beans (27%), cocoa butter (18%) and chocolate (42%).

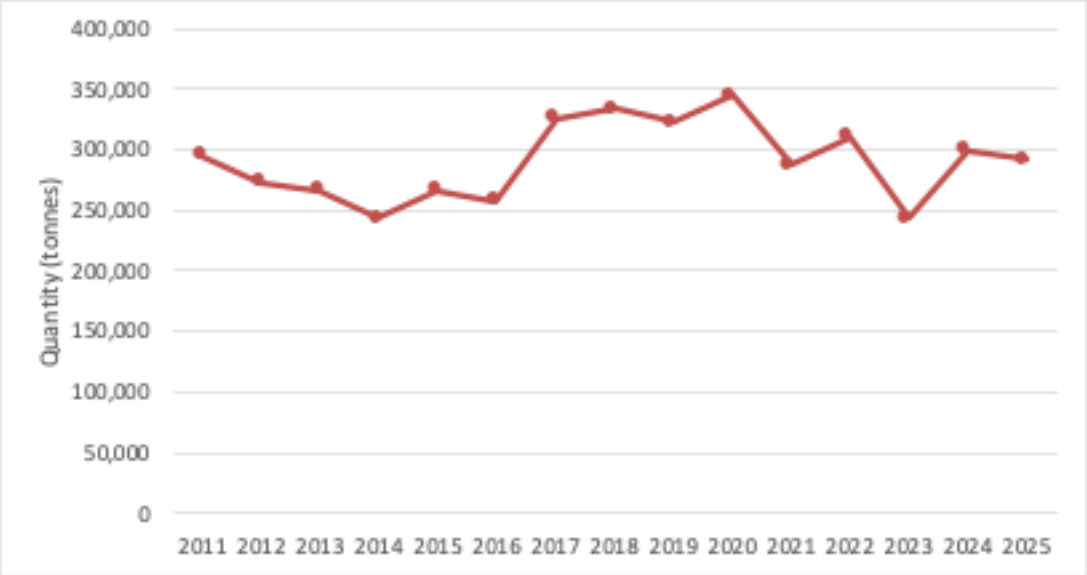


Figure 8: The UK's estimated imports of cocoa 2011-25. A linear regression is not statistically significant at $p<0.05$, indicating that there has been no directional change in imports over the period.

The average overseas land footprint associated with UK cocoa imports was 932,000 hectares a year, an area larger than the county of North Yorkshire. Most imports originated from West Africa, with 45% coming from Côte d'Ivoire and 18% from Ghana (Figure 9).

At least 54% of this footprint is in countries with high- or very-high risk of deforestation and serious social impacts, in particular Côte d'Ivoire and Nigeria. Child labour and forced labour are frequently reported from the cocoa farms in these countries. Since 2011, the risk profile of UK cocoa imports has worsened, with an increasing proportion of supply coming from Côte d'Ivoire and a declining share from Ghana, which is classified as medium-risk country.

Climate change is already disrupting global cocoa supply chains, exposing vulnerabilities and driving up prices. Recent droughts in Ghana and Côte d'Ivoire have contributed to reduced yields and a subsequent sharp increases in cocoa prices.[46] Climate impacts, alongside increasing global demand, have driven further deforestation for cocoa production in countries such as Liberia and Cameroon[47].. Land-use change associated with cocoa production for UK imports generates an average of 3.1 million tonnes CO_2 e each year. Around two-thirds (66%) of these estimated emissions are linked to production in Côte d'Ivoire.

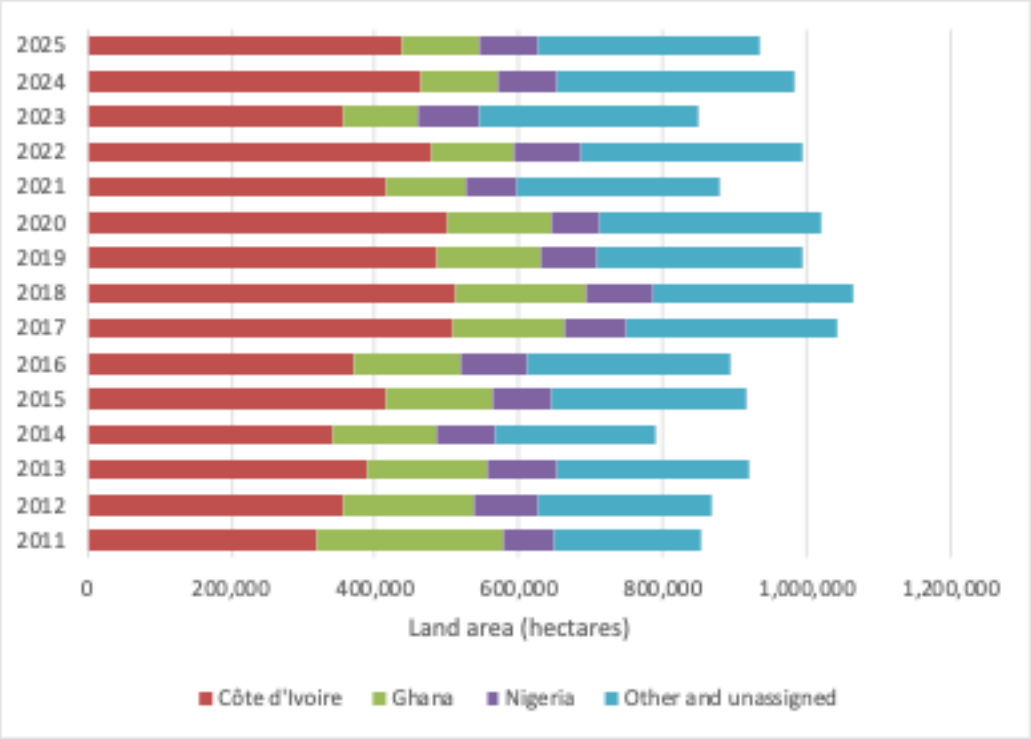


Figure 9: The UK's overseas land footprint for cocoa

The major third-party certification schemes that are used in cocoa are Fairtrade, Rainforest Alliance and organic certification, all of which offer varying degrees of assurance of deforestation-free cocoa. Although UK-specific data is limited, around 12% of UK chocolate was Fairtrade certified in 2023, and an estimated 140,000 of cocoa was Rainforest Alliance certified in the same year.[48] However the supply-chain models used are not specified, meaning the physical connection between certified material and UK imports is unknown. In addition, some cocoa may be certified under more than one scheme.

Some cocoa products fall within the scope of the EUDR. If this is implemented, it is likely to bring about significant reductions in the environmental impacts of the UK cocoaimports, as around 65% of imports both originate from, or pass through, the EU and are covered by the regulation. Cocoa is also expected to be included within the UK FRC regulation.

4.5 Coffee

Coffee is grown in 81 countries, primarily throughout Latin and South America, Central and East Africa, and Southeast Asia.[49] Brazil and Vietnam dominate global production, accounting for 30% and 17% respectively. There are two main varieties of coffee: Arabica (*Coffea arabica*), which represents 57% of global production and is typically cultivated at higher altitudes, and Robusta (*Coffea canephora*), which accounts for the remaining 43% and is usually grown in lowland areas.

Between 2011 and 2025, the UK imported an average of 239,000 tonnes of coffee each year. There has been significant increase in the quantity imported over the period (Figure 10), which seems to be driven by a rapid increase in the number of high street cafe chains, increased adoption of home-brewing equipment, and younger people embracing speciality coffee drinks.

Imports are principally in the form of unroasted, non-decaffeinated beans (66%), followed by roasted, non-decaffeinated beans (22%).

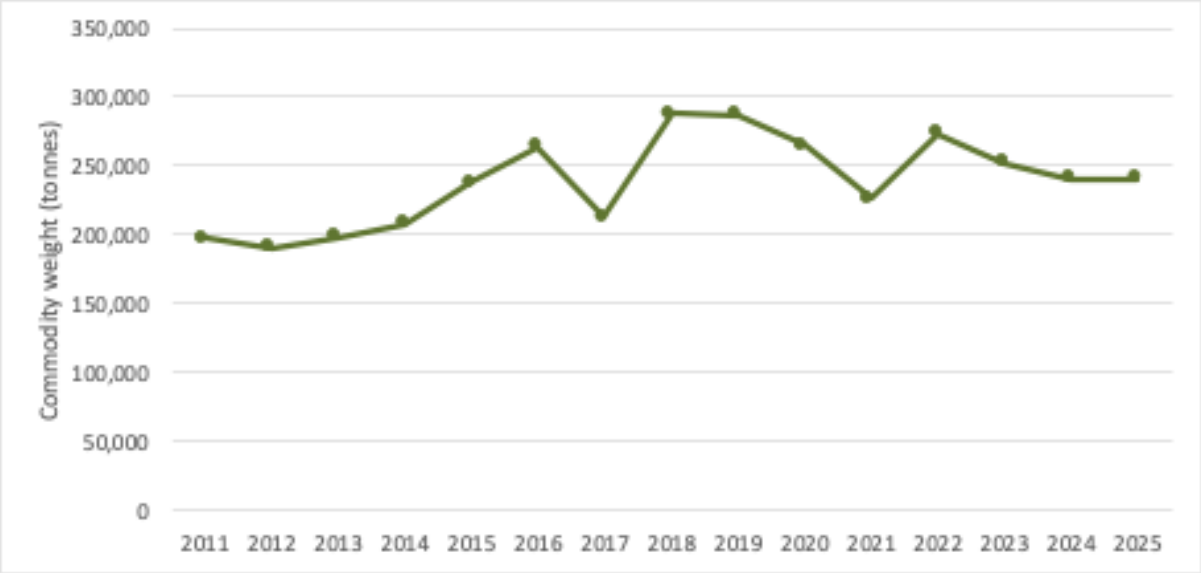


Figure 10: The UK's estimated imports of coffee 2011-25. A linear regression is statistically significant at $p<0.05$, signifying that the increase over time is not the result of random fluctuations in imports.

The average overseas land area required to satisfy the UK demand for coffee averages 183,000 hectares per year over the period analysed (Figure 11). This is approximately the same size as the Welsh county of Ceredigion. At least two-thirds (65%) of this footprint is in countries with high- or very-high risk of deforestation and serious social impacts, in particular Brazil, Indonesia, Colombia, Honduras and Peru. While the overall risk profile has remained constant over the period, the relative importance of individual sourcing countries has changed, with Brazil becoming a more significant supplier and Indonesia less so.

Several Voluntary Sustainability Systems (VSS) operate within the coffee sector, including Fairtrade, Rainforest Alliance and organic certification. Other schemes, such as 4C and proprietary schemes such as Starbuck's C.A.F.E. Practices, also play a major role. Although no UK-specific data is available, an estimated 55% of global coffee supply was certified in 2022.[50]

Some coffee products fall within the scope of the EUDR. Around 24% of the UK's imports are both sourced via the EU and covered by the regulation, which requires products within its scope to be deforestation-free. If the legislation is implemented as planned, then the deforestation risk of UK coffee imports is likely to decrease. Coffee is also expected to be included within the UK FRC regulation.[51]

GHG emissions from land-use change associated with the production of coffee for UK imports generates an average of 166,000 tonnes of CO_2e each year. This is equivalent to the annual emissions from around 97,000 average cars in the UK.[52]

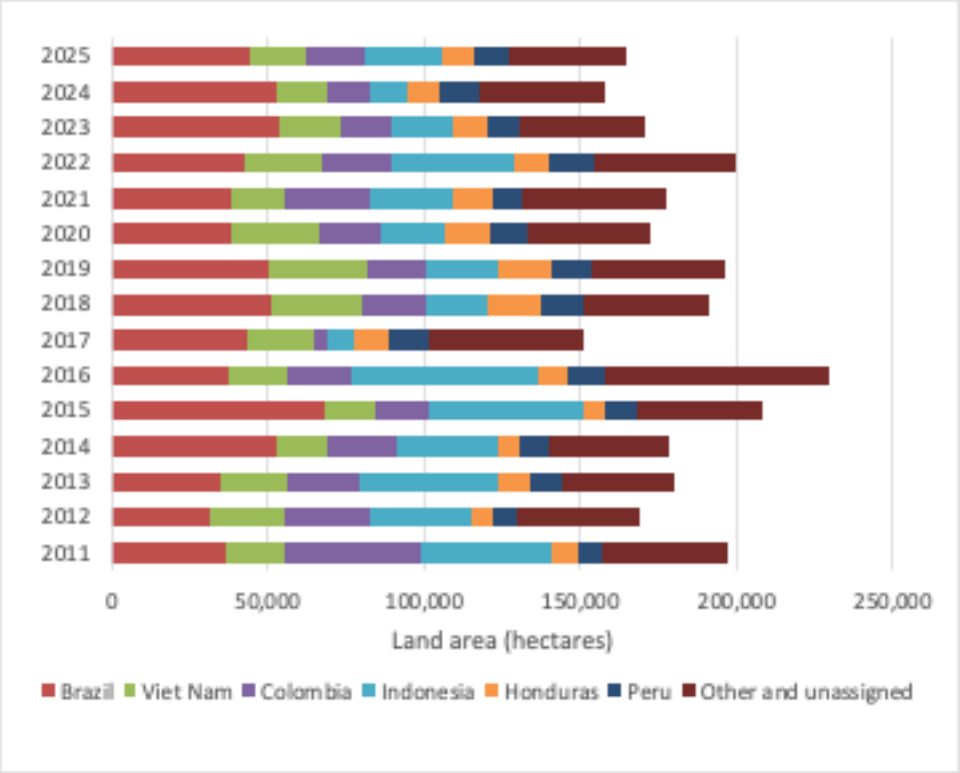


Figure 11: The UK's overseas land footprint for coffee 2011-25.

4.6 Timber

Trees grow everywhere on the planet other than Antarctica, so categorising these organisms requires a fair amount of generalisation. Therefore, for this analysis, we distinguish between softwoods (conifers) and hardwoods (deciduous), as the two typically follow different production and supplychain models: softwoods follow a volume-based approach, while hardwoods usually follow a value-based approach. Softwoods account for around one-third of all roundwood production, and hardwood for two-thirds.[53]

The natural characteristics of softwoods, including their relatively fast growth and long fibres, make them well suited to large-scale, highly mechanised and standardised production. As a result, a small number of species, such as pine and spruce, can be used in a wide range of products, from paper and packing to prefabricated buildings via short value chains.

By contrast, hardwoods such as oak, birch and teak typically grow more slowly and produce shorter fibres. Their ability to grow in any area of the planet allows for a much wider range of species, which then translates into unique physical properties such as strength, durability or sheer beauty. Their slower growth rates generally result in lower yields compared to softwoods, supporting more specialised and higher-value supply chains.

Pulp and paper products are treated separately here, as their supply chains are distinct from those of timber products such as fuel wood, plywood, sawn wood and furniture.

Between 2011 and 2025, the UK imported an average of 24.9 million m^3 each year, measured as Wood Raw Material Equivalent (WRME). Import volumes nearly doubled over this period, rising from 16.2 million m^3 in 2011 to 30.8 million m^3 in 2025 (**Error! Reference source not found.**).

Fuelwood is the largest import (30% of the total) and was the main driver of this overall increase.Fuelwood imports increased from 1.3 million m^3 in 2011 to 12.1 million m^3 in 2025, largely due ot its use in biomass electricity generation.

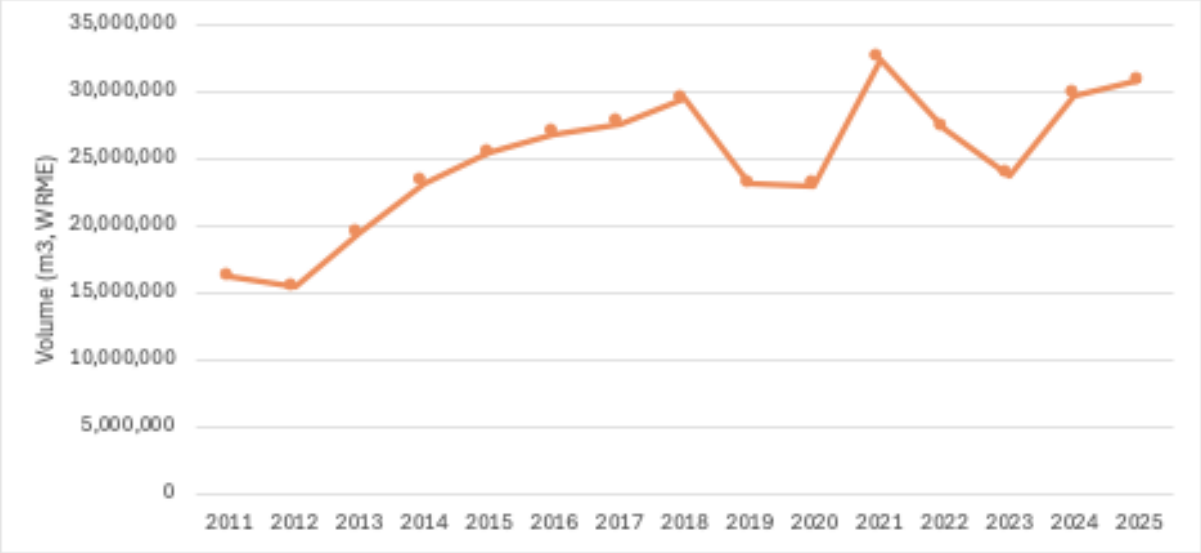


Figure 12: The UK's estimated imports of timber products 2011-25. A linear regression is statistically significant at p<0.01, signifying that the increase over time is not the result of random fluctuations in imports.

The average overseas land footprint associated with UK timber imports averaged 6.66 million hectares a year over the period analysed(Figure 13), equivalent to about half the land area of England. As import volumes increased, the area required to produce it has risen sharply, from 3.98 million hectares in 2011 to 7.95 million hectares in 2025. At least 15% of the land area is in countries with high- or very-high risk of deforestation and serious social impacts, particularly Brazil and the Russian Federation. While imports from Brazil increased slightly over the period, imports from the Russian Federation fell rapidly from 2021, declining from 1.3 million m^3 to almost zero. This reflects multiple trade embargoes placed on the Russian Federation as a result of their invasion of Ukraine. This change has slightly reduced the risk profile of the UK's imports.

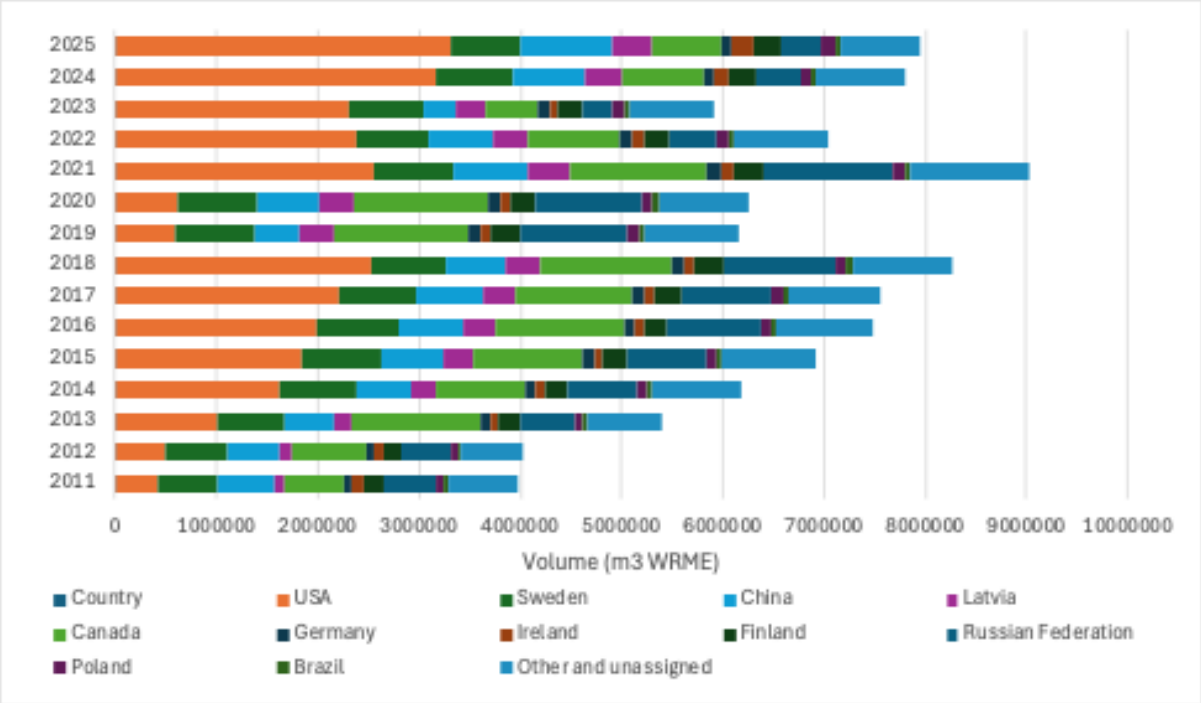


Figure 13: The UK's overseas land footprint for timber products 2011-25.

There are two internationally recognised systems for the certification of sustainable forestry management and its supply chain – the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC). FSC has just under 166 million hectares certified globally (of which 63.5 million hectares are in Europe). PEFC similarly has 295.8 million hectares certified globally, strongly concentrated in Europe and North America (Table 2). Although they are broadly similar, the FSC has greater support from major environmental NGOs, a result of its open and balanced governance structure and stricter safeguards on aspects such as biodiversity conservation and workers' rights. Independent comparisons have concluded that the FSC system is stronger, more transparent and more consistently applied than the PEFC system.

Table 2: Area of forest certified to FSC[54] and PEFC[55] standards. Note that there are areas with dual certification.

Area	***FSC***	***PEFC***
Europe	*63.5*	*82*
N America	*59.6*	*161*
Latin America	*18.9*	*12.5*
Africa	*10.6*	*4.9*
Asia Pacific	*13.2*	*35.4*
Total	*165.7*	*295.8*

The procedure for estimating GHG emissions from land-use change (see Section 7) does not include timber, and we do not therefore provide an estimate here.

Timber products are regulated under the Timber and Timber Products Placing on the Market Regulations (UKTR), which prohibit placing illegally harvested timber on the market. This UKTR is due to be strengthened and is likely to become aligned more closely with the EUDR.[56] This could have a significant impact on UK imports, as 56% of timber imports both originate from the EU and fall within the scope of the EUDR.

5.1 Pulp & paper

Paper and pulp products are made from wood fibre sourced from either plantations or natural forests. In recent decades, the sector has shifted away from hardwood pulp sourced from natural forests towards 'fast wood' plantations, especially eucalyptus and acacia. The industry has also undergone significant restructuring, as digital technologies have a severely reduced demand for newsprint and other paper products.. At the same time, recycling rates for paper and paperboard have increased, while demand for packaging, driven in part by e-commerce, and personal hygiene products continues to grow.

The cellulose fibres used to make paper and card are derived directly from pulp grade logs, wood chips and wood reclaimed from other manufacturing processes (e.g. furniture making), as well as recycled paper. Although there has been a steep rise in the use of recovered and recycled paper in recent decades, it is important to note that paper is not infinitely recyclable, and some products still require fresh fibre from tree species with specific technical characteristics.

Between 2011 and 2025, the UK imported an average of 19.2 million m^3 WRME. Import volumes declined significantly over this period, from nearly 25 million m^3 in 2011 to just 14 million m^3 in 2025 (Figure 14). Coated paper and paperboard (20% of imports), wastepaper (20%) and chemical wood pulp, soda or sulphate, other than dissolving grades, (16%) are the largest imports into the UK.

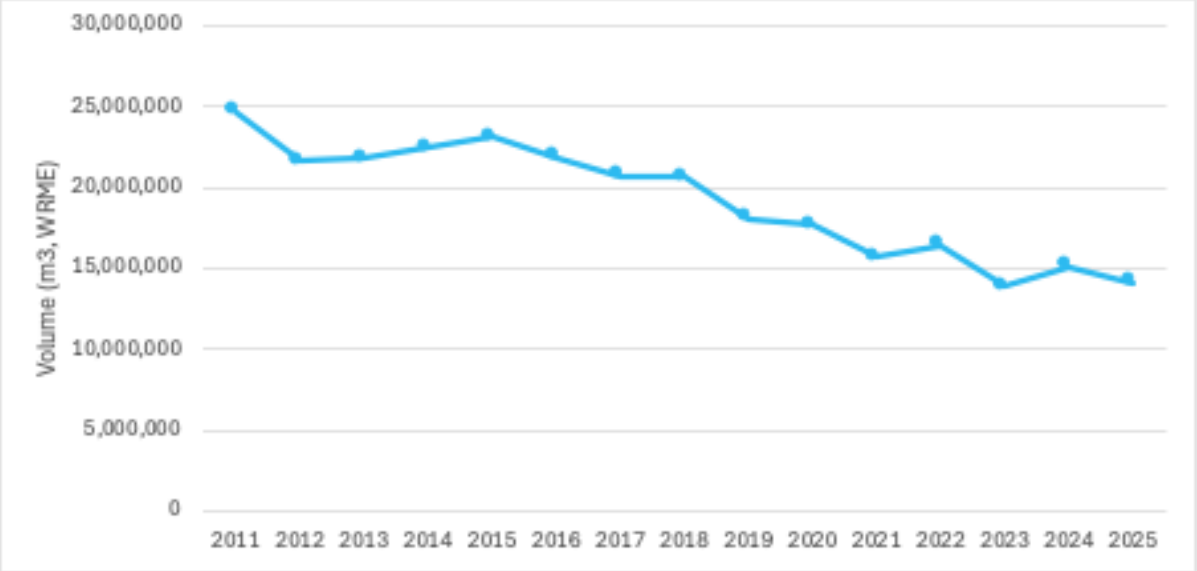


Figure 14: The UK's estimated imports of pulp & paper products 2011-25. A linear regression is statistically significant at p<0.01, signifying that the decline over time is unlikely to be the result of random fluctuations in imports.

The average overseas land area associated with UK pulp and paper imports averaged 4.48 million hectares per year over the period analysed(Figure 15). This is around twice the land area of Wales. As import volumes decreased, so too did the area of land required to meet UK demand(Figure 15).

At least 7% of the land area is in countries with high- or very-high risk of deforestation and serious social impacts, primarily Brazil. However, most pulp and paper products imported from Brazil originate from plantations in the south and centre of the country, where deforestation rates are lower than in the Cerrado and Amazon biomes.

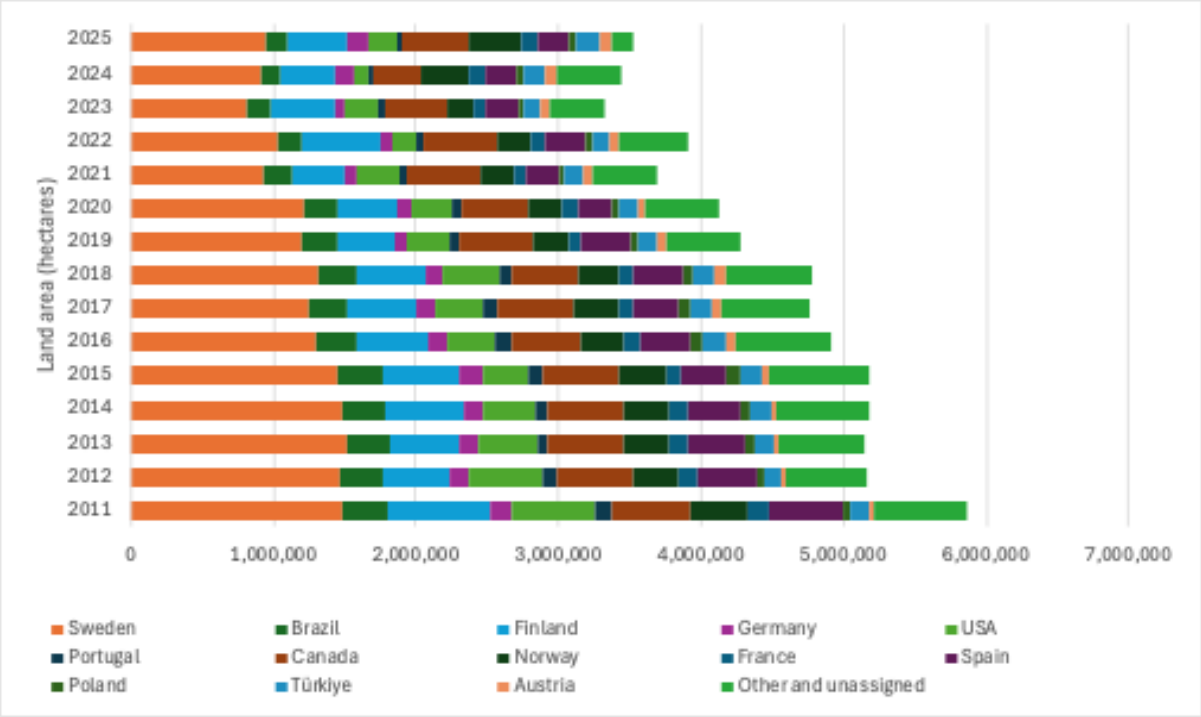


Figure 15: The UK's overseas land footprint for pulp & paper products 2011-25.

The FSC and PEFC certification systems apply to pulp and paper as well as timber (see Section 4.6).

As explained in Section 7, our methodology for estimating GHG emissions from land-use change7 does not cover timber products. Therefore, we do not provide an estimate here.

Pulp and paper products are within scope of the UKTR, which prohibits placing illegally harvested timber on the market. They are also covered by the EUDR, which means that the majority of the UK's pulp and paper imports (63%) are expected to be deforestation-free once that regulation is implemented.

4.7 Natural rubber

Although the rubber tree (*Hevea brasiliensis)* is native to Brazil and the Guianas,[57] most natural rubber is now produced in Southeast Asia. A second type, synthetic rubber, is made from petrochemical feedstocks derived from crude oil. It is produced in a range of forms with different technical properties. More than half of global rubber production is synthetic, meaning the price of natural rubber is influenced in part by the prevailing price of crude oil. Where the two materials can be used interchangeably, the competitive advantage between them is often determined by oil prices.

Rubber trees are grown in plantations, both large-scale and smallholder. Individual trees are tapped on alternate days with the latex collected in suspended vessels, and most plantations have a rest period where tapping is adjourned in the dry season. Natural rubber production is dominated by smallholder farmers, particularly in Indonesia, Malaysia, and India.[58] However, large plantations are increasingly emerging on expansion frontiers, including parts of Laos PDR.

Natural rubber is used in a wide range of ways, from engineering and industrial applications, to tyres, bouncing balls, boots, balloons and latex gloves, but around 70% of global production is used in the manufacturing of vehicle tyres.[59] Although synthetic and natural rubber are substitutable for many uses, natural rubber is preferred for tyre production as it provides the highest level of unvulcanised strength and high 'tack' (the ability of tyres to 'stick' to the road surface).

Between 2011 and 2025, the UK imported an average of 264,000 tonnes of natural rubber each year. Import volumes declined significantly over this period (Figure 16).

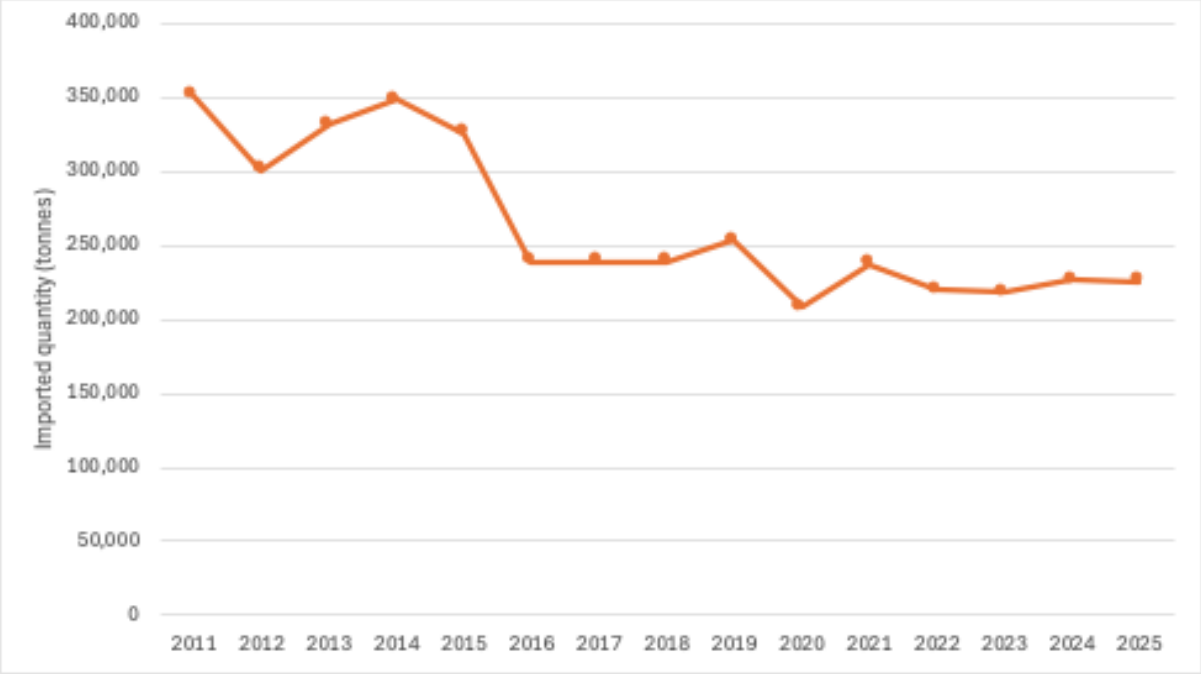


Figure 16: The UK's estimated imports of natural rubber 2011-25. A linear regression is statistically significant at p<0.01, signifying that the decrease over time is unlikely to be the result of random fluctuations in imports

Almost 39% of the UK's natural rubber imports were in the form of vehicle tyres, with a wide range of products and different grades of raw material making up the remainder. The main sourcing countries are Thailand (19%), Indonesia (14%) and China (11%).

The average overseas land footprint associated with the UK's demand for natural rubber averaged 236,000 hectares per year over the period (Figure 17), an area the same size as the county of Gloucestershire.

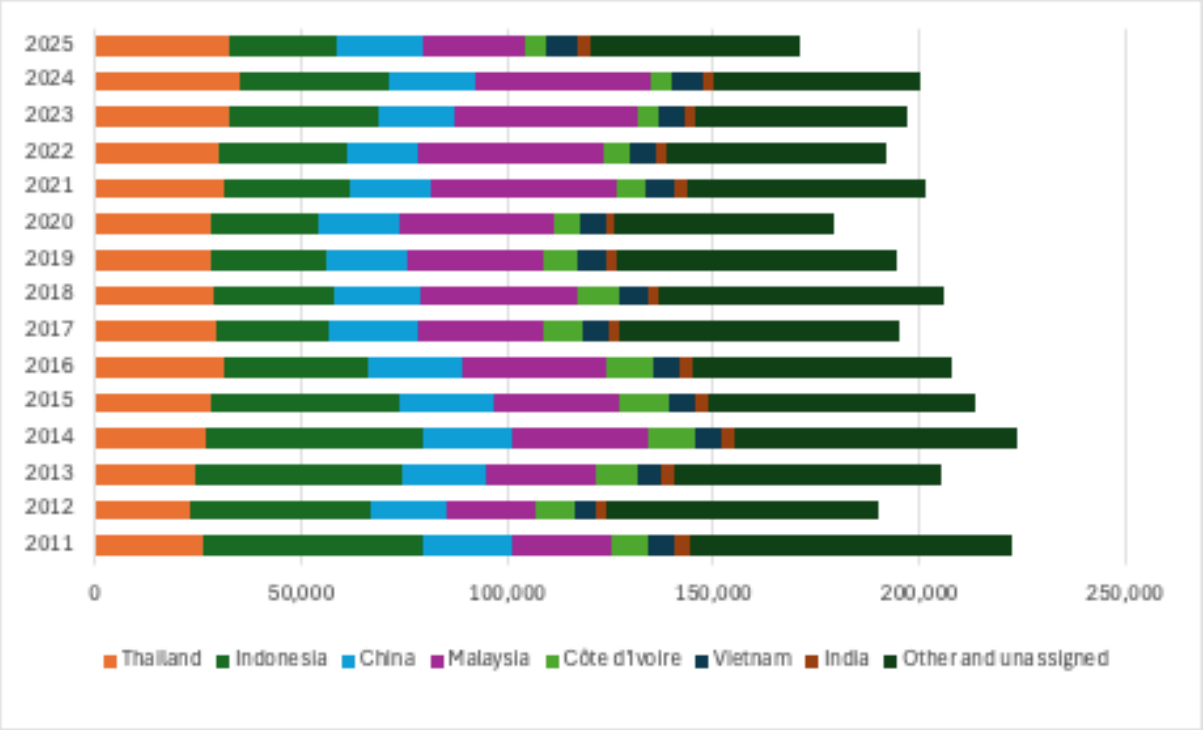


Figure 17: The UK's overseas land footprint for natural rubber 2011-25.

At least 62% of the overseas land area is in countries with high- or very-high risk of deforestation and serious social impacts. The risk profile has barely changed over the period.

Land-use change associated with natural rubber production for UK imports generates an average 599,000 tonnes CO2 e each year. Indonesia accounts for 27% of these emissions, with a further 24% from Côte d'Ivoire. Together, these emissions are roughly equivalent to the annual emissions of a town the size of Canterbury.

Four voluntary sustainability standards are used in the natural rubber sector. The Forest Stewardship Council (FSC) is a system designed principally for verifying forest management and chain of custody for wood and timber products and it has also been used for rubber. Recent data does not appear to be available, but in 2007 an area of 397,305 hectares was certified (approx. 0.6% of the global harvested area). The Programme for the Endorsement of Forest Certification (PEFC) and the Rainforest Alliance also operate certification schemes for natural rubber, although recent data on certified areas is not readily available. The Global Platform for Sustainable Natural Rubber (GPSNR), which includes many of the largest companies in the sector, aims to verify its members' sustainability criteria.[60] In addition, the Sustainable Natural Rubber Initiative (SNR-i) has developed a set of voluntary sustainability guidelines and criteria for members. However, there is no independent third-party auditing or certification, so the initiative relies on company self-assessment.[61]

Certain natural rubber products are included within the scope of the EUDR. Given that around 43% of the UK imports both enter the UK via the EU and are covered by the regulation, suggests that the EUDR – if implemented – will play a significant role in reducing deforestation risk in UK supply chains. Natural rubber is also expected to be included within the proposed UK FRC regulation.[62]

5. A spotlight on pet food, aquaculture feed and poultry

Agricultural and forest commodities enter supply chains in different many forms. Some are imported in their original form or after primary processing, while others are used as ingredients in food, consumer products and animal feed. While some of the uses are obvious, including roasted dried coffee and pieces of plywood), others are much less apparent. For example, palm oil may be used as an ingredient in bakery products, while soymeal that is fed to livestock.

This section looks at three hidden, and subsequently, often-overlooked sources of deforestation risk commodities in the UK: pet food, aquaculture feed and poultry feed.

5.2 Pet food

Pets enrich the lives of millions across the UK, with 51% of adults caring for an estimated 10.2 million dogs and 11.3 million cats. However, the environmental footprint associated with producing some pet food ingredients, including impacts such as deforestation overseas and habitat loss which endangers animals, risks that are often hidden from animal lovers making every day purchasing decisions for their pets.

Around 1.8 million tonnes of cat and dog food are sold in the UK each year[63] to feed the country's 12.6 million dogs[64] and 10.6 million owned cats.[65]

Pet food contains several potential sources of deforestation risk. Here, we focus on two key sources: soy that is embedded in meat-based pet food and imported beef used in pet food formulas.

The quantity of meat within dog and cat food has been estimated by Leenstra et al. (2018).[66] As pet food can contain meat from different livestock species, the amount of embedded soy varies depending on the mix of ingredients used. To estimate this, we apportioned meat content across four livestock categories, beef, poultry, sheep and pigs, based on their relative share of UK production.[67] These quantities are then multiplied by established conversion factors to estimate the quantity of soy embedded within them. The origin of this soy was estimated using the same approach applied elsewhere in this report for pet food, both imported and produced in the UK.

We estimate that an average of 461,000 tonnes of soy is embedded in the dog and cat food consumed by UK pets each year. This represents approximately 8% of all soy imported into the UK, a volume comparable to that consumed directly by people through products such as soy milk, tofu and soy sauce. Most of this soy (94%) is not present in pet food directly but is used as livestock feed before being embedded into meat-based pet food.

The soy associated with UK pet food is linked to an estimated 1.2 million tonnes of CO_2e emissions from land-use change each year. When all sources of GHG emissions of dog food are considered, not just those linked to soy, annual emissions could reach between 4.7 and 11.6 million tonnes of CO_2-e each year across the UK.[68] That is roughly equivalent to the emissions of a city with a population between 385,000 and 951,000 people,[69] somewhere between the size of Cardiff and Liverpool.

A second potential source of deforestation risk is in the beef that is imported, either in the form of imported pet food or offcuts from beef imported into the UK for human consumption. Whilst we are not able to estimate the scale of this risk, it is probably minor, as our analysis suggests that most of the pet food that the UK imports originates from the EU.

The UK petfood sector is dominated by two companies, Mars and Nestlé, who between them account for around three-quarters of cat and dog food sales in the UK. Both companies have deforestation policies on soy and beef. However, Mars' policy applies only to sourcing from Brazil, Argentina and Mexico,[70] rather than all sourcing regions. In addition, both company's policies appear to cover direct purchases of beef and soy, but not soy that is embedded within the meat that they purchase.[71]

5.1 Aquaculture feed

Aquaculture is a growing sector in the UK. However, farming of carnivorous fish such as salmon and trout has been associated with a number of environmental issues, including pollution of coastal waters and spreading parasites to wild-living fish. Less obvious are the environmental impacts of the feed that is given to captive-reared fish, much of which is sourced overseas or on the high seas.

A portion of fish feed is fish – either purpose-caught or the trimmings from fish processed for human consumption. The former has potentially very serious impacts for marine ecosystems.[72] In coastal West Africa, where several large fishmeal plants supply the European and North American aquaculture trade,[73] fishmeal production has been linked to food insecurity and an increase in bushmeat hunting. [74] But soy is also a key ingredient in aquaculture feed and can also be associated with deforestation and land-conversion.

Due to limited data concerning other species, we focus here on salmon aquaculture. Salmon is the UK's most popular seafood and an increasingly important export. To estimate the quantity of soy embedded within UK salmon, we combined annual production data from 2011-24 with published feed conversion ratios and estimates of the proportion of soy used in salmon feed. The feed conversion ratio is not a constant, with some farms achieving even lower figures,[75] but a general estimate for Scottish salmon farming is a ratio of 1.11[76] (meaning that 1.11 kilograms of food are required to produce 1 kilogram of salmon). The proportion of soy in salmon feed is proprietary information and not publicly available, but an independent assessment concluded that soymeal accounts for around 21% of the average Scottish salmon diet.[77]

Using this approach, we estimate that 42,300 tonnes of soymeal is used in Scottish salmon aquaculture each year. Given that this is for salmon alone, it appears broadly consistent with Efeca's estimate of 47,200 tonnes of soy used in UK's fish feed in 2019, despite using different methodology.[78]

This represents around 1% of all the UK's soy imports. The land area required to supply this demand is in the region of 19,300 hectares each year. Based on the overall risk profile for soy, at least 65% of this (12,600 hectares) is located in high- and very-high risk countries, including Brazil, Argentina and Paraguay. We estimate that the GHG emissions from land-use change for this soymeal generates around 240,000 tonnes CO_2-eq each year.

One of the leading sustainability certification systems for aquaculture is the Aquaculture Stewardship Council (ASC). Since 2025, all ASC-certified farms, which include some salmon farms, are required to source their feed from feed mills certified under the ASC Feed Standard. These standards include provisions for deforestation- and conversion-free feed.[79] However, two other widely used standards in the sector, GLOBAL, G.A.P.[80] and Global Seafood Alliance (GSA)[81] do not currently include equivalent requirements on feed sustainability.

Some of the companies involved in aquaculture are also taking voluntary action. For example, Mowi, one of the largest aquaculture companies in the world and whose assets include a salmon feed plant in Scotland, has sourced only ProTerra-certified deforestation- and conversion-free soy since 2021.[82]

While salmon is the UK's most significant aquaculture species, it is not the only one. Although information is not available to estimate the soy use of the sector as a whole, it is likely to exceed the number for salmon alone. In addition, the UK imports significant quantities of farmed fish, which will add to the deforestation and conversion risk. However, import statistics do not distinguish between farmed and wild-caught fish, making it difficult to estimate the scale of this impact or its associated risk profile.

5.2 Poultry

The UK's poultry population increased from 162.5 million in 2011 to 183.3 million in 2025.[83] This represents an increase of 20.8 million animals, a 13% increase in those fourteen years. Wales in particular has seen a disproportionate increase, of nearly 50% over the same period. The expansion of intensive poultry production has created local environmental pressures. In the Wye catchment alone, more than 20 million chickens generate over 4,000 tonnes of phosphate from poultry manure used as a

fertiliser.[84]This enters the river causing toxic algal blooms, oxygen depletion and degradation of the riverbed habitat.[85] Despite rising domestic production, the UK still imports small quantities of poultry and is expected to expand poultry production even further through initiatives such as the Poultry Sector Growth Plan.

From a deforestation and conversion perspective, soy used in poultry feed is a major source of deforestation risk within the UK's agricultural commodity supply chains (see Section 4.1). This is not the only deforestation risk connected with livestock feed in general, or poultry feed specifically. For example, maize is a component of many poultry feeds, and maize imported from South America represents a significant deforestation risk[86].

The deforestation risk associated with poultry can be divided into two categories: soy used to feed birds reared in the UK, and soy embedded in imported poultry products and eggs.

5.2.1 Feed for UK-reared chicken (poultry and eggs)

Imports of soymeal and soybeans together account for 51%of all UK soy imports (see Section 4.1). Using the same approach for the full commodity analysis, but this time focusing only on meal and soybeans, we estimate that they originate predominantly in Argentina (at least 37%) and Brazil (at least 32%).

Around 90% of soymeal and soybeans are used in livestock feed.[87] An estimated 55% of that is fed to poultry for meat production and a further 10% for egg production (see Table 1). We estimate that supplying soy to the UK poultry sector requires around 1.13 million hectares of land each year. This represents 54% of the total land area associated with UK soy imports (see Section 4.1). The land footprint for soy used in poultry feed has increased from 775,000 hectares in 2011 to 1.64 million hectares in 2025.

The estimated GHG emissions from land-use change averaged 10.1 million tonnes CO_2e per year. This is equivalent to the annual emissions of around 830,000 people, similar to the population of Leeds City District.

Despite the progress in supply-chain commitments, the risk remains high. Only around 39% of imported soymeal (though not all soy products) is estimated to comply with FEFAC deforestation and conversion standards via mass-balance and segregated supply chains.88 As mass-balance systems do not guarantee that the physical soy imported is free from deforestation and land conversion (**Error! Reference source not found.**), substantial risks remain within the poultry sector.

5.2.2 UK imports of poultry and eggs.

We estimate that the soy embedded within UK imported poultry meat averages 260,000 tonnes each year between 2011 and 2025, with imported eggs accounting for 22,000 tonnes. Almost all the eggs (98%) and poultry meat (90%) were imported from the EU, predominantly the Netherlands, Ireland and Poland. An analysis of trade[89] and production[90] data indicates that around 41% of the EU's soymeal and bean supply originates in Brazil, with a further 18% from Argentina. These are both classified as high-risk countries for deforestation and social impacts, meaning that at least 59% of the soy embedded in imports of poultry meat and eggs is exposed to deforestation risk. The remaining soy comes from medium- to low-risk countries. Given the dominance of the EU as a supplier of imported poultry meat and eggs, the implementation of the EUDR will play a critical role in reducing the deforestation and conversion risks associated with these imports.

Outside the EU, the only substantial direct imports of either poultry meat or eggs from a high-risk country are poultry meat imports from Brazil, which accounts for2.2% of total UK imports.

Many of the UK's largest poultry producers have committed to purchase deforestation-free soy, but the strength of the commitments varies. For example, Avara Foods, had stated that all of the soy they use would be deforestation free by January 2026, with a cut-off date of 2020.[91] 2 Sisters Food Group recently extended their commitment to include conversion as well as deforestation, and, from July 2026 source only from farms where deforestation and land conversion has not occurred for over 18 years.[92] This represented a significant strengthening of their previous commitment, which only committed to attempt to exclude material associated with deforestation.[93] Moy Park committed to sourcing deforestation- and

conversion-free soy by 2025, with a deforestation cut-off date of 2020. However, it's commitment only applies to illegal deforestation of primary forests and High Conservation Value Forest.[94]

6. Conclusions

Our main findings mirror those of our previous reports, revealing that the UK still relies on a large amount of overseas land footprint to meet demand for just eight agricultural and forest commodities. There is also still a high risk that these supply chains are associated with deforestation, conversion of natural ecosystems and/or human rights abuses.

Although the overall land footprint has decreased between 2011 and 2025, there are sharp increases in the imports of some of the highest risk commodities, including soy, timber and coffee. The reasons for these changes are varied. The reduction in beef imports and the resulting land footprint seems to be connected to reduced beef consumption, which in itself is connected to affordability and changing dietary preferences (see Section 4.3). The reduction in the footprint of oil palm products is likely to be a response to restrictions on promotions of foods high in fat, salt or sugar (HFSS), increased use of alternative oils and voluntary initiatives to reach high levels of certification (Section 4.2). Meanwhile, increases in timber imports are largely driven by the increased use of wood fuel for large-scale electricity generation (Section 4.6), increases in soy by a rise in poultry production (Section 4.1) and to a lesser extent aquaculture (Section 5.1). The increased demand for coffee seems (Section 4.5) to be driven by a rapid increase in the number of high street cafe chains, increased adoption of home-brewing technology, and younger people embracing specialty coffee drinks.

It is important to highlight that even commodities with a lower risk profile, such as timber and pulp and paper products, require robust safeguards to ensure they are produced sustainably. Clear processes are needed to prevent these imports from being linked to unsustainable forest management practices, including destruction of forests that may occur in medium- and low-risk countries, such as the US and Canada. We also recognise that the UK's overseas land footprint extends to many more products and to many other countries than identified in this report. In addition, this analysis does not address the marine sector, where UK consumption is also having significant impacts.

Over the past decade, there has been a significant increase in corporate commitments to deforestation- and conversion-free supply chains, alongside a growing number of international agreements and initiatives including the Amsterdam Declarations Partnership, the Paris Agreement and the Glasgow Declaration on Forests and Land Use, the New York Declaration on Forests, the Kunming-Montreal Global Biodiversity Framework and the UN's Sustainable Development Goals. However, these commitments have yet to deliver significant progress. This experience has demonstrated that voluntary corporate action alone is unlikely to deliver the scale and pace of change required. Governments therefore have a critical role to play in accelerating the transition towards sustainable, deforestation- and conversion-free trade through robust and effective regulatory frameworks.

One of the most important opportunities for action in the UK is the introduction of the UK Forest Risk Commodities (UK FRC) Regulation. After a pause on progress, the UK Government recently announced that it is going to move ahead with the secondary legislation that will pave the way for the regulation.[95] Moreover, the Government has stated a desire to align the UK legislation with the EUDR, which would strengthen the regulation and make compliance easier for businesses operating across both markets.[96] It also includes an expanded list of commodities from those trialled in earlier consultations on the regulation, and will include wood, cattle, cocoa, coffee, palm oil, rubber, soy and certain derived products, including furniture and chocolate.[97] There is a strong case for expanding this list further. For example, maize, rice and cassava are all among the top ten agricultural commodities linked to deforestation associated with UK consumption, according to the UK government's official statistics.[98] The regulation needs to be introduced urgently and formulated to deliver meaningful reductions on deforestation and land conversion linked to UK supply chains.

A second priority for government action is the introduction of core environmental standards in domestic legislation, coupled with environmental mechanisms within trade agreements to prevent regression and ensure progress on environmental commitments.

We cannot hope to tackle the global climate and biodiversity crises without simultaneously bringing about a halt to the deforestation and conversion embedded within commodity production. Alongside

efforts to eliminate deforestation from supply chains, greater investment is needed to restore degraded areas and preserve nature in producer landscapes, support sustainable production systems and secure the livelihoods of Indigenous Peoples and local communities in producing regions.

The government's own analysis highlights the importance of tackling deforestation, ecosystem conversion and biodiversity loss to build more robust and resilient supply chains.[99] In response, a Climate Security Taskforce has been announced. The Taskforce's remit should explicitly include nature and biodiversity alongside climate, and its powers and timelines should reflect the urgency of these interconnected challenges.

The UK now has the opportunity to turn ambition into action. Delivering robust deforestation regulations, stronger environmental standards, and resilient supply chains would be transformative. Together, these measures would provide businesses with the clarity and consistency needed to support sustainable trade, while helping to turn the UK's many commitments on nature and climate into lasting change.

7. Methods

7.1 Quantifying the UK's imports

Import data from the UN Comtrade database[100] was used to estimate the quantity (net weight) of imports for the period from 2011 to 2025, except for leather, for which complete data was only available until 2024. This database was used as it enables a similar method to be applied across different countries, giving us a global comparable overview of trade flows.

We examined three routes by which commodities feature within UK supply chains:

- as raw materials (e.g. palm oil, soymeal, beef meat);
- as an ingredient of imported manufactured goods (e.g. natural rubber in imported car tyres, beef in corned beef products);
- embedded within imported products as part of the upstream production process (e.g. soymeal used in pig feed is 'embedded' in imported pork products).

The same product categories (HS codes) that were used in the 2018 and 2020 reports are used in this analysis.[101] Many commodities are used in a wide range of products, and the categories selected capture the major uses of the commodity. As a result, the estimates presented in this report are likely to be conservative.

Where a commodity is imported as an ingredient or is embedded, we only accounted for the weight of the commodity of interest in such a product. For example, car tyres contain many elements including metal, compounds, synthetic rubber and around 14% natural rubber; we then only accounted for the weight of natural rubber, not the weight of the whole tyre. This rule was applied to assess the weight of the main imported goods containing commodities as 'ingredients' and 'embedded'. This was done using the same conversion factors used in previous iterations (see Annex 1).

7.2 Estimating the provenance of the UK's imports

In addition to import volumes, UN Comtrade records the country from which a product was exported. This is not always the same as the country in which the commodity was originally produced. To estimate the true origin of UK imports, we used three approaches:

- A country is a producer and an exporter of the commodity. For example, Brazil is a major producer of soy. In such a case, the UK imports can be assigned the provenance of the exporting country without further analysis.
- A country is a producer, importer and exporter of the commodity. The origin of its imports was also analysed and added to its national production. Exports to the UK were then assigned in the same proportion as the total production and imports of such a country. For example, China produces 23% of rubber raw materials itself and imports 43%from Thailand. These percentages were then applied to China's exports to the UK, i.e. 23% of the UK's imports of rubber from China were assumed to originate in China, and 43% were reassigned to Thailand.
- A country is an importer and exporter of the commodity. For example, the Netherlands imports and exports soy, but does not produce it at a large scale. In this case, the country's imports were analysed, and the exports to the UK assigned according to the proportion of its imports. As 45% of soy imported into the Netherlands is from Brazil, 45% of the Netherlands' soy exports to the UK were assigned Brazilian provenance.

7.3 Cut-off criteria for trade volumes

The combination of imports highlighted above means that some commodities are imported from hundreds of countries to the UK, even if the raw commodity is produced in a much smaller number. To focus the analysis on the most significant supply chains, we examined sourcing locations representing more than 80% of the UK's supply, by excluding countries responsible for less than 2% of the UK's imports of a given commodity. This type of cut-off has been used by other researchers (e.g. de Ruiter et al., 2017[102] used a cut-off of 1.5% and is consistent with earlier iterations of this research.

7.4 Estimating the footprint of the UK's commodity imports

To assess the potential risk of deforestation and ecosystem conversion associated with UK imports, we estimated the amount of land required to produce each commodity. For each commodity, we estimated the amount of land use per unit of commodity produced (e.g. hectares of grazing land per kilogram carcass weight beef produced). For some commodities, this was relatively straightforward, for example, the FAO provides annual country-level statistics on soybean, oil palm, rubber and cocoa yields in primary production.[103] The yield for each country, each year, could be used to convert the imported volumes into an estimated land area required for production, i.e. land footprint. However, for commodities such as beef & leather, timber and pulp & paper there were no land productivity databases available, so we had to develop our own estimates. Further details of the methods used for a few specific commodities are detailed below.

For crops that produce co-products (e.g. soybeans are processed into soymeal and soy oil) we allocated land use to co-product fractions. The basis for this allocation is explained in the agricultural crops section below.

7.4.1 Agricultural crops footprint

For those crop commodities (i.e. soy, palm oil, rubber and cocoa) that are commonly imported in different fractions of the harvested crop, we calculated the land footprint based on the proportion that each fraction is derived from the harvested crop. For example, soy is imported as whole soybeans, soymeal and soy oil (or products containing those fractions). In this case, imported goods are first assigned to the fraction of the commodity they contain and then yield is assigned to that fraction in the same proportion that the fraction is derived from the harvested crop. For example, one tonne of whole soybeans yields 0.82 tonnes of soymeal and 0.18 tonnes of soy oil. The area required to supply the UK's imports of whole soybeans (or products containing whole beans or that have whole beans embedded in the production process, once their weights have been converted to soybean equivalent) is estimated by dividing the quantity (weight) of soybeans imported from a given country by the yield; therefore, the land footprint area for products using soymeal is estimated by dividing the quantity of soymeal by its proportion of yield (i.e. 0.82); and the land footprint area for products using soy oil is estimated by dividing the quantity of oil by its respective yield (i.e. 0.18). The land footprint areas for each product analysed are summed to produce a total figure for a certain commodity.

7.4.2 Beef & leather footprint

Unlike agricultural crops, we found no publicly available data on cattle pasture productivity for a cross-section of countries (i.e. carcass weight per hectare of pasture). While individual studies exist for some countries, a variety of methods were used in these reports, and so using a mixture of different sources was not feasible. This represents an important gap in global agricultural data, given the significant land use associated with cattle production. To fill this data gap, we adopted a method used by de Ruiter et al. (2017)[104] that allocates total country pastureland to different grazing animals based on the relative feed conversion efficiencies and overall sector production. The method apportions the national pasture area between the three main livestock types: beef cattle, milk cattle and sheep/goats. The area assigned to beef cattle is then divided by the national production of beef and leather to give a hectare per tonne estimate.

Given that beef cattle have two products (i.e. meat and leather), we allocated a share of the land footprint to beef and leather co-products on the basis of their mass. Thus, the hide being 15% of the mass of a carcass,[105] it was allocated 15%of the land footprint. This was done to avoid the potential double-counting of land where beef and leather were sourced from the same country. There are limitations to this method (explored in detail by de Ruiter et al., 2017) – for example we assume similar feed conversion rates and pasture use in all countries. However, given the lack of data on this topic, it was felt to be a reasonable approach to estimating sector-level grazing use for beef cattle.

7.4.3 Timber, pulp & paper footprint

Unlike annual crops, trees are an intermittently harvested perennial crop, with variable management systems. As such, there is no straightforward measurement of 'yield' that can be used to estimate the land required to produce a given amount of timber in the way that there is for agricultural crops. We therefore used the net annual increment (NAI), which is defined as the average annual volume of gross increment over the given reference period less that of natural losses on all trees, measured to minimum diameters as defined for 'growing stock'. In simpler terms, net annual increment (NAI) represents the amount of wood added to a forest per hectare per year, which in effect accounts for the area of forest needed to produce a given amount of wood in a year. For example, if the NAI were one cubic metre per hectare per year, it

would take 10 hectares to produce 10 cubic metres of wood in a year (equally, one hectare would produce the same amount in 10 years).

The UK's timber and pulp & paper import volumes were converted from tonnes of imports to wood raw material equivalent (WRME). This conversion adjusts for the wood content of manufactured products (e.g. plywood contains both wood and resin) and results in a volume metric that is broadly equivalent to the usable volume of a harvested tree. Most conversion factors used were from the UK Forestry Commission[106] and where no conversion factor is available, the closest available estimate was used (e.g. for the import category 'cartons and boxes of paper and paperboard' the conversion factor for 'other paper and paperboard' was applied). Then, the area of forest required to produce the total imported volume of WRME, i.e. the land footprint for timber or pulp & paper, was estimated by dividing the total WRME imported by the producer country's NAI.[107]

7.5 Assigning a risk score to producer countries

A risk-based approach was used to illustrate the potential association of the UK's imports of commodities with negative socio-environmental impacts. To achieve this, we assigned a risk rating to each exporting country according to indicators of deforestation and ecosystem conversion (i.e. the area of tree cover loss and percentage of natural forest loss) and social risks (i.e. rule of law and labour rights) in the recent past years (see more details below). The land footprint of the UK's imports was then apportioned to risk categories based on the country of production.

This analysis does not measure the direct impacts of UK consumption, such as the number of hectares cleared to produce goods imported into the UK. Instead, it identifies a risk that might be a link between commodity production due to UK trade and the environmental and social impacts.

This risk should, therefore, be examined and mitigated.

The following four factors were used to indicate deforestation, ecosystem conversion and social risks in producer countries:

- Extent of tree cover loss. This provides an indication of the total extent of deforestation and conversion of natural ecosystems (with ≥10 per cent tree cover) in producer countries. It uses remote sensing data from Global Forest Watch (GFW) that does not distinguish between vegetation types, and is only looking at the area of loss, not the balance between loss and gain. The data used is the area of land with a minimum of 10% tree cover that has lost tree cover for the years between 2011 and 2025.[108]
- Rate of deforestation. This is a measure of the proportion of change in net natural forest area (i.e. loss + gain) in each producer country between 2010 and 2015 (FAO).[109] The use of this second deforestation indicator helps to balance out the risk weighting, as large countries will tend to score high on the first indicator, whereas countries that are losing a large proportion of their small remaining forest extent score highly on rate of deforestation. Note that FAO's definition of forest refers to an ecosystem with a minimum of 10%t tree cover, which allows us to use this indicator to assess the rate of loss of other natural woody ecosystems.
- Rule of law. No single global dataset is available that captures the range of social problems that have been associated with production of the commodities analysed here, which include land grabs, forced labour, child labour, and terms and conditions of labour below international norms. The World Bank's Rule of Law governance indicator (2018) is used as a proxy for the likelihood of the range of social issues within a producer country. This provides a score for each country on the perceptions of the extent to which citizens, government officials and enterprises have confidence in and abide by the rules of society.[110] This indicator is commonly used in global analysis of social issues, including other assessments of deforestation (e.g. the Forest 500).[111]
- Labour standards. The International Trade Union Confederation (ITUC) documents violations of internationally recognised labour rights by governments and employers and uses these records to score countries, providing a measure of the likelihood of serious workers' rights violations, including forced labour, violence and the denial of the right to free association.[112] Note that Papua New Guinea and the Solomon Islands were not assessed by the ITUC and so were nominally scored as 'medium' in this research.

The value of each indicator in each country was scored on a three-point scale (high = 3 to low = 1) according to the thresholds described in Annex 2. These thresholds were selected according to the data range of producer countries that export to the UK to clearly distinguish between high and low impact. For

example, Brazil lost over 13 million hectares of vegetation with >10% tree cover between 2016 and 2018, compared with Ireland's 24,000 hectares – these are scored 'high' and 'low', respectively.

Table 3: Risk index framework

Factor	Description	Rationale	Scoring High risk (=3)	Medium risk (=2)	Low risk (=1)
Deforestation extent	Area of forest cover loss 2012-16 (GFW)	Amount of deforestation	≥ 200K ha per year	100K ha per year to 2K ha per year	<100K ha per year
Deforestation rate	% change in natural forest area 2010-15 (FAO)	Net rate of change of natural forest	≤-1%	0% to -1%	>0%
Labour rights	IUTC Labour Standards	Scoring based on reports of violations of labour rights	≥5	3 to 4	<-2
Rule of law	Rule of Law Estimate (World Bank)	Perception of how good laws are and how well they are implemented	<-0.3	-0.3 to 1	≥1

Finally, an overall country risk score was calculated by summing the scores for the individual indicators. This score was used to develop five risk categories, as follows:

Risk category	Score
Very High Risk	≥11
High Risk	9-10
Medium Risk	7-8
Medium-low Risk	5-6
Low Risk	4

7.6 Methods for estimating greenhouse gas emissions

We used the LUC Impact Tool (Blonk Consultants)[113] to estimate a commodity-specific per-hectare CO2e emissions factor.

To estimate the commodity-specific per-hectare CO2e emissions, the tool offers three approaches. Here, we use the approach for when the country of origin for the imports is known, but the exact parcel of land used to produce the crop is unknown. This matches the level of detail of our provenance calculations which is determined by the available data. For this scenario, the tool uses an indirect approach to calculating emissions from land-use change (LUC), based on the relative rates of crop expansion at the expense of different previous land uses in a country. It uses FAO data on direct LUC (i.e. deforestation, conversion and crop-to-crop change) associated with a crop in a certain country and divides by the total expansion of the same crop in the country, assigning a rate of LUC (and therefore GHG emissions) per hectare of crop expansion.

Crop expansion is calculated for each year by comparing the average harvested area of the crop in the three most recent years for which data is available with the average harvested area over the corresponding three year period 20 years earlier. For each subsequent year, this 'baseline' will therefore shift or move up by a year and data on LUC in a specific year is not counted in subsequent years. The associated emissions per hectare are then calculated based on methods and reference outlined by the Intergovernmental Panel on Climate Change (IPCC)[114] and in the PAS 2050-1 framework[115] including

'amortisation' so that the total emissions from the 20-year period of the land-use change are apportioned equally over the 20 years (see tool's methodology for further details).

The commodity-specific per-hectare CO_2e emissions (weighted average) was then multiplied by the UK's land footprint per commodity in each country to estimate the GHG emissions associated with LUC per country, for each crop per year. Note that the GHG emissions presented in this report are conservative estimates since they only consider emissions from direct aboveground LUC and therefore ignore other carbon flows from belowground compartments or emissions following deforestation and conversion, which can be considerable. Though the model considers emissions from land converted from one crop to another crop, these are usually small compared with emissions from deforestation or land conversion of grasslands and savannahs.

7.7 Limitations of this assessment

There are significant challenges and constraints inherent in assessing commodity data and direct links between production and environmental or social impacts. Our analysis focuses on capturing the majority of the trade in each commodity, not the whole. Where assumptions were required, a conservative approach was taken, meaning impacts are more likely to be underestimated than overestimated.

There are four overarching challenges when assessing the environmental and social risks of the global commodity trade:

- Lack of global data on the conversion of natural ecosystems beyond forests. Many natural ecosystems, with high relevance in terms of biodiversity and GHG mitigation potential among other benefits, are not as well studied as forests (e.g. savannahs, grasslands, wetlands). For example, there is a lack of global databases that allow monitoring of annual conversion of these ecosystems at the global scale. We could provide estimates of the risks to woody ecosystems with at least 10% tree cover. However, we were unable to assess risks due to conversion of grasslands or other ecosystems with a lower tree density.
- Social impacts are extremely complex and non-linear. It is hard to measure direct impacts on social dimensions driven by commodity production, especially when focusing on a limited period of time. There has been some progress in trying to relate commodity production to social impacts, but there are neither well-established indicators nor a global database currently available.
- Traceability. It is rarely possible to know which farm or plantation a particular end-product comes from, and hence whether its production has occurred directly on recently cleared land or not. Although advanced modelling and remote sensing can provide greater insights, these approaches are not available for all commodities in all producer countries or for most commodities due to the lack of transparency in supply chains.

In addition to these overarching challenges, specific challenges within the constraints of this study are as follows:

- The diversity of products using a commodity. For example, rubber has thousands of end-uses, from automobile tyres to rubber balls, medical equipment and engineering applications. The approach taken was to focus only on the major uses of each commodity; therefore, the estimated imports and land footprints are likely to be conservative.
- Poor data on typical commodity use in products. For example, one of the major import categories of cocoa is 'chocolate and other food preparations containing chocolate'. This includes a huge range of foods, containing vastly differing proportions of cocoa. The conversion factors used to estimate the commodity content are therefore only first-order approximations.
- Complex/long supply chains. For example, the UK imports leather bags from China, which also imports leather and leather bags. The estimation of provenance when a reassignment is required (see above) is for some products no more than a first-order estimate.
- Need to cover multiple commodities and jurisdictions. This means that key sub-national patterns in production, export and ecosystem conversion are not detected. This could lead to overestimations of risk if, for example, deforestation and production of a commodity are occurring in different parts of the same country. Equally, risk could be underestimated if a particular commodity was more tightly associated with deforestation than the national average land-use change.

- Variability in agricultural productivity and land efficiency. For example, cattle system productivity is known to be highly variable between systems, countries and producers (e.g. feedlot production in the US compared with extensive pasture-based systems in Brazil). We have used national yield and productivity assumptions; however, it is conceivable that the UK could source from a niche system with a different level of productivity from the country average.
- The lack of readily available data on the UK's imports of certified commodities. Credible certification is one of the major ways of reducing the risk that an imported item has been associated with deforestation or conversion, poor social practices or illegality. However, there is limited data available on the proportion of the UK's imports that is certified. The exceptions are palm oil and timber, which is largely the result of the UK's commitments to report on certified palm oil imports and tackle illegal logging, respectively.

While there are uncertainties associated with individual estimates, the methodology provides a robust indication of the scale of the UK's overseas land footprint and the relative risks associated with different commodities. The findings provide a guide to the overall need for action, relative levels of risk between commodities and an indication of where the UK government, businesses, financial institutions and citizens might best target their efforts in order to reduce the negative impacts of the country's land footprint overseas.

Annex 1: conversion factors

7.1. Conversion factors for soy

Category	HS Code	Short description	Conversion factor
Soy	120110	Soya seed	1
	120190	Soya beans	1
	120810	Flours and meals of soya beans	1
	150710	Crude soya oil, whether or not degummed	1.72
	150790	Soya-bean oil and its fractions	1.66
	210310	Soya sauce	0
	230400	Oil-cake and other solid residues of soya bean	0.87
	10221	Live pure-bred breeding animals	1
	10229	Live cattle	0.18
	20110	Fresh carcasses	0.18
	20120	Fresh beef meat cuts with bone	0.18
	20130	Fresh boneless beef meat	0.18
	20210	Frozen carcasses	0.18
	20220	Frozen meat cuts with bone	0.18
	20230	Frozen boneless meat	0.18
	20610	Fresh edible offal	0.18
	20621	Tongues	0.18
	20622	Livers	0.18
	20629	Other frozen offal	0.18
	21020	Preserved beef meat	0.1546
	160250	Other preserved beef meat, offal or blood	0.18
Poultry	20711	Fresh whole chicken	0.575
	20712	Frozen whole chicken	0.575
	20713	Fresh chicken cuts	0.575
	20714	Frozen chicken cuts	0.575
Swine	203	Fresh or frozen swine meat	0.1536
	21011	Preserved swine hams and shoulders	0.1536
	21012	Preserved swine bellies	0.1536
	21019	Other preserved swine meat	0.1536
	160241	Prepared swine hams	0.263
	160242	Prepared swine shoulders	0.263
	160249	Other prepared swine meat	0.263
Eggs	40711	Eggs for incubation	0.307
	40721	Fresh eggs	0.307
	40891	Dried egg	0.307
	40899	Preserved egg	0.307
Dairy	40110	Low fat milk/cream	0.0165
	40120	Semi-skimmed milk/cream	0.0165
	40140	Full fat milk/cream	0.0165
	40150	Full cream milk/cream	0.0165
	40210	Low fat milk/cream powder	0.909
	40221	Milk/cream powder	0.909
	40229	Milk/cream powder (other)	0.909
	40291	Unsweetened concentrated milk/cream	0.909
	40299	Sweetened concentrated milk	0.909
	40310	Buttermilk	0.0165
	40390	Buttermilk (other)	0.0165
	404	Whey	0.311
	40610	Fresh cheese	0.0801
	40620	Grated/powdered cheese	0.1442
	40630	Processed cheese	0.1442
	40640	Blue cheese	0.1442

	40690	Other cheese	0.1442
Biodiesel	3826	Biodiesel	0.0196

7.2. Conversion factors for palm oil

Category	Commodity code	Short description	Conversion factor
Oil palm products	120710	Palm oil kernels	1
	151110	Palm oil and its fractions, crude	1
	151190	Palm oil and its fractions, other than crude	1
	151321	Palm kernel oil and its fractions, crude,	1
	151329	Palm kernel oil and its fractions, other than crude	1
	230660	Oil-cake from the extraction of palm nuts or kernels oils	1
Food preparations	1517	Margarine	0.24
	1806	Chocolate and other food preparations containing cocoa	0.0515
	190510	Crispbread	0.0237
	190520	Gingerbread and the like	0.01
	190531	Sweet biscuits	0.0935
	190532	Waffles and wafers	0.1049
	190540	Rusks, toasted bread and similar toasted products	0.0237
	190590	Other baked goods	0.01
	2105	Ice cream and other edible ice	0.1
Others	291570	Palmitic acid, stearic acid, their salts and esters	1
	3401	Soap	0.75
	3826	Biodiesel	0.0098

7.3. Conversion factors for beef

Commodity Code	Short description	Conversion factor
0201	Meat of bovine animals; fresh or chilled	0.66
0202	Meat of bovine animals; frozen	0.66
160250	Meat preparations; of bovine animals, meat or meat offal	0.66
020610	Offal, edible; of bovine animals, fresh or chilled	0.47
160210	Homogenised preparations of meat, meat offal or blood	0.66
02104	Soups and broths and preparations thereof	0.05
021020	Meat; salted, in brine, dried or smoked, of bovine animals	0.66
0102	Bovine animals; live	0.62

7.4. Conversion factors for leather

Category	Commodity Code	Short description	Conversion factor
Leather and hides	4115	Composition leather	0.128
	4101	Raw hides and skins of bovine	1
	4104	Tanned or crust hides and skins of bovine	0.255
	410711	Leather; further prepared after tanning or crusting, of bovine, full grain, unsplit	0.255
	410712	Leather; further prepared after tanning or crusting, of bovine, grain splits	0.255

	410719	Leather; further prepared after tanning or crusting, of bovine other than grain splits and full grains, unsplit	0.255
	410799	Leather; further prepared after tanning or crusting, of bovine, no hair	0.255
	410792	Leather; further prepared after tanning or crusting, of bovine, not whole hides and skins, but including sides, grain splits	0.255
	410791	Leather; further prepared after tanning or crusting, of bovine (including buffalo), not whole hides and skins, but including sides, full grain, unsplit	0.255
Leather goods	4201	Saddlery and harness	0.23
	4202	Trunks; cases; travel, tool, and similar bags; of leather	0.23
	4203	Articles of apparel and clothing accessories, of leather	0.23
	6403	Leather footwear	0.084
	640510	Footwear; with uppers of leather or composition leather	0.084
	8703	Motor cars and other motor vehicles;	0.0001
	940120	Seats; of a kind used for motor vehicles	0.022
	940161	Seats; with wooden frames, upholstered, (excluding medical, surgical, dental, veterinary or barber furniture)	0.022
	940171	Seats; with metal frames, upholstered, (excluding medical, surgical, dental, veterinary or barber furniture)	0.022

7.5. Conversion factors for cocoa

Category	Commodity code	Short description	Conversion factor
Cocoa	1803	Cocoa paste	1.22
	1801	Cocoa beans	1
	1802	Cocoa shells, husks, skins	5.56
	1804	Cocoa; butter, fat and oil	2.44
Cocoa powder	1805	Cocoa; powder, not containing added sugar	2.50
	180610	Cocoa; powder, containing added sugar	4.00
Chocolate	180631	Chocolate in blocks weighing 2kg or less	0.18
	180632	Chocolate in blocks, slabs or bars, (not filled), weighing 2kg or less	0.18
	180620	Chocolate in bulk form	0.18

	180690	Other chocolate and food preparations	0.18
Bakery products	1905	Bread, pastry, cakes, biscuits, other bakers' products	0.02

7.6. Conversion factors for coffee

Commodity code	Short description	Conversion factor
090111	Coffee; not roasted or decaffeinated	1
090112	Coffee; decaffeinated, not roasted	1.05
090121	Coffee; roasted, not decaffeinated	1.19
090122	Coffee; roasted, decaffeinated	1.25
090190	Coffee; husks and skins	0.8
210112	Preparations with a basis of extracts of coffee	0.4
210111	Instant coffee	0.5

7.7. Conversion factors for timber products

HS Code	Short description	Conversion factor
4401	Fuel wood	1.2
4402	Charcoal	6
4403	Wood in the rough	1
4404	Hoopwood	1.8
4405	Wood wool	1.8
4406	Railway sleepers	2.26
4407	Wood sawn lengthwise	1.8
4408	Veneer sheets	3.45
4409	Shaped wood	2.5
4410	Particle board	2.5
4411	Fibreboard	2.5
4412	Laminates	2.5
4415	Wooden packing cases and pallets	2
4416	Wooden casks and barrels	2.5
4417	Tools and tool handles	2.5
4418	Builders joinery	2.5
4419	Wooden tableware	2.5
4420	Wood marquetry	2.5
4421	Other articles of wood	2.5
4413	Densified wood	8
4414	Wooden frames	9
940161	Wooden seats (upholstered)	2.5
940169	Wooden seats, not upholstered	2.5
940330	Wooden office furniture	2.5
940340	Wooden kitchen furniture	2.5
940350	Wooden bedroom furniture	2.5

940360	Other wooden furniture	2.5
940391	Wooden furniture parts	2.5

7.8. Conversion factors for pulp and paper

Category	Commodity code	Short Description	Conversion factor
Pulp	4701	Mechanical wood pulp	2.5
	4702	Chemical wood pulp, dissolving grades	2.5
	4703	Chemical wood pulp, soda or sulphate	4.5
	4704	Chemical wood pulp, sulphite, other than dissolving grades	5
	4705	Wood pulp from combined combination of mechanical and chemical processes	2.5
	470620	Pulp; of fibres derived from recovered paper or paperboard	2.5
Paper and paperboard	4801	Newsprint	2.8
	4802	Uncoated paper and paperboard	2.8
	4804	Uncoated kraft paper and paperboard	2.5
	4805	Other uncoated paper and paperboard	2.5
	4807	Composite paper and paperboard,	2.5
	4707	Waste and scrap of paper and paperboard	2.5
	4808	Paper and paperboard, corrugated	2.5
	4811	Paper, paperboard, cellulose wadding	2.5
	4812	Filter blocks, slabs and plates of paper pulp	2.5
	4818	Paper towels, toilet paper, tissues, and similar household, sanitary articles of paper	2.5
	4803	Tissue, towel, napkin stock in rolls	2.5
	4810	Paper and paperboard, coated one or both sides with kaolin	2.5
	4819	Cartons, boxes, cases, bags of paper, and paperboard	2.5

7.9. Conversion factors for natural rubber

HS code	Short description	Conversion factor
4003	Reclaimed primary rubber	0.196
4005	Compounded unvulcanised rubber	0.202
4006	Unvulcanised rubber articles	0.202
4007	Vulcanised rubber threads	0.191
4008	Vulcanised rubber	0.191
4009	Vulcanised rubber pipes and hoses	0.191
4013	Rubber inner tubes	0.191
4014	Vulcanised rubber hygienic articles	0.191
4016	Other vulcanised rubber articles	0.191
4017	Hard rubber articles	0.191
5604	Textile covered threads	0.191
400110	Latex	1

400121	Smoked sheets	1
400122	TSNR	1
400129	Other natural rubber	1
400400	Rubber waste and scrap	0.196
400610	Camel-back strips	0.196
401110	Car tyres	0.14
8703	Cars	0.0051
401120	Lorry tyres	0.27
401130	Aircraft tyres	0.27
401140	Motorcycle tyres	0.14
401150	Bicycle tyres	0.14
401161	Tractor tyres	0.27
401211	Retreated car tyres	0.14
401212	Retreated lorry tyres	0.27
401213	Retreated aircraft tyres	0.27
401219	Other retreated tyres	0.205
401220	Used tyres	0.205
401290	Other tyres	0.205
401511	Surgical gloves	0.191
401519	Other rubber gloves	0.191
401590	Rubber accessories	0.191

Annex 2: Risk matrix

Country	Change in canopy cover	Primary forest loss	ITUC Labour rights	WB Rule of Law	Risk score	Risk category
Afghanistan	1	1	3	3	**8**	Medium
Albania	1	1	3	2	**7**	Medium
Algeria	1	1	3	3	**8**	Medium
Angola	3	3	3	3	**12**	Very high
Antigua and Barbuda	1	1	3	2	**7**	Medium
Argentina	3	3	3	2	**11**	Very high
Australia	3	1	1	1	**6**	Medium-low
Austria	1	1	1	1	**4**	Low
The Bahamas	1	1	3	1	**6**	Medium-low
Bangladesh	1	1	3	3	**8**	Medium
Barbados	1	1	3	2	**7**	Medium
Belarus	3	1	3	3	**10**	High
Belgium	1	1	2	1	**5**	Medium-low
Belize	1	3	3	3	**10**	High
Benin	1	3	3	3	**10**	High
Bolivia	3	1	3	3	**10**	High
Bosnia and Herzegovina	1	1	3	3	**8**	Medium
Botswana	1	1	3	2	**7**	Medium
Brazil	3	3	2	3	**11**	Very high
Bulgaria	1	1	3	2	**7**	Medium
Burkina Faso	1	1	3	3	**8**	Medium
Cambodia	3	1	3	3	**10**	High
Cameroon	3	3	3	3	**12**	Very high
Canada	3	1	2	1	**7**	Medium
Chile	3	2	3	2	**10**	High
China	3	1	3	3	**10**	High
Colombia	3	1	3	3	**10**	High
Congo, Dem. Rep.	3	1	3	3	**10**	High
Congo, Rep.	3	1	3	3	**10**	High
Costa Rica	1	1	3	2	**7**	Medium
Côte d'Ivoire	3	2	3	3	**11**	Very high
Croatia	1	1	3	2	**7**	Medium
Cyprus	1	1	3	2	**7**	Medium
Czechia	2	1	3	1	**7**	Medium
Denmark	1	3	3	1	**8**	Medium
Dominica	1	1	3	2	**7**	Medium

Dominican Republic	1	3	3	2	**9**	High
Ecuador	3	1	3	3	**10**	High
Egypt, Arab Rep.	1	1	3	3	**8**	Medium
El Salvador	1	1	3	3	**8**	Medium
Estonia	2	3	3	1	**9**	High
Ethiopia	2	1	3	3	**9**	High
Finland	3	1	1	1	**6**	Medium-low
France	3	1	2	2	**8**	Medium
Gabon	2	1	3	3	**9**	High
The Gambia	1	1	3	1	**6**	Medium-low
Georgia	1	1	3	2	**7**	Medium
Germany	3	1	1	1	**6**	Medium-low
Ghana	3	1	1	2	**7**	Medium
Greece	1	1	3	2	**7**	Medium
Grenada	1	1	3	2	**7**	Medium
Guatemala	3	1	3	3	**10**	High
Guinea	3	1	3	3	**10**	High
Guyana	2	1	3	3	**9**	High
Haiti	1	1	3	3	**8**	Medium
Honduras	3	1	3	3	**10**	High
Hong Kong SAR, China	3	1	3	2	**9**	High
Hungary	1	1	3	2	**7**	Medium
India	3	1	3	2	**9**	High
Indonesia	3	2	3	2	**10**	High
Iran, Islamic Rep.	1	1	3	3	**8**	Medium
Ireland	1	1	1	1	**4**	Low
Italy	2	1	1	2	**6**	Medium-low
Jamaica	1	1	3	2	**7**	Medium
Japan	3	2	3	1	**9**	High
Jordan	1	1	3	2	**7**	Medium
Kazakhstan	1	1	3	3	**8**	Medium
Kenya	1	1	3	3	**8**	Medium
Korea, Rep.	2	1	3	1	**7**	Medium
Kosovo	1	1	3	2	**7**	Medium
Kuwait	1	1	3	2	**7**	Medium
Kyrgyz Republic	1	1	3	3	**8**	Medium
Latvia	3	1	1	1	**6**	Medium-low
Lebanon	1	1	3	3	**8**	Medium
Liberia	3	1	3	3	**10**	High
Lithuania	2	1	3	1	**7**	Medium
Luxembourg	1	1	3	1	**6**	Medium-low

Madagascar	3	3	3	3	**12**	Very high
Malawi	1	1	3	2	**7**	Medium
Malaysia	3	1	3	2	**9**	High
Mali	1	1	3	3	**8**	Medium
Malta	1	1	3	2	**7**	Medium
Mauritania	1	1	3	3	**8**	Medium
Mauritius	1	1	3	2	**7**	Medium
Mexico	3	2	3	3	**11**	Very high
Moldova	1	1	3	2	**7**	Medium
Mongolia	1	1	3	2	**7**	Medium
Montenegro	1	1	3	2	**7**	Medium
Morocco	1	1	3	3	**8**	Medium
Mozambique	3	1	3	3	**10**	High
Myanmar	3	1	3	3	**10**	High
Namibia	1	1	2	2	**6**	Medium-low
Nepal	1	1	3	3	**8**	Medium
Netherlands	1	1	1	1	**4**	Low
New Zealand	3	1	3	1	**8**	Medium
Nicaragua	3	1	3	3	**10**	High
Niger	1	1	3	3	**8**	Medium
Nigeria	3	1	3	3	**10**	High
North Macedonia	1	1	3	2	**7**	Medium
Norway	3	1	1	1	**6**	Medium-low
Pakistan	1	3	3	3	**10**	High
Panama	2	1	3	2	**8**	Medium
Paraguay	3	1	2	3	**9**	High
Peru	3	3	3	3	**12**	Very high
Philippines	3	3	3	3	**12**	Very high
Poland	3	1	2	2	**8**	Medium
Portugal	3	2	3	1	**9**	High
Qatar	1	1	3	2	**7**	Medium
Romania	1	1	3	2	**7**	Medium
Russian Federation	3	1	3	3	**10**	High
Rwanda	1	1	3	2	**7**	Medium
Senegal	1	2	3	2	**8**	Medium
Serbia	1	1	3	2	**7**	Medium
Sierra Leone	3	1	3	3	**10**	High
Singapore	1	1	3	1	**6**	Medium-low
Slovak Republic	1	1	3	2	**7**	Medium
Slovenia	1	1	3	2	**7**	Medium
South Africa	3	3	3	2	**11**	Very high

Spain	3	1	1	2	**7**	Medium
Sri Lanka	1	1	3	2	**7**	Medium
St. Kitts and Nevis	1	1	3	2	**7**	Medium
St. Lucia	1	1	3	2	**7**	Medium
St. Vincent and the Grenadines	1	1	3	2	**7**	Medium
Sudan	1	1	3	3	**8**	Medium
Suriname	1	2	3	2	**8**	Medium
Sweden	3	1	1	1	**6**	Medium-low
Tanzania	3	1	3	3	**10**	High
Thailand	3	1	3	2	**9**	High
Togo	1	1	3	3	**8**	Medium
Trinidad and Tobago	1	1	3	3	**8**	Medium
Tunisia	1	1	3	3	**8**	Medium
Türkiye	3	1	3	1	**8**	Medium
Uganda	3	1	3	3	**10**	High
Ukraine	3	1	3	3	**10**	High
United Arab Emirates	1	1	3	2	**7**	Medium
United Kingdom	2	1	3	1	**7**	Medium
United States	3	1	2	2	**8**	Medium
Uruguay	1	1	1	2	**5**	Medium-low
Uzbekistan	1	1	3	3	**8**	Medium
Venezuela, RB	3	1	3	3	**10**	High
Vietnam	3	1	2	1	**7**	Medium
Zambia	3	1	3	3	**10**	High
Zimbabwe	1	1	3	3	**8**	Medium
Zambia	1	3	2	3	**9**	High
Zimbabwe	1	3	3	3	**10**	High

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