

# Endangered Aisle

**How climate change is threatening the future of the UK's favourite foods**

February 2023



# Contents

<b>Introduction.....</b>	<b>3</b>
<b>Executive summary.....</b>	<b>4</b>
<b>New consumer insights: shoppers and sustainability .....</b>	<b>7</b>
<b>New analysis: mapping the risk to the UK’s popular foods.....</b>	<b>9</b>
<b>1. Bananas.....</b>	<b>11</b>
Fairtrade story: banana farmer Foncho, from Magdalena, Colombia.....	13
<b>2. Coffee .....</b>	<b>14</b>
Fairtrade story: coffee farmers Liliane and Maura from Sul de Minas, Brazil.....	16
<b>3. Cocoa.....</b>	<b>17</b>
Fairtrade story: cocoa farmer Sadick Abanga, from Kumasi, Ghana.....	19
<b>Fairtrade, farmers and the future of our food .....</b>	<b>20</b>
<b>Conclusion: a Fairtrade call for action .....</b>	<b>21</b>

## Introduction

**This Fairtrade Fortnight (27 February to 12 March 2023), the Fairtrade Foundation is highlighting the urgent threat that climate change poses to the future of British staples produced overseas.**

After last year's COP27 summit, we know that our planet will be a much hotter place in the coming decade. Communities in climate-vulnerable nations will be left to the mercy of the unpredictable forces of climate breakdown: extreme temperatures, prolonged droughts, water scarcity, catastrophic floods and hurricanes, changing patterns in growing seasons and an increase in crop pests and diseases – all causing failing crops and declines in yields.<sup>1</sup>

This is the future facing the world's farmers and agricultural workers, and a future that endangers our planet's food supply – including the everyday items that we enjoy eating in the UK. To make matters worse, the pressures on farmers are currently being exacerbated by the global cost-of-living crisis, as well as the economic challenges of a post-Covid world.

This Fairtrade Fortnight, the Fairtrade Foundation has commissioned two new sets of research to highlight this reality. Firstly, **new analysis into the environmental risks facing popular foods** – namely bananas, coffee and cocoa – grown in countries as diverse as Colombia, Kenya and Indonesia. Secondly, **consumer research delivering fresh insights** into UK shoppers' reliance on imported foods, and their awareness of the potential climate threats to their production.

Our new findings, summarised in the sections below, reveal that not all British shoppers realise the extent to which extreme or unpredictable weather is making it harder and harder for farmers overseas to grow crops, and endangering the viability of our favourite goods and products, on which millions of consumers depend.

### A supermarket of the future

The release of these findings underpins the launch, this Fairtrade Fortnight, of **'The Endangered Aisle'** – the Fairtrade Foundation's immersive pop-up store in Shoreditch, East London, designed to envision a supermarket of the future. Open to the public from 28 February – 2 March, the interactive retail space will provide a vivid insight in a future without guaranteed access to the supermarket staples that we know and love. It will also highlight the critical need to ensure farmers are equipped to adapt to changing weather patterns and protect the produce they grow, which form part of our daily diets.

Let's be clear: our motive is not to scare shoppers by presenting a dystopian nightmare. It's simply to highlight the crucial fact that if farmers and workers do not receive a fair price to cover their costs amid the climate crisis, the cost-of-living crisis and other threats, then they may not be able to grow and sell food in sufficient quantities in the future. And we in the UK might one day realise that our beloved cappuccino, chocolate bar or banana bread is becoming harder and harder to

come by. In some worst-case scenarios, certain varieties of the foods farmers overseas grow for UK consumption could become luxury items – or disappear off the shelves altogether.

Experts predict that if the current level of global heating continues, vast areas of the land used to grow crops such as bananas, coffee and cocoa could be unsustainable within a few decades. However, this isn't some distant scenario for future generations to confront. Fairtrade works directly with 1.9 million farmers and workers worldwide, who are at the sharp end of the climate emergency, and who have told us it is the biggest threat they face today.

From deadly heatwaves across Africa, to flooding in south-east Asia, the last year alone has seen a series of devastating climate events hitting smallholders in low-income communities. **Fairtrade cocoa farmers in Ghana told us, during their last harvest, that they don't see a future in the crop because it's so difficult to grow.** And they're not the only ones affected: coffee, banana and tea farmers in origins ranging from the Caribbean and Central America to India are reporting the same problems.<sup>2</sup> Despite contributing the least to the climate crisis, smallholders in low-income countries are among those disproportionately affected.

To make matters worse, the cost-of-living crisis is having global ramifications: farming, transport, logistics, labour and household costs are rising for agricultural communities, aggravated by the ongoing impacts of the war in Ukraine and the Covid-19 pandemic. For instance, data collected by Fairtrade from many of our certified banana farms – and verified by technical experts – has revealed that costs have increased since 2021, with fertilisers up by 70 percent, fuel up by 39 percent, and pallets and plastic packaging up by more than 20 percent.<sup>3</sup>

These communities are already struggling with fewer resources, volatility in commodity markets and downward pressure on prices. All this makes it harder for rural producers to feed their families, cover household essentials and keep earning an income, particularly those who do not benefit from the safety nets that Fairtrade participation offers.

Without our support for fairer prices today, farmers overseas will find it even harder to tackle the climate and economic challenges they face. This Fairtrade Fortnight we hope UK shoppers will back Fairtrade, and farming communities overseas: together we can play our part in safeguarding their livelihoods, the future of the food they grow, and our shared planet.

## Executive summary

**Imagine, if you will, a supermarket filled with half-empty shelves. For many of us, this is not too difficult to envision.**

After all, just three years ago, grocery stores were emptied of everything from pasta to toilet roll, as the Covid-19 pandemic took hold. And if the pandemic taught us anything, it's that the UK's food stocks are dependent on supply chains that are, in turn, reliant on a whole host of complex factors operating smoothly in the background. (The salad and fresh produce shortages that hit British supermarkets in February 2023 have served as a timely reminder of this.)

While it's all too easy to assume that our food will always be available, on demand, the reality is much less straightforward. If climate change continues to damage farmers' ability to grow bananas, coffee, cocoa and other foods at the scale needed, leaving them increasingly unable to make ends meet, then there is a risk that farmers will have to stop farming.

Some 80 percent of the world's food (in value terms) comes from more than 600 million small-scale family farms.<sup>4</sup> However as the Food and Agriculture Organization has pointed out, they often lack access to the resources they need to adapt to a changing climate.<sup>5</sup> This should be a concern for all of us, because nearly half of the food consumed in the UK comes from overseas, with 10-15 percent sourced from Asia, Africa and South America, grown by smallholder farmers and farm workers.<sup>6</sup> We all have a vested interest in ensuring that these food supply chains are as climate-friendly, sustainable and future-proof as possible.

That is why the Fairtrade Foundation has commissioned a new study, conducted by sustainability experts 3Keel. Their analysis maps out the level of risks and vulnerability associated with the UK's imports of bananas, coffee and cocoa (see p9). It reveals that these foods are becoming increasingly vulnerable to threats caused not only by climate change, but also by changes in land use (including deforestation) and loss of biodiversity. As this paper explains, the findings show:



**Almost half (48 percent) of UK banana imports by volume – totalling more than half a million tonnes of bananas – originate from countries with high climate change vulnerability.** In other words, from countries that face high and increasing risks of catastrophic events linked to climate change.\*



**Almost a quarter (24 percent) of the total land footprint associated with the UK's annual coffee imports (corresponding to almost 60,000 hectares of land) originates from countries considered to be highly or very highly vulnerable to the impacts of climate change.** At the same time 20 percent of the UK's coffee (by volume) is produced in countries that are high risk for protection of biodiversity and natural ecosystems.



**A large proportion of the land footprint required to meet the UK's demand for cocoa is in countries where there is high or very high loss of habitat and associated ecosystem services,** which poses potential risks to future cocoa production. In the new study, nearly a quarter (24 percent) of the UK's imported cocoa volumes are estimated to originate from six cocoa producer countries (Côte d'Ivoire, Ghana, Cameroon, Indonesia, Nigeria and Ecuador);<sup>7</sup> of that proportion, **91 percent – more than 350,000 tonnes of cocoa per year – originates from countries at very high or high risk for loss of forest, grassland and wetland habitat through changes in land use.**

*\*The index used to calculate climate risk is based on the incidence of countries facing high and increasing risk of catastrophic events linked to climate change. It does not directly include longer-term climatic changes, such as rising temperatures, which is affecting additional areas of land. As such, the climate vulnerability ratings applied here are conservative estimates: the true extent of climate impacts on these foods is likely to be more severe.*

Without action the future looks bleak. These findings highlight the potential risks to the future of our food. They also underscore how vital it is that farmers and workers receive a fair price that will enable them to invest in transitioning to sustainable, climate resilient ways of production, and to safeguard the environment, their livelihoods and their harvests.

We believe that a fair income for farmers and workers overseas is more vital than ever: otherwise there is no guarantee current and future generations of farmers will be able to continue farming. Poverty is a root cause of farmers' inability to adapt to and mitigate climate change. At the same time, it is actively making environmental damage worse, as it pushes producers to farm in an unsustainable way – for instance by using cheap, toxic chemicals and by cutting down trees to sell timber or to clear land for cultivation.

However, research published in October 2022 has shown that farmers who benefit from Fairtrade Standards, pricing, Fairtrade Premium payments and programmes are more resilient in times of global crisis.<sup>8</sup> For instance, La Florida coffee farmers, a Fairtrade co-operative in Peru, report an average income 50 percent higher than non-Fairtrade farmers in the country.<sup>9</sup> This extra money is vital for facing the future.

With higher incomes through Fairtrade, climate adaptation becomes more affordable for rural communities overseas.<sup>10</sup> In 2022, for instance, Fairtrade producers across Latin America and the Caribbean planted more than 300,000 trees in a six-month tree-planting drive, with more than 100 Fairtrade organisations across 20 countries getting involved.

Fairtrade can't single-handedly solve climate change. However, making the small switch to Fairtrade is a way we can all play our part to protect the future of our planet and the food we love. We invite shoppers to choose Fairtrade products when they can, supporting farmers and workers to earn a fair price so they can keep going and keep growing. And we encourage businesses to continue to invest in equitable, sustainable and ethical supply chains.

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*'Weather pattern changes cause drought, water logging, leaching, erosion, disease and pest outbreaks, and ultimately reduces farmers' performance in coffee production. Since these changes are caused by human activities, us humans can remedy it and make the world a better place for living things to thrive. The future is fair if we take climate in action by mitigating climate change ... [the] Fairtrade system is a key to success, through raising farmers' voices.'*

**Catherine Gimbika, Fairtrade coffee farmer,  
Kagera Co-operative Union, Tanzania**

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# New consumer insights: shoppers and sustainability

In February 2023 the Fairtrade Foundation commissioned brand new consumer research, conducted by 3Gem. They polled UK consumers, based on a sample of 2,000, to paint a picture of UK shoppers' awareness of the risks facing popular staples.<sup>11</sup>

The survey reveals that the vast majority of UK consumers – approximately 80 percent – buy at least one bar of chocolate and at least one banana in their weekly supermarket shop, and drink at least one cup of coffee a day. (In fact, nearly half of shoppers – 46 percent – buy three or more chocolate bars for their household each week; over two thirds (69 percent) buy three or more bananas weekly; and two thirds (60 percent) drink more than two cups of coffee daily.)

It's no surprise, then, that:

- **nearly two-thirds (60 percent)** of Brits say they would be 'devastated, annoyed or upset' if chocolate was no longer available to buy in the UK.
- Meanwhile, **over half (54 percent)** would feel likewise if coffee and bananas were no longer available to buy here.
- Separately the poll also reveals that **coffee is the top pick for Fairtrade item people would struggle to live without** (42 percent), if it were no longer available during their weekly shop.

All this shows how heavily we have come to rely on foods grown by farmers overseas, including Fairtrade products, and underscores the need for concerted action to prevent everyday shopping basket staples from becoming more endangered in the near future.

Despite our dependence on imported products, our consumer poll highlights the importance of raising further awareness, among British shoppers, of the potential environmental risks associated with UK imports of bananas, cocoa and coffee, and the part they can play to tackle these:

- **Over a third (37 percent)** are either unsure, or do not believe, that climate change will affect their weekly shop, including the future price or availability of items.
- **Nearly a quarter (23 percent)** admit that they are 'worried about climate change, but not sure what I can do to help.'

Climate change will affect us all. And yet, not enough of us understand how our actions at the supermarket till play a part in helping smallholder farmers and agricultural workers overseas to face climate change, and in helping to protect our food supplies. Although our minds are often occupied when we browse the supermarket aisles, it pays to think more long-term when we're making our spending choices. Otherwise, we risk forgoing our favourite foods entirely in years to come.

## A growing recognition

At the same time, our poll showed some cause for optimism, with recognition among some shoppers about how small lifestyle changes can make a big difference:

- **Nearly half (44 percent)** of people in the UK believe that even the smallest lifestyle change helps individuals have an impact on climate change.
- **Over a third (38 percent)** are already making changes to their lifestyle and shopping habits to limit their impact on the planet.
- **Nearly two thirds (64 percent)** either agree or strongly agree that 'buying sustainably sourced food in the supermarket is a lifestyle change you can make to help protect food grown in countries at risk of climate change'.

Consumers surveyed also showed an awareness of where foods such as bananas, coffee and chocolate come from, with three in five (60 percent) saying they 'always' or 'sometimes' check the country of origin (16 percent and 44 percent respectively).

As encouraging as these findings are, there is more work to be done. The Fairtrade Foundation is committed to working with our retail partners to raise shoppers' awareness not only of the risks facing our food supplies, but also the potential solutions. During Fairtrade Fortnight and beyond, we will continue to demonstrate how choosing Fairtrade is a simple, affordable yet powerful lifestyle change that British shoppers can make to support farmers to boost the sustainability of their livelihoods and their crops.

## Sustainability needn't cost the earth

We know that UK consumers care about sustainability and ethics in supply chains: it's heartening to see that nearly half (44 percent) of people said they choose products that are sustainably sourced when they go shopping (for example, Fairtrade, organic, vegan or locally produced).

Another important finding is just how worried consumers are about finances:

- **Two in five (43 percent)** say that paying their energy bills is 'a bigger concern to them than climate change and damage being done to the planet'.
- **Over a third (37 percent)** say 'they are equal problems'.

This is a clear reminder of the immense pressure the cost-of-living crisis is placing on UK households at this time. Half of our respondents (50 percent) say price is the main factor that would stop them from buying a sustainably sourced item, as they 'look for the cheapest option'.

While the cost-of-living crisis is putting a squeeze on all our finances, shoppers don't have to leave their values at home when they shop at value ranges. Fairtrade products such as tea, coffee and bananas are available at a range of low, affordable prices at supermarkets nationwide, thanks to the commitment of our retail partners, many of whom include certified items in their own-label discount ranges.

Choosing Fairtrade is a simple way to take direct action during this difficult time, and it needn't cost more.



# New analysis: mapping the risk to the UK's popular foods

**The Fairtrade Foundation has commissioned a study into the environmental risks facing some of the UK's favourite products grown in low-income countries overseas, namely bananas, coffee and cocoa.**

The Commodities Vulnerability Assessment, produced by sustainability consultancy 3Keel in February 2023, investigated the extent to which climate change, biodiversity and changes in land use – such as deforestation – may impact the future supply of food that the UK imports from other countries.

Farming and the production of food is one of many factors being affected by the changing climate, and which in turn, affects climate change. The UK imports its food – agricultural commodities – from across the world, and these imports play a critical role in the economies of the exporting nations. Nevertheless, some of the UK's food is imported from regions that are highly vulnerable to climate change, or that are considered higher risk for environmental or social factors.

The new analysis focuses on UK consumption of three key commodities – bananas, coffee and cocoa – which are not only common daily items in many households, but are also foundational ingredients in many popular Fairtrade products.

As these products cannot be commercially grown in the UK, researchers examined the international trade and imports of these products. These findings have allowed us to paint a picture of the risk to foods that people in the UK consume daily, and which farmers overseas depend on for their livelihoods. (The research looked at all these commodities' supply chains, rather than Fairtrade ones specifically: see Appendix, p22, for full methodology).

After determining the volume and source of UK imports of each commodity, annually from 2012–2021, the researchers estimated the land footprint overseas required to meet the UK's demand for bananas, coffee and cocoa respectively. They assigned an overall level of risk associated with that land footprint, in order to understand some of the climate and environmental vulnerabilities of each of these popular commodities.

The researchers developed a risk matrix using indices to estimate risk associated with producer countries.<sup>12</sup> The global indicators are as follows:



**Climate vulnerability**, based on Germanwatch's Climate Risk Index,\* which analyses vulnerability based on the extent to which countries have been affected by the impacts of weather-related loss events such as heatwaves, storms and floods over the period 2000–2019.<sup>13</sup>



**Biodiversity**, based on the Environmental Performance Index biodiversity and habitat indicator, which assesses countries' actions towards protecting biodiversity and habitats (policies, protected areas etc).<sup>14</sup>



**Land use change** (i.e. habitat loss), based on the Environmental Performance Index Ecosystem Services indicator.<sup>15</sup> This recognises the important services ecosystems provide to human and environmental wellbeing, and evaluates loss of forests, grassland and wetland habitats in a country.

The study shines a light on the vast areas of land required overseas to feed the UK's demand for bananas, coffee and cocoa. Given the amount of land our consumption uses, it is in all our interests to support the farmers and workers behind these products to farm in ways that are financially and environmentally sustainable, in the face of climate change and global economic pressures.

*\*It's worth noting that this index does not directly include longer-term climatic changes, such as rising temperatures, which also have serious implications for food production and availability. As such, when considered alongside other studies, the true impacts of climate change are likely to be more severe.*

## Biodiversity and agriculture

Biodiversity plays a key role in supporting natural ecosystems that are essential for the sustainability of agricultural production. However, pesticide misuse by farmers harms biodiversity by reducing the number and range of plants, insects, and other organisms in and above the soil.

An ever-decreasing choice of crop varieties and animal breeds increases the risk of plant pest and diseases, and worsens climate change impacts. We know that without maintaining and enhancing biodiversity, farmers will not be able to sustain their livelihoods into the future – for instance, because many of their crops depend on pollinators to produce fruits (e.g. coffee and cocoa).

**Fairtrade Standards aim to protect and maintain biodiversity and agrobiodiversity, and promote sustainable agricultural practices**, so that smallholder farmers can make their crops more resilient to the impacts of climate change, such as drought and heat.

# 1. Bananas



Bananas are the world's most popular fruit, with the global trade in 2020 estimated to be worth more than £12 million (US\$15 billion).<sup>16</sup>

Millions of small-scale farmers and workers in tropical regions depend on the banana trade for a vital source of income, but their work has traditionally been done in the context of low wages, rising production costs and stagnant prices. Now, to make matters worse, the impacts of climate change – including stronger and more frequent floods and storms – is making production unpredictable and unsustainable.

Amid the impact of climate change and the resulting threats posed by plant diseases like Fusarium TR4 (a common fungal disease), the future of bananas is increasingly at risk, a study released by Fairtrade International in 2021 shows.<sup>17</sup> It warns that dramatic weather patterns spurred by climate change will likely deliver severe blows to agricultural production in key regions around the world, from Latin America to the Asia-Pacific. Banana producers in the Caribbean and in Central America, for instance, are expected to experience less rainfall and more extreme temperatures, while those in south-east Asia and Oceania will see an increased risk of tropical cyclones.

Worldwide, bananas have been associated with 235,000 hectares of deforestation between 2001-2018. That's equivalent to an area of forests the size of Warwickshire which has been lost, with an estimated 85 MtCO<sub>2</sub>e emissions associated with the land-use change.<sup>18</sup> All the while, farmers' crop yields are declining, and market prices remain painfully low, placing a heavy burden on smallholder farmers and workers. (It's worth noting, however, that the Fairtrade Standards include measures designed to tackle deforestation and protect forests.<sup>19</sup>)

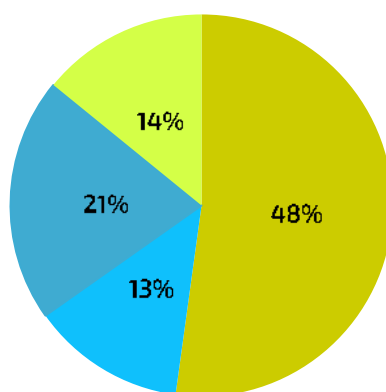
## Findings: the UK and bananas

- The UK has amongst highest per capita consumption of bananas in Europe – on average, a person in the UK consumes around 85 bananas a year.<sup>20</sup> Total UK imports of bananas average over a million tonnes each year.
- Almost 90 percent of UK imports of bananas come from seven countries in Central and South America and Africa, including Costa Rica, the Dominican Republic and Colombia.
- **Supplying the UK's demand for bananas each year requires an estimated land footprint of over 34,000 hectares (ha) – an area about the size of York.**

## New analysis: bananas and climate risk

- **Almost half (48 percent) of the land footprint associated with the UK's banana imports is in countries with high climate change vulnerability.** In other words, supplying bananas to meet UK demand uses more than 16,000ha of land in countries that face high and increasing risks of catastrophic events linked to climate change.
- **Almost half (48 percent) of UK banana imports by volume – totalling more than half a million tonnes of bananas – originate from countries with high climate change vulnerability** (Colombia, Dominican Republic and Belize). In other words, countries that face high and increasing risks of catastrophic events linked to climate change.

**Climate vulnerability associated with land footprint of UK banana imports (land area, annual average 2012-2021)**



■ High (526,602) ■ Medium (223,526) ■ Lower (210,146) ■ Mixed (136,870)

## Fairtrade story: banana farmer Foncho, from Magdalena, Colombia

Albeiro Alfonso Cantillo, or Foncho, as his friends know him, was born into bananas. He farms land in the Magdalena region of Colombia that was passed from generation to generation. When we spoke to him in late 2022, he told us: 'This farm means everything to us, especially for me and my family.'



The region faced many years of insecurity due to armed conflict, while the Covid-19 pandemic also put pressure on them, devaluing the price of their bananas. However, banana farmers in Magdalena now face a new challenge: the climate crisis. They worry about plant diseases, as bananas are extremely susceptible to Tropical Race 4 (TR4) Fungus and black rust: 'The climate has definitely changed: today we can't predict the climate as we used to before, like our elders did.'

However, with Fairtrade, banana farmers now have 'the tools to fight the effects of climate change', Foncho says. He belongs to the Coobafrio co-operative, and is currently part of a Fairtrade-run initiative – the Productivity Improvement Programme (PIP) – which he says 'has brought great benefits to our farms' and kept them going during the pandemic.

Run with funding from UK businesses, PIP initiative aims to support banana producers across Latin America and the Caribbean to tackle the triple threat of low incomes, low productivity and the climate crisis.<sup>21</sup> The programme has helped Foncho's community to manage the plant diseases, reduce their carbon and water footprint and improve their fruit by using bio-fertilisers. They have also reduced the use of chemicals such as insecticides. It means they've saved money, used less water and improved the health of the soil.

Reflecting on the benefits, Foncho says: 'We have been able to recuperate a great part of the fauna and the flora from our region... Every 'peso' this programme benefits me with has an impact in my family. Today, more than the financial part, the main benefit is to recuperate our soil... Today my production is higher, the black rust control is better, I have a better stability inside my plantation.'

At a time when banana farmers face ever increasing production costs Foncho is grateful for the stability of the Fairtrade Minimum Price, which provides a safety net for growers: 'Those two dollars we get above the cost of each box make a difference for us, so we could be able to sustain ourselves as a family and to save.'

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*'The climate has definitely changed: today we can't predict the climate as we used to before, like our elders did'*

**Foncho, banana farmer**

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## 2. Coffee



Most of the world's 25 million coffee farmers are smallholders – including many Fairtrade farmers. In 2020, the global trade in coffee was worth an estimated £25bn (US\$30.8bn).<sup>22</sup>

However, there are now fears that climate change could push many producers out of coffee altogether, further deepening poverty and leading to supply shortages in the UK and elsewhere. Coffee needs very specific climate conditions to grow. In recent years, coffee farming – particularly Arabica bean production (used for flat whites and cappuccinos) – has been affected by hostile weather conditions, including higher temperatures and altered rainfall patterns, caused by climate change.

Climate change has also increased the prevalence of pests and diseases, such as the fungus known as coffee rust (La Roya), which thrives in higher temperatures. For instance, more than 90 percent of Fairtrade coffee farmers surveyed in a recent study in Kenya said they are already experiencing the effects of climate change and have reported more erratic rainfall and an increase in pests and diseases, such as coffee berry disease.<sup>23</sup>

Worldwide, coffee has been associated with 557,000ha deforestation in the period from 2005-2018<sup>24</sup> - that an area more than twice the size of Luxemburg deforested in less than two decades.<sup>25</sup>

## Findings: the UK and coffee

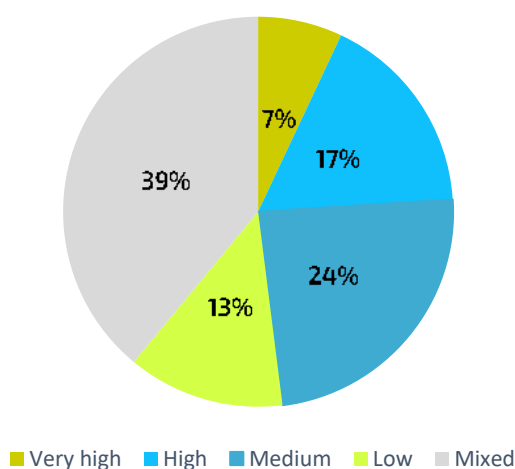
- On average, the UK imported the equivalent of over 200,000 tonnes of green coffee beans every year from 2012-2021, from more than eight countries across Latin America, Africa and south-east Asia. UK imports of coffee were worth over £830m (US\$1 bn) in 2020.<sup>26</sup>
- The land area required to produce the volumes of coffee imported to the UK was on average over 245,000ha each year. **That is a land area about the size of Warwickshire required to grow the coffee to meet UK demand each year.**

## New analysis: coffee, climate and biodiversity risks

- The total footprint for UK annual coffee imports is over 245,000ha. Of this, **almost a quarter (24 percent) - corresponding to almost 60,000ha of land - is across Colombia, Ethiopia, Honduras, Peru and Vietnam, which are considered to be highly or very highly vulnerable to the impacts of climate change.** (However, this risk assessment is based on past incidence of catastrophic events, not future temperature rises).
- **20 percent of the UK's coffee (by volume, tonnes of coffee green bean) is produced in countries that are high risk for protection of biodiversity and natural ecosystems.**

The figures in this analysis are a conservative assessment of the risk facing coffee. Elsewhere, forecasts suggest that a significant proportion of future climate impacts on agriculture, particularly in coffee, will be caused by temperature rises. For instance, experts predict that under certain emissions scenarios, as much as 50 percent of the global surface area currently used for coffee farming may no longer be suitable by 2050, due to the changing climate.<sup>27</sup>

### Climate vulnerability associated with footprint of UK coffee imports (average annual hectares, 2012-2021)



## Fairtrade story: coffee farmers Liliane and Maura from Sul de Minas, Brazil

Married couple Liliane and Mauro da Silva are a coffee-growing, future-focused team. They farm in Brazil's Sul de Minas region, the land of specialty coffee. It was what Liliane's father did, and she wants her teenage girls to carry on the proud family tradition of producing top quality coffee.



Fairtrade is one way team Liliane and Mauro are supported to meet their goal. With the costs of farming rising, coffee prices increasingly volatile and the effects of the climate crisis deepening, it's hard to imagine that staying on the farm is an attractive career option for their children. Their fellow coffee farmers in other parts of Brazil have suffered very badly from unusually heavy frosts recently, and the couple have noticed that the weather is getting increasingly unpredictable.

Liliane acknowledges that: 'We live and own property in an area very favourable for coffee, but, even so, we suffer a lot with the climate's setbacks. To produce a special coffee, we need the climate.'

She and her colleagues in the Ascarive Fairtrade co-operative are trying out different methods for protecting their harvests. The support they get from Fairtrade means they have access to expertise and information about what's been successful for coffee farmers elsewhere, as well as financial support.

So, what have they done to keep supplies of coffee reaching the UK? As Liliane puts it: 'We are not in charge of the climate, but we can collaborate a lot with it.' Her neighbour and fellow Fairtrade farmer Maria Paul agrees: 'We develop green manure projects, Ascarive develops beekeeping projects... biodiversity development and protection. And this has brought several benefits to our region. Why? Because when the producers take better care of their crops and of nature itself, it will be more resistant to overcome these... environmental disasters.'

Liliane has her eyes firmly on the prize: 'The more sustainable I am, the more my children will have a future.'

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*'We are not in charge of the climate, but we can collaborate a lot with it'*

**Liliane da Silva, coffee farmer**

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### 3. Cocoa



The global trade in cocoa is worth over £16m (US\$20 bn) each year, with over half of this produced in Ghana and Côte d'Ivoire.<sup>28</sup> However, experts have warned that growing cocoa beans is becoming increasingly difficult and uncertain due to climate change.<sup>29</sup>

A previous Fairtrade study notes that since the west African region has 'experienced considerable drying of the climate in the recent decades', this has 'resulted in areas becoming unsuitable for cocoa growing', with expected dry periods and heatwaves likely to have an impact on future cocoa production.<sup>30</sup>

Studies also suggest that many cocoa-growing regions in Ghana and Côte d'Ivoire will likely become too hot to grow the crop by 2050.<sup>31</sup> These countries are also likely to experience challenging changes to climate, which include more days with heavy precipitation, as well as increased risk of heatwaves and drought in some areas.<sup>32</sup>

Despite the chocolate industry being worth £4bn in the UK alone, cocoa farmers struggle on as little as 74p a day,<sup>33</sup> leaving them with little chance of being able to futureproof their livelihoods, and their popular crop, from the ravages of climate change.

During 2001-2018, cocoa was associated with over 732,000ha of deforestation worldwide. That is an area almost twice the size of Sussex that has been deforested and converted to cocoa production since 2000. This deforestation is estimated to have caused emissions of approximately 530 MtCO<sub>2</sub>equivalent.<sup>34</sup>

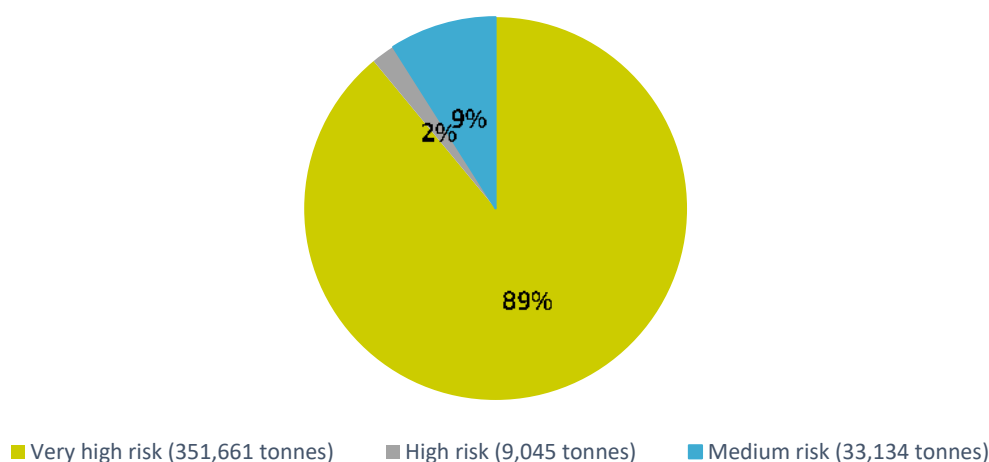
## Findings: the UK and cocoa

- Between 2012 and 2021, the UK imported an average of the equivalent of over 1.5 million tonnes of cocoa beans each year, with **the land footprint of the UK's cocoa imports estimated to amount to an average of over 3 million hectares.**
- As there is significant inter-trading of cocoa amongst European countries – and cocoa may pass through several intermediary countries in various forms before reaching the UK – it is difficult to identify its original source. However, in this analysis, we can estimate 24 percent of the UK's imports of cocoa back to specific country of origin.<sup>35</sup>

## New analysis: cocoa, land-use change and ecosystem services

- Of the UK cocoa imports estimated to cocoa producer countries in this analysis (24 percent of total UK cocoa import volumes), **91 percent of the cocoa volumes originate from countries at very high or high risk for loss of habitats and ecosystem services through land use change.** This amounts to over 350,000 tonnes of cocoa per year.
- Of the UK cocoa imports estimated to cocoa producer countries, **82 percent of the associated land footprint occurs in countries that are very high risk (Côte d'Ivoire, Ghana, Indonesia, Nigeria) or high risk (Ecuador) for loss of habitats and ecosystem services through land use change.**

Land use change risk associated with UK cocoa imports estimated to cocoa producer countries (average import volumes in tonnes, 2012-2021)



This has two key implications: firstly, there is a risk that production of cocoa for UK imports is contributing to the loss of critically important habitats, including through forest deforestation, with potentially negative consequences for nature, biodiversity and climate. Secondly, future productivity of cocoa may be at risk due to the loss of critical ecosystem services which are provided by habitats that are being, or have been, lost. Many of these ecosystem services – including nutrient and water cycling, soil fertility, shade and as habitat for beneficial insects including pollinators and insect pest predators – are vital for growing food commodities including cocoa.

### **Fairtrade story: cocoa farmer Sadick Abanga, from Kumasi, Ghana**

Sadick farms nine acres of land for cocoa. He's been doing this for 18 years and it's getting increasingly difficult due to the climate crisis. Part of his farm lies high on a rocky, steep hillside: unfriendly terrain for cocoa plants. Sadick is working on gradually surrounding it with shade trees. This is a technique he discovered after joining an agro-forestry project that offers farmers from Sadick's Fairtrade co-operative, Kuapa Kokoo, training in methods to adapt to climate change by improving soil, planting for shade and attracting biodiversity.



Sadick is now using simple solutions to the problem of unpredictable rainfall: for example, using the liquid inside a banana trunk to irrigate the young cocoa plants. 'The training officer always comes to the field, even when I am not there he goes to my farm and tells me what's good or bad, using banana irrigation during the dry season,' Sadick explains.

He joined the Kuapa Kokoo co-operative eight years ago. It was the level of support available to members which made it attractive to him, and he's not been disappointed. It's not just the support and training to adapt that Sadick values, it's the role in decision making and the open participation too. '[We] have officers to give us training and education, bonuses from the [Fairtrade] Premium. They don't discriminate, whether you are male or female you have a voice, you are asked to talk.'

The climate and cost-of-living crises are severe threats to the livelihoods and communities of farmers like Sadick, but working as part of a team, with Fairtrade behind them, means they are able to access the support they need to keep on farming the cocoa we love.

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*'I didn't know I was punishing the land: now because of this project I've seen the benefits, there are more nutrients in the soil.'*

**Sadick Abanga, cocoa farmer**

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## Fairtrade, farmers and the future of our food

**When businesses and consumers choose Fairtrade, farmers and workers on the front line of the climate emergency have a fighting chance of caring for themselves, their families and our shared planet.**

Farmers and workers co-own Fairtrade with representation at all levels of governance, including holding 50 percent of decision-making power in the Fairtrade General Assembly. Crucially, Fairtrade sales and support from shoppers means higher incomes for farmers and workers across the world, offering them vital protection from price crashes, market volatility and climate extremes.

Through Fairtrade, farmers and workers have the security of the Fairtrade Minimum Price, which provides a safety net when market prices fall. They are also protected by the Fairtrade Premium, an additional sum that farmers and workers can invest in projects of their choice, including climate friendly activities such as tree planting.

Environmental protection is ingrained in our Fairtrade Standards, and protecting and enhancing biodiversity is an integral part of the Standards. To sell Fairtrade products, farmers have to improve soil and water quality, manage pests, avoid using harmful chemicals, manage waste and protect forests and biodiversity. Meanwhile, Fairtrade makes training available to producers so that they can use the latest agricultural methods, such as intercropping and shade-grown coffee to adapt to changing conditions. Fairtrade supports farmers in sustainable agriculture, for instance by promoting conservation and diversification of plant and seed varieties on-farm.

Beyond Fairtrade sourcing and certification, we invest in climate friendly programmes that resource producers to face some of the key challenges. We also offer a framework for businesses to co-design programmes with us to reduce their climate impact.

These additional benefits go above and beyond any other certification system. All this has a significant impact on farmers' living standards and their ability to develop sustainably in the face of the climate crisis. It means Fairtrade farmers and workers are in a materially stronger position than they would otherwise be, leaving them better equipped to face the climate emergency. For example, in 2021 sales of Fairtrade products in the UK generated more than £25m in Fairtrade Premium for producers to invest in essentials such as healthcare, education, housing, water, as well as developing their businesses and caring for the natural environment.

Of course, certification can only ever form part of a company's sustainability journey. That's why we call on everyone who can, to choose Fairtrade and help to safeguard the future of our food and the livelihoods of those who produce it.<sup>36</sup>

## Conclusion: a Fairtrade call for action

Given the pressures on our lives, the farmers and workers who produce our everyday staples are not always at the front of our minds, especially when we're picking up our groceries in the middle of a busy day.

We also recognise that many in the UK are under financial pressure, struggling to afford their household needs. However, as our new research above emphasises, in the UK we depend heavily on the weekly consumption of bananas, coffee and cocoa. From cakes and cookies, to lattes and smoothies they are part of our everyday lives. And yet they are becoming increasingly vulnerable to threats caused by climate change, land use change (including deforestation) and loss of biodiversity.

Wherever we shop and whatever we eat, we cannot take our food for granted, nor should we take for granted the hard-working women and men who plant, nurture, pick and harvest it. This includes the 1.9m producers that Fairtrade works with in more than 70 countries worldwide, who are integral to protecting the future of our planet and our food supplies.

Farming communities who steward the land have a critical role in addressing climate change and have the expertise and knowledge to do so. However, it is unjust that many farmers and agricultural workers – particularly those without the financial protections Fairtrade offers – are often unable to earn a living income or living wage, because the price they receive for their produce is far too low.

We must support more producers in low-income countries to meet the costs associated with farming in ways that are resilient in the face of more extreme weather, and in ways that produce fewer emissions. Farmers also need the resources to enable them to build their resilience to other threats, such as the global cost-of-living crisis and the ongoing impacts of the Covid-19 pandemic.

### Improving sustainability in the retail space

At the Fairtrade Foundation, we are reaffirming our commitment to work with companies to improve sustainability in the retail space, recognising the financial challenges we all face. We have been working with our retail partners to ensure that everybody can afford Fairtrade, wherever they shop. We have seen more supermarket retailers offering Fairtrade products as part of their value ranges, sold at low, accessible price points, all while ensuring farmers don't lose out financially.

While there is much that shoppers can do to take action into their own hands, we know it is not just down to them to tackle climate change. That's why, at the COP27 climate summit, the international Fairtrade movement called on leaders of government and the private sector to immediately deliver on climate targets. We asked them to do this by:

1. Meeting the \$100bn climate aid commitment promised by richer, higher polluting nations.
2. Ensuring climate finance delivers for smallholder farmers and workers by including them in the design of climate programmes.
3. Supporting farmers and workers with the costs of adaptation and mitigation.
4. Agreeing on regulations that tackle the root causes of environmental degradation, such as deforestation.

In addition, as a global movement we reiterated our long-standing call for businesses to pay fair prices to smallholder farmers and workers.

This Fairtrade Fortnight, the Fairtrade Foundation echoes these calls for action. Whether we're contending with a climate crisis or an economic crisis, we believe there has never been a greater need for retailers to prioritise sustainability, ethics and fair pay for workers and farmers in their supply chains.

We all have a stake in ensuring that current and future generations of farmers who grow the food we eat can do so in environmentally friendly ways, while earning a decent income that enables them to stay in business and live the sort of life their hard work deserves.

We believe climate action requires global collaboration: from consumers, farmers, businesses and governments alike. This Fairtrade Fortnight we encourage all who can to invest in sustainable and fair supply chains. Together, we can partner with farmers to protect the future of our food, and our shared planet.

## Appendix: research methodology

The assessment by 3Keel focused on UK consumption of three key commodities: bananas, cocoa and coffee. As these commodities cannot be commercially produced in the UK, the analysis examined international trade and imports of supply chains for these commodities. Assessing the vulnerability of each of these commodities followed the same process to estimate the land footprint required to supply the UK's imports of the commodity, and then assign an overall level of risk associated with that land footprint.

### Key steps of the process

1. Identify main categories for trade/ imports of each commodity to UK and relevant HS codes ('harmonised system' codes used to identify traded goods) – e.g. cocoa beans, cocoa butter and cocoa liquor for cocoa.
2. Determine the volume and source of UK imports of each commodity, each year from 2012–2021, using trade data from COMTRADE.
  - a. In some cases, the commodity is produced in one country and then directly imported to the UK – e.g. bananas grown in Colombia and shipped directly to the UK.

- b. In other cases, the commodity may pass through an intermediary country, in which case a second level of analysis ('provenance reassignment') is used to estimate the original country of production based on the pattern of imports and exports in that intermediary country. E.g. for cocoa imported to the UK from Belgium, the original country of production is estimated based on the overall pattern of cocoa imports to Belgium.

Some commodities are imports from hundreds of countries to the UK. To focus the available research resource, the analysis focuses on countries responsible for two percent or more of the volume of UK's direct imports of a given commodity. The exception is cocoa, where the list was expanded to include additional cocoa producer countries in an attempt to trace more cocoa back to origin during the provenance reassignment.

3. Convert the volumes from trade data back to the original agricultural product – e.g. tonnes of cocoa butter converted back to the required volume of cocoa beans – using published conversion factors, such as Fairtrade cocoa conversion factors.
4. Use published data on agricultural yields in the country of production to convert the tonnes of agricultural product to an estimated land area or 'footprint' required to produce that volume.
5. Develop a risk matrix using indices to estimate risks associated with producer countries:<sup>37</sup>
  - a. Climate Vulnerability, based on the Germanwatch [Climate Risk Index](#) which analyses vulnerability based on the extent to which countries have been affected by the impacts of weather-related loss events such as heatwaves, storms and floods over the period 2000–2019.
  - b. Biodiversity, based on the Environmental Performance Index [biodiversity and habitat indicator](#), which assesses countries' actions towards protecting biodiversity and habitats (policies, protected areas etc).
  - c. Land use change, based on the Environmental Performance Index [Ecosystem Services indicator](#),<sup>38</sup> which evaluates loss of forest, grassland and wetland habitats in a country.

The country scores for each of these indices were converted into ratings of 1–5, which were categorised as Low, Medium-Low, High or Very High risk. For the overall risk score (not directly included in this report), the scores for the four individual indicators were summed and this value was converted to a rating of 1–5 and categories of low to very high risk.

6. Apply the level of risk associated with a country of production to the footprints linked to UK imports, to give a picture of the risks associated with UK imports.

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## Endnotes

<sup>1</sup> Fairtrade Foundation (2021), *A climate of crisis: farmers, our food and the fight for justice*, [www.fairtrade.org.uk/wp-content/uploads/2021/02/A-Climate-Of-Crisis\\_Fairtrade-Foundation\\_Feb-2020\\_HR.pdf](http://www.fairtrade.org.uk/wp-content/uploads/2021/02/A-Climate-Of-Crisis_Fairtrade-Foundation_Feb-2020_HR.pdf)

<sup>2</sup> The impacts are described in Feurer, M, et al (2021), *Fairtrade and climate change: systematic review, hotspot analysis and survey*, [https://files.fairtrade.net/publications/Fairtrade-and-climate-change\\_October2021.pdf](https://files.fairtrade.net/publications/Fairtrade-and-climate-change_October2021.pdf)

<sup>3</sup> Fairtrade International (2022), 'As production costs soar, Fairtrade raises banana prices in support of farmers', <https://www.fairtrade.net/news/fairtrade-raises-banana-prices-in-support-of-farmers>

<sup>4</sup> Food and Agriculture Organization of the UN (2021), 'Small family farmers produce a third of the world's food', [www.fao.org/news/story/en/item/1395127/icode/](http://www.fao.org/news/story/en/item/1395127/icode/)

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<sup>6</sup> DEFRA (2020), *Origins of food consumed in the UK 2019*, [www.gov.uk/government/publications/food-statistics-pocketbook/food-statistics-in-your-pocket-global-and-uk-supply](http://www.gov.uk/government/publications/food-statistics-pocketbook/food-statistics-in-your-pocket-global-and-uk-supply)

<sup>7</sup> There is significant inter-trading of cocoa amongst European countries, and cocoa may pass through several intermediary countries in various forms before reaching the UK. Over 90% of the UK's direct imports of cocoa come from intermediary countries including Germany, Poland, Belgium and France; less than 10% is imported directly from cocoa-producing countries like Ghana and Côte d'Ivoire. In this analysis, when cocoa passes through an intermediary country, a second level of analysis ('provenance reassignment') is used to estimate the original country of production, based on the pattern of imports and exports in that intermediary country. E.g. for cocoa imported to the UK from Belgium, the original country of production is estimated based on the overall pattern of cocoa imports to Belgium.

<sup>8</sup> Fairtrade International (2022), *Fairtrade certification and producer resilience in times of crises*, [www.fairtrade.net/library/fairtrade-certification-and-producer-resilience-in-times-of-crises](http://www.fairtrade.net/library/fairtrade-certification-and-producer-resilience-in-times-of-crises)

<sup>9</sup> Fairtrade International (2022), *Assessing the impact of Fairtrade on poverty reduction and economic resilience through rural development*.



<sup>10</sup> Borsky, S, and Spata, M (2018), *The impact of fair trade on smallholders' capacity to adapt to climate change*, Vol 26, Issue 4, <https://onlinelibrary.wiley.com/doi/abs/10.1002/sd.1712>

<sup>11</sup> A total of 2,000 UK adults were surveyed, 50% females and 50% male. Of these, 7% were 18-24, 17% were 25-34, 20% were 35-44, 18% were 45-54, 17% were 55-64 and 20% were over 65. These were people who were either solely or jointly responsible for buying groceries for their household.

<sup>12</sup> Risk is based here on global indicators of climate, biodiversity, land use change, and social risk. These each assign numerical ratings to countries to represent their risk according to the given factor. For each index, the score/rating is provided at the national level only, which doesn't account for variations within countries, or assign risk relating to the specific commodity production system or supply chain. An inherent limitation of all risk indicators is that they distil a huge range of complex dynamics into a single numerical value, which can over-simplify the actual reality of circumstances in a country.

<sup>13</sup> 3Keel note the imitations of this index are that, although these events will pose a critical risk to food commodity production, the index itself does not directly represent this risk. It also does not directly represent longer-term climatic changes, such as rising temperatures, which also have implications for food production and availability.

<sup>14</sup> Yale, *Environmental Performance Index: biodiversity and habitat indicator*, <https://epi.yale.edu/epi-results/2020/component/bdh>

<sup>15</sup> Wolf, et al (2022), *2022 Environmental Performance Index*, Yale, <http://epi.yale.edu/>

<sup>16</sup> Data taken from the Chatham House Resource Trade Database: <https://resourcetrade.earth>

<sup>17</sup> Feurer, M, et al, *Fairtrade and Climate Change: Systematic review, hotspot analysis and survey*, October 2021, [https://files.fairtrade.net/publications/Fairtrade-and-climate-change\\_October2021.pdf](https://files.fairtrade.net/publications/Fairtrade-and-climate-change_October2021.pdf)

<sup>18</sup> Pendrill, F, et al (2022), *Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005-2018*, [https://zenodo.org/record/5886600#.Y-S\\_7-zP3DI](https://zenodo.org/record/5886600#.Y-S_7-zP3DI)

<sup>19</sup> Fairtrade Standards contain provisions designed to tackle deforestation. For instance, see 'Fairtrade announces Cocoa Standard update expanding requirements on human rights and deforestation', December 2022, Fairtrade International, [www.fairtrade.net/news/fairtrade-announces-cocoa-standard-update-expanding-requirements-on-human-rights-and-deforestation](http://www.fairtrade.net/news/fairtrade-announces-cocoa-standard-update-expanding-requirements-on-human-rights-and-deforestation)

<sup>20</sup> Per capita consumption figures based on FAOSTAT and population data from World Bank. Volume of bananas converted from kg to number of bananas based on average Cavendish banana weight of 180g [Soltani et al, 2011](#)

<sup>21</sup> The PIP programme has supported over 40 farms across seven countries to increase their yields by an average of 36%. Through PIP, farmers have managed to reduce their greenhouse gas emissions by 29% and water use by 12%.

<sup>22</sup> Data taken from the Chatham House Resource Trade Database: <https://resourcetrade.earth>

<sup>23</sup> Fairtrade Foundation (2022), *FairVoice Mobile Survey, Kenya*

<sup>24</sup> Pendrill, F, et al (2022), *Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005-2018*, [https://zenodo.org/record/5886600#.Y-S\\_7-zP3DI](https://zenodo.org/record/5886600#.Y-S_7-zP3DI)

<sup>25</sup> The Fairtrade Standards forbid cutting down protected forests in order to plant more crops. See note 19.

<sup>26</sup> Data taken from the Chatham House Resource Trade Database: <https://resourcetrade.earth>

<sup>27</sup> Bunn et al, (2015), *A bitter cup: climate change profile of global production of Arabica and Robusta coffee*

<sup>28</sup> Data taken from the Chatham House Resource Trade Database: <https://resourcetrade.earth>

<sup>29</sup> Natural Resources Institute (2010), *Climate change, agricultural adaptation and Fairtrade*, [https://gala.gre.ac.uk/id/eprint/6754/1/NRI\\_FTF\\_Climate\\_Agri\\_WEB\\_D4679-10\\_\(2\).pdf](https://gala.gre.ac.uk/id/eprint/6754/1/NRI_FTF_Climate_Agri_WEB_D4679-10_(2).pdf)

<sup>30</sup> Feurer, M, et al (2021), *Fairtrade and climate change: systematic review, hotspot analysis and survey*, [https://files.fairtrade.net/publications/Fairtrade-and-climate-change\\_October2021.pdf](https://files.fairtrade.net/publications/Fairtrade-and-climate-change_October2021.pdf)

<sup>31</sup> P Laderach et al (2013), *Predicting the future climatic suitability for cocoa farming of the world's leading producer countries, Ghana and Côte d'Ivoire*, [www.researchgate.net/publication/257548214\\_Predicting\\_the\\_future\\_climatic\\_suitability\\_for\\_cocoa\\_farming\\_of\\_the\\_world%27s\\_leading\\_producer\\_countries\\_Ghana\\_and\\_Cote\\_d%27Ivoire](http://www.researchgate.net/publication/257548214_Predicting_the_future_climatic_suitability_for_cocoa_farming_of_the_world%27s_leading_producer_countries_Ghana_and_Cote_d%27Ivoire)

<sup>32</sup> Feurer, M, et al (2021), *Fairtrade and climate change: systematic review, hotspot analysis and survey*, [https://files.fairtrade.net/publications/Fairtrade-and-climate-change\\_October2021.pdf](https://files.fairtrade.net/publications/Fairtrade-and-climate-change_October2021.pdf)

<sup>33</sup> Fairtrade Foundation (2019), *Craving a change in chocolate: how to secure a living income for cocoa farmers*, [www.fairtrade.org.uk/wp-content/uploads/legacy/doc/Craving%20a%20Change%20in%20Chocolate%20-%20February%202019.pdf](http://www.fairtrade.org.uk/wp-content/uploads/legacy/doc/Craving%20a%20Change%20in%20Chocolate%20-%20February%202019.pdf)

<sup>34</sup> Pendrill, F, et al (2022), *Deforestation risk embodied in production and consumption of agricultural and forestry commodities 2005-2018*, [https://zenodo.org/record/5886600#.Y-S\\_7-zP3DI](https://zenodo.org/record/5886600#.Y-S_7-zP3DI)

<sup>35</sup> See note 7 on cocoa and inter-trading.

<sup>36</sup> Read more at [www.fairtrade.net/programmes/climate-change](http://www.fairtrade.net/programmes/climate-change)

<sup>37</sup> Indices were selected based on internal reviews of available published risk indices conducted by 3Keel. Those used here are chosen for their global scope and robust methodologies.

<sup>38</sup> Wolf, et al (2022), *2022 Environmental Performance Index*, Yale, <http://epi.yale.edu/>