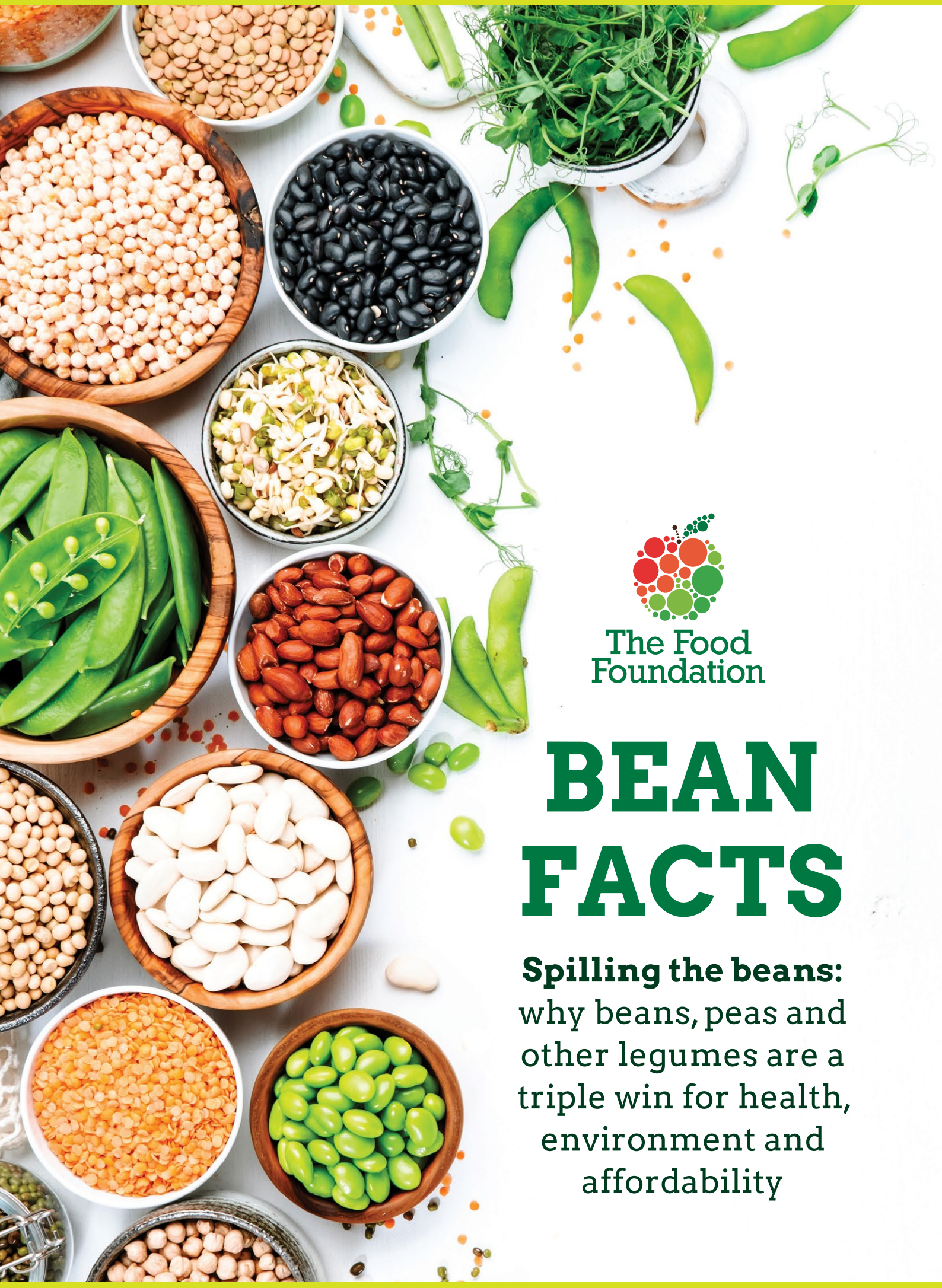


The Food Foundation

BEAN FACTS

Spilling the beans: why beans, peas and other legumes are a triple win for health, environment and affordability

ABOUT THE FOOD FOUNDATION

The Food Foundation is an independent charity working to address challenges in the food system in the interests of the UK public. Working at the interface between academia and policymakers (parliamentarians, civil servants, local authorities, business leaders and investors) we use a wide range of approaches to make change happen including events, publications, media stories, social media campaigns and multistakeholder partnerships. We also work directly with citizens to ensure their lived experience is reflected in our policy proposals. We work with many partners on a range of different thematic areas, working closely with academics to generate evidence and campaigners who can drive change. We are independent of all political parties and business, and we are not limited by a single issue or special interest.

Visit: foodfoundation.org.uk

Authors: Rebecca Tobi, Indu Gurung, Alice English, Katina-Leigh Taylor, Holly Cooper
Publication date: November 2025

Conflict of interest declaration
The Food Foundation only accepts funding which does not compromise our independence. We do not take funding directly from food companies and use The Financial Relationship Policy developed by World Obesity Federation to help us consider new financial engagements.

Please cite as: *The Food Foundation (2025), Bean Facts*, Available from: https://bit.ly/BeanFacts
A technical note for this report is available from our website **here**.

With thanks to our funder for making this work possible:

COMMUNITY FUND

And to our partners and collaborators on the beans project:

VEGPOWER Beans is How Birmingham City Council University of Kent KENT STUDENTS' UNION

Huge thanks to Dr Patricia Eustacio Colombo, Dr Alexander Vondershmidt, Professor Rosemary Green and Genevieve Hadid at LSHTM for their support in analysing National Diet and Nutrition Survey data on bean consumption.

Many thanks to our UK bean advisory board for their generous support of the project, and to Laura Lane and Roger Vickers in particular for peer reviewing this report.

Report design: **whitecreativecompany.co.uk**

Contents

Top 10 bean facts

1 Diets that are **LOW IN LEGUMES** are associated with up to **9,000** **PREMATURE DEATHS** in the UK each year

2 A portion of beans contains **100% MORE FIBRE** than a chicken breast, and **2.5 TIMES MORE FIBRE** than two slices of white bread

3 **BEANS COST** ON AVERAGE **4.5 TIMES LESS** (per 100g) than other plant-based meat alternatives

4 **ON AVERAGE** we eat just **ONE PORTION OF BEANS A WEEK**, and two thirds of the UK population (66%) **EAT LESS THAN ONE PORTION OF BEANS A WEEK**

5 To align with the **PLANETARY HEALTH DIET** UK bean consumption would need to be **7 TIMES HIGHER**

6 **SECONDARY SCHOOL** aged children **EAT THE SMALLEST AMOUNT OF BEANS** of all age groups: just **2/3 of a PORTION** of beans a week

7 Asian and British Asian citizens **EAT DOUBLE THE AMOUNT OF BEANS** as citizens identifying as White, highlighting the need to take inspiration from other cuisines

8 **HALF (50%)** of children's bean intake comes from **BAKED BEANS**, with opportunities to diversify the beans we're eating

9 **95% OF THE BEANS** we buy are eaten at home, with huge potential for the **OUT OF HOME SECTOR** to get more beans on the menu

10 The **UK** grows about **800,000 TONNES** of beans annually, but most of these are exported or used as animal feed. Conversely, we import **500,000 TONNES** of beans worth a potential **£586 MILLION** per year to UK producers.

Introduction

Our current food system is driving soaring levels of diet-related disease as well as catastrophic levels of nature loss and climate change. We are pushing our planet past the point of no return. So great are the challenges our current food system is facing, as well as directly impacting on, that it is sometimes hard to remain positive about the future.

Shifting diets so that they are healthier and more sustainable will require different production practices as well as, crucially, a transition towards more plant-rich diets. Yet when it comes to the detail there is often disagreement as to the exact nature of the shifts required.

Enter, beans.

A real-life 'superfood', beans are a triple win for health, climate and affordability objectives and a rare example of a food that pretty much everyone can agree delivers on multiple fronts.

Yet although the majority of Brits know beans are good for them (Eating Better, 2025), average intake remains low at just one portion a week, with two thirds of people (66%) eating less than one portion of beans a week. This is despite widespread agreement and a very strong body of evidence demonstrating that beans ought to play a critical role in diets that are both healthy and sustainable (Ferreira et al., 2021).

Large health organisations such as The British Heart Foundation, World Cancer Research Fund (WCRF) and Diabetes UK all promote the consumption of beans as part of a healthy diet that lowers the risk of developing diet-related diseases. And certainly, beans are the common denominator in many healthy eating patterns as well as diets designed for those with specific nutritional needs, including the Mediterranean style of eating and lower-glycemic-index (GI) diets. Beans can also support with climate mitigation and adaptation strategies, supporting soil health as well as having a significantly reduced carbon footprint compared to animal-based foods.

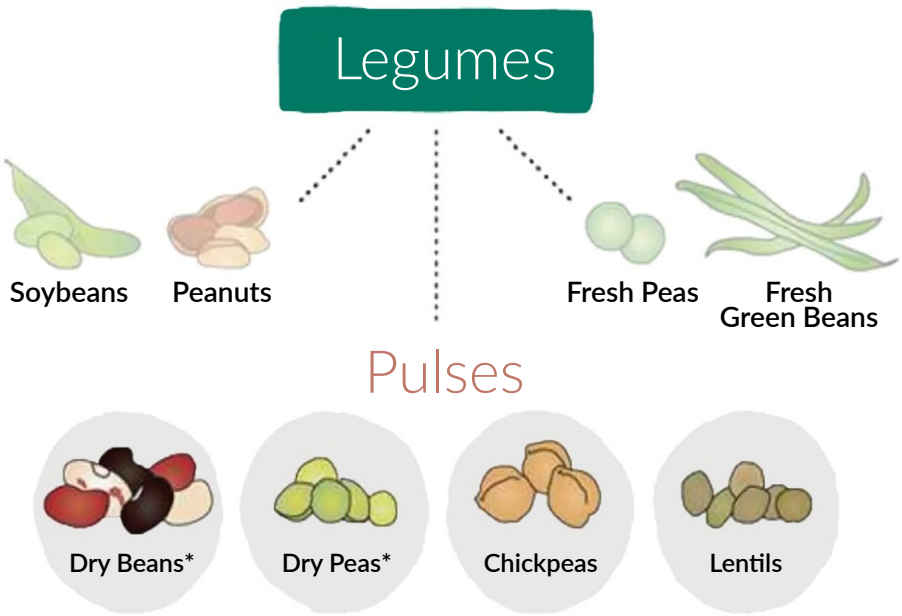
The time is right for beans. So The Food Foundation and partners Veg Power and Kent Student Union are thrilled to begin an exciting new three-year Lottery funded programme of work aiming to double UK bean consumption by 2028 (working closely alongside Birmingham City Council, the University of Kent and the Beans is How global coalition to do so). While our goal is an ambitious one, it is aligned with Beans is How's global goal and reflects the scale of the diet shifts that need to happen to support both people and planet. In the UK, doubling bean consumption would increase consumption from an average of one portion a week to two.

This briefing aims to summarise the many benefits of increasing bean consumption and production in the UK. It begins to unpack how many beans the UK eats, and from where, in order to support food system stakeholders to identify where they could act to increase production and consumption.

THE DEFINITION QUESTION

Beans, peas, and pulses such as chickpeas and lentils are all part of the legume family, a large family of flowering plants. However, while all pulses are legumes, not all legumes are pulses. Pulses are a specific type of legume – the dried edible seeds of leguminous plants – while legumes encompass a broader category that includes components of the entire plant. Including, for example, the pods. USA pulses has a useful schematic to help explain this:

FIGURE 1: **Schematic defining legumes and pulses, adapted from USA Pulses**



*including dry beans later canned and jarred

To keep things simple, our campaign and this briefing refers to beans as a short-hand for talking about all legumes. While we are primarily focused on increasing the consumption of pulses among the public because of the low levels of consumption, increasing consumption of all legumes is beneficial, and so these will all be counted in some of the more ambitious business commitments to allow for greater innovation in meeting our overall programme goal of doubling consumption[1]. The exception is peanuts which we are not counting because their nutrient profile is more in keeping with the nut category where they are typically categorised. Please note that some of the research cited in this briefing uses the term 'legume' interchangeably with pulses. Where this is the case we have followed the terminology used by the authors.

[1]For pledging businesses looking for further detail Food Foundation can share a more detailed definition of what is included and excluded from business commitments.

PART ONE

How many beans are we eating?

WHAT IS THE GOVERNMENT'S ADVICE ON BEANS?

In the UK, the government's Eatwell Guide places beans within the protein section of the healthy eating visual, with the most recent 2016 iteration of the Eatwell Guide notable for listing beans and pulses first out of all recommended protein sources: "*Eat some beans, pulses, fish, eggs, meat and other proteins*" (Office for Health Improvement and Disparities, 2018). The Eatwell Guide visual has even stronger wording: *"Eat more beans and pulses*" (Public Health England, 2016)

The Eatwell Guide recommends that 12% of our diets should be comprised of protein sources but doesn't provide any specific or quantifiable guidance on total bean consumption, with beans and pulses included alongside meat, fish, eggs, and other foods as a good source of protein, vitamins and minerals. The latest guidance on the Eatwell Guide specifically notes that *"Beans, peas and lentils...are good alternatives to meat because they're naturally very low in fat, and they're high in fibre, protein, vitamins and minerals*" (Office for Health Improvement and Disparities, 2018).

As well as being a good source of protein, beans can also be considered a vegetable. Up to 1 portion (80g) of beans is included as an option for meeting the recommended 5-a-day of fruit and vegetables (Public Health England, 2016).

Others suggest we should be eating even more for both health and the environment. WWF's Livewell Guide, which models optimised UK dietary recommendations in line with the categories in the Eatwell Guide, recommends that beans and lentils become a greater part of UK diets with at least a 50% increase in consumption in order to meet environment, nature and health goals (WWF, 2023).

In the 2025 Eat Lancet Commission's Planetary Health diet, which models the optimal diet for keeping the impact of food system emissions within safe planetary boundaries as well as supporting good health, legumes contribute the greatest volume of all available protein sources to the diet with the exception of milk and milk equivalents (EAT Lancet, 2025). The planetary health diet recommends just under 1 portion (75g) of legumes a day, with up to 1.8 portions (150g) of legumes a day suggested as the upper limit of the recommended range. The recommended 75g a day equates to 525g or 6.6 portions of beans a week. UK bean consumption would therefore need to be almost seven times higher than it currently is to align with the planetary health diet.

HOW DO WE COMPARE TO OTHER COUNTRIES?

An increasing number of countries are recommending beans be included as a key part of heathy diets. While national food based dietary guidelines (FBDGs) differ in their suggestions as to what the optimal intake of beans should be, a growing number of countries explicitly recommend beans are routinely eaten several times a week. In contrast to the UK, where no quantitative guidance on the amount of beans to be eaten is provided, a number of other countries recommend eating beans two or three times a week.

TABLE 1: **References to beans in International Food Based Dietary Guidelines (FBDGs)**

Country (year FBDG published)	Bean and legume based message	Recommended serving frequency[2]
USA (2020-2025)	"Beans, peas, and lentils" is a new name for the vegetable subgroup formerly called "legumes (beans and peas)." The foods in this vegetable subgroup have not changed. Because beans, peas, and lentils have a similar nutrient profile to foods in both the vegetable group and the protein foods group, they may be thought of as either a vegetable or a protein food when aiming to meet recommended intakes.	255g a week of Beans, Peas, Lentils (just over 3 portions a week)
Canada (2019)	Canada's Food Guide recommends legumes, beans, and pulses as part of a healthy diet, specifically within the "Meat and Alternatives" group. "These plant-based protein sources should be chosen regularly to help minimize saturated fat intake and diversify your diet."	Pulses are recommended to be consumed each week at a "couple of meals."
Italy (2022)	"Increase the consumption of fresh and dried legumes (beans, chickpeas and lentils) alternating them with animal protein sources (meat, fish, eggs, milk and derivatives)"	3 servings per week (Rossi, 2022) ; 150g fresh, canned, frozen; 50g dry.
Austria (2025)	"Pulses (lentils, beans, chickpeas, peas, soya beans) provide protein and contain lots of fibre as well as vitamins and minerals. Tofu, tempeh and textured soya protein (soya shreds, granules) are also good sources of protein."	They should be included in your diet at least 3 times a week.
Nordic (2023)	"It is recommended that pulses are **included as a significant part of the regular dietary pattern**. Pulses are important providers of nutrients such as dietary fibre, protein, iron and zinc."	
Belgium (2025)	"Plant-based protein sources should be prioritised...(including) legumes (such as lentils, chickpeas, and beans), tofu, tempeh, nuts, and seeds."	Legumes are recommended several times a week (Hoge Gezondheidsraad, 2025).

[2]We have used a conversion of 1 cup to 170g where countries do not use grams

This briefing's research on bean consumption

The latest UK National Diet and Nutrition Survey (NDNS) from 2019 to 2023 (waves 12-15) served as the basis for all consumption analyses conducted in this briefing. This survey includes consumption data from a nationally representative sample of 4,089 individuals aged 1 to 85 years across the UK. We used Usual Intakes - the gold standard for dietary recall data as it allows data from non-consecutive days to be tracked, thus avoiding the so-called 'weekend effect' - to calculate the average consumption of beans across different sociodemographic groups. We used the definition of 'bean' used in the NDNS, which includes all pulses, soy beans and other legumes as well as bean-containing foods. Please note that the NDNS does not include fresh peas or peanuts, and so these have not been included within our analysis. Further details can be found in our technical note.

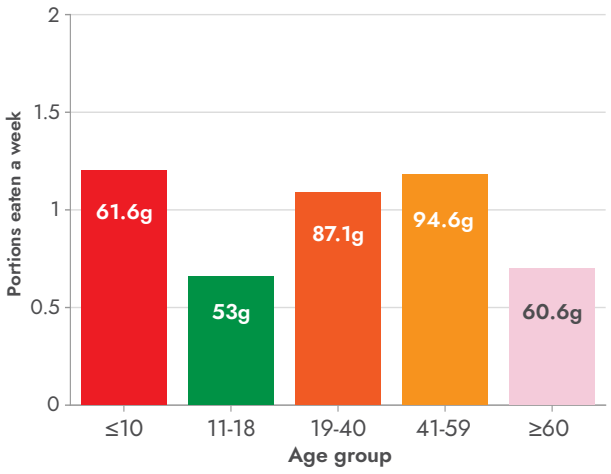
HOW MANY BEANS ARE WE EATING?

On average we eat just one portion of beans a week in the UK (81g a week for adults), meaning there is a huge opportunity to move the dial and better support citizens to increase their consumption.

One portion for those aged 11 and over is 80g based on the recommended 400g a day of fruit and veg. We have used a smaller portion size of 50g for children aged 10 and under. This is the midpoint value of the 40-60g recommended for children aged 4-10 years old in the School Food Plan.

Two thirds (66%) of the population eat less than one portion of beans a week, with 3.4% of people reporting that they never eat beans. Secondary school aged children (11-18 years) eat the smallest amount of beans of all age groups, the equivalent of just two thirds of a single portion of beans a week. In contrast primary school aged children eat on average the largest amount of beans a week, although this is still a fairly modest amount, at 1.2 portions a week. This difference perhaps speaks to the greater influence of parents and the lesser influence of high street food environments and advertising on younger children's diets in contrast to during the teenage years. Most adults sit somewhere in between this, eating just over one portion of beans a week on average, before consumption falls again for those aged 60 and over with this older group eating less than a portion of beans a week.

FIGURE 1: **Average number of portions of beans eaten per week by age group**



*a portion for children aged 10 or under is 50g

Although methodological changes mean it is no longer possible to directly compare trends over time using NDNS data, our analysis suggests small fluctuations in consumption over the past 15 years with intake remaining low. Average intake for adults and children increased slightly from 11.0g per person per day in 2008/9 to 13.3 g per person per day in 2018/19 (Lane, Wells and Reynolds, 2023). Our results (using a different process of analysis) found average consumption for both children and adults dropped slightly to 10.9g per person per day for the period 2019-2023. **Going back 40-50 years however, shows quite a different picture, with purchasing data showing that we used to buy a much larger amount of beans at 46g per person per day. This is four times the amount of beans that we currently eat and 2.5 times more than we currently buy**.

DOES GEOGRAPHY IMPACT ON BEAN EATING?

Across the devolved nations citizens in Northern Ireland eat the smallest amount of beans on average, eating just two thirds of a portion a week. Citizens in Scotland eat the largest amount of beans (1.07 portions a week on average), although the differences between England, Wales and Scotland are not particularly large nor statistically significant, with all three nations eating roughly a portion of beans a week on average.

FIGURE 2: **The average number of portions of beans eaten per nation**

DOES INCOME IMPACT ON BEAN EATING IN THE UK?

While high income groups eat the largest amount of beans overall, at just over one portion of beans a week (1.2), there is no clear association between increasing income levels and the amount of beans eaten. Middle income groups actually eat fewer beans on average than the lowest income groups do, with low income groups eating 9% more beans than middle income groups do. These differences may be due to the fact that beans are affordable, filling, and often have a long shelf life, potentially making them more appealing to low income households than to middle income ones. Although there is a statisticaly significant difference between high income groups and middle and low income groups, in reality this equates to high income groups eating just a third of a portion more a week .

DOES BEAN CONSUMPTION VARY BY ETHNICITY AND SEX?

There are notable differences in the amount of beans eaten by different ethnic groups, highlighting the enormous potential to drive up consumption across the UK by taking inspiration from different cultures and cuisines where bean dishes are more habitually eaten.

Citizens identifying as Asian and British Asian eat the largest amount of beans on average of all ethnic groups, at just under two portions a week (143g). This is over double the amount eaten by those identifying as Black, Black British, and White, with both groups eating less than one portion of beans a week (60g and 70g respectively): a statistically significant difference.

Men eat marginally more beans than women do, even when intake is adjusted for the lower amount of calories women consume on average, although the difference is not a statistically significant one. On average men eat slightly more than one portion of beans a week (1.04 portions) while women eat slightly less (0.97).

FIGURE 3: **Average number of portions eaten per week by ethnic group**

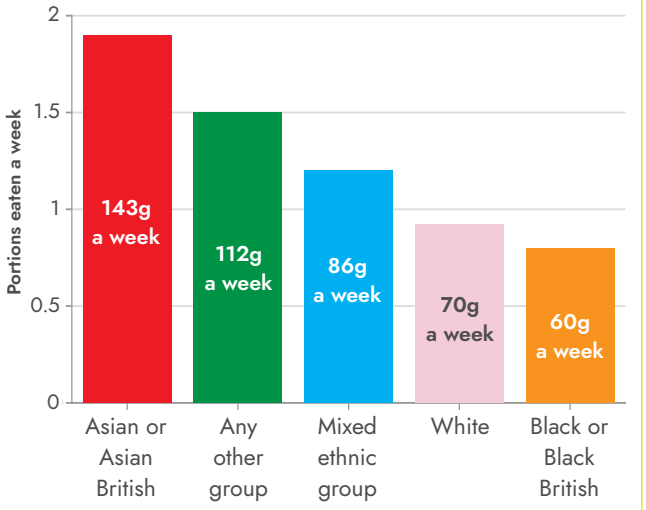


FIGURE 4: **Average number of portions of beans eaten a week and g/week across income groups, using income terciles**

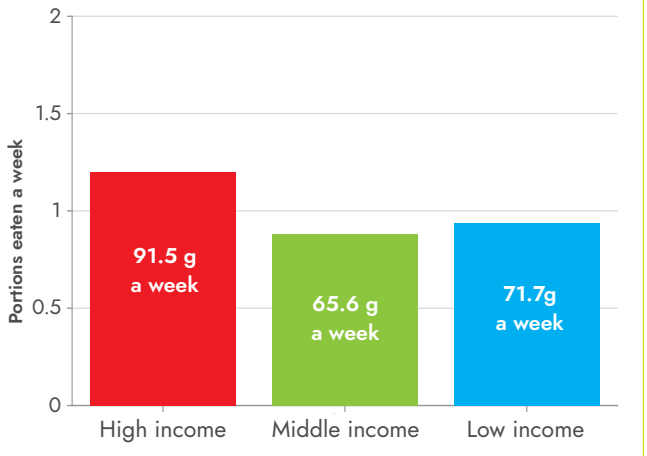
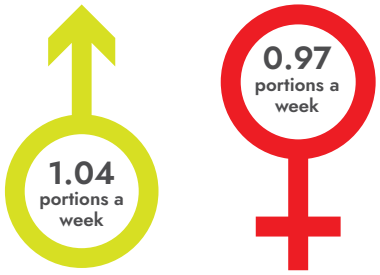


FIGURE 5: **Average portions of beans eaten per week by sex**

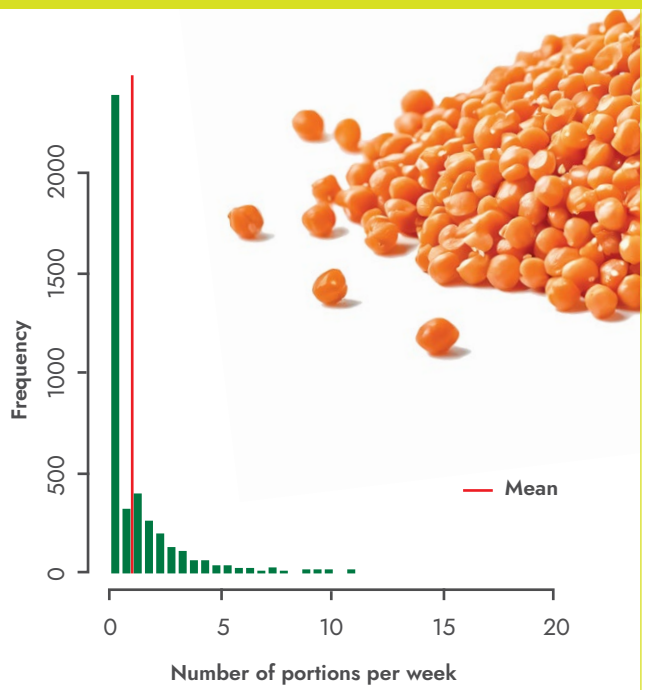


The spread of bean consumption within the population: comparing the keen beans to the lean beans

The gap between those who do more regularly eat beans and those who don't is stark. Although just 3.4% of people never eat any type of beans at all, those eating less than one portion a week consume on average just 16g of beans a week, far less than the 2.6 portions of beans (208g) eaten on average by those eating more than one portion of beans a week. As Figure 6 shows, while the majority of the population eat less than one portion of beans a week, there are a number of more frequent consumers pulling the average up.

Age is the main predictor of eating less than one portion of beans a week, with those aged 11-18 and over 60 significantly more likely to eat less than one portion of beans a week. High income groups and those identifying as Asian or British Asian were least likely to be low consumers of beans and eat less than one portion a week.

FIGURE 6: **The spread of bean consumption across the population**



World Peas: beans and global food culture

While baked beans, mushy peas, and pease pudding (a savoury yellow pea dish once widely eaten in England) are probably as close as British food culture comes to hero-ing beans, many other cultures have traditional diets and dishes that frequently champion beans. Globally, beans are often eaten in combination with grains as the two are complementary in providing all the essential amino acids (the building blocks of protein) needed to support protein requirements. This includes a diverse group of culinary traditions and dishes, from lentil dhal and rice in India, to beans with corn tortillas in Mexico, soy-based tofu and rice in South East Asia, and rice and beans in Southern Africa and Latin America. In China, eight-treasure porridge is a traditional dish which contains beans such as mung and adzuki beans (Yanni et al., 2024). Beans are truly an inclusive food, and acceptable and delicious to a wide range of different cultures and communities given their incredible versatility as an ingredient.

PART TWO

what type of beans are we eating and why?

WHAT TYPE OF BEANS ARE WE EATING?[3]

Haricot beans (sometimes referred to as navy beans) are the most popular type of bean eaten in the UK by a long way. This is due to the use of haricot beans in baked beans, which is the most popular bean-containing dish in the UK for both adults and children (Table 2). Lentils, chickpeas and kidney beans are also frequently eaten by both children and adults due to their versatility as an ingredient in a wide variety of family favourites such as chili con carne, falafel, hummus, and various soups and stews.

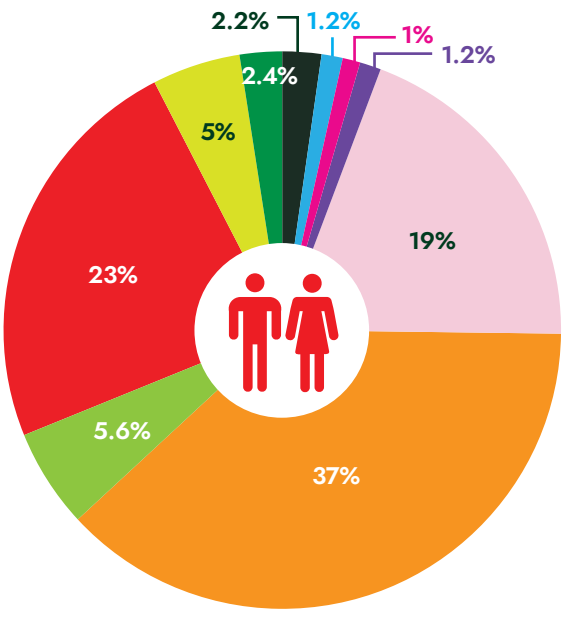
These four types of bean (haricot, lentils, chickpeas and kidney beans) dominate UK bean consumption, contributing 85% of total bean consumption for adults and 90% of total bean consumption for children. There is therefore a significant opportunity for businesses – for example school caterers – to ensure that they are offering a much wider variety of different beans such as butter or black beans. This could be one route into increasing bean consumption overall, by ensuring that people are exposed to a wider spectrum of bean taste profiles which in the process could increase familiarity and appeal.

[3]Beans eaten and analysed here includes all beans eaten whole as well as beans in bean containing dishes as per NDNS classification of beans. This includes soy beans but excludes green peas and peanuts.

TABLE 2: **The most commonly eaten beans for adults and children as a proportion of total intake**

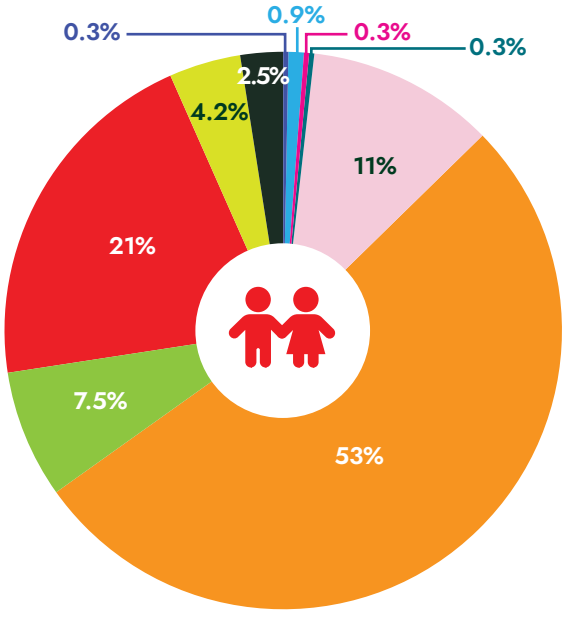
Adults (>19 years)		Children (1-18 years)	
1	Haricot beans	1	Haricot beans
2	Lentils	2	Lentils
3	Chickpeas	3	Chickpeas
4	Kidney beans	4	Kidney beans
5	Mixed beans	5	Mixed beans
6	Soy/edamame beans	6	Soy/edamame beans
7	Black eyed beans	7	Pinto beans
8	Borlotti beans	=8	Broad beans
=8	Butter beans	=8	Butter beans
9	Broad beans	=8	Black beans

FIGURE 7: **Which beans contribute to adult intakes?**



HARICOT BEANS
LENTILS
CHICKPEAS
KIDNEY BEANS
MIXED BEANS
SOY BEANS/EDAMAME
BLACK EYED BEANS
BORLOTTI BEANS
BUTTER BEANS
BROAD BEANS

FIGURE 8: **Which beans contribute to children's intakes?**



HARICOT BEANS
LENTILS
CHICKPEAS
KIDNEY BEANS
MIXED BEANS
SOY BEANS/EDAMAME
BLACK EYED BEANS
BUTTER BEANS
BROAD BEANS
BLACK BEANS

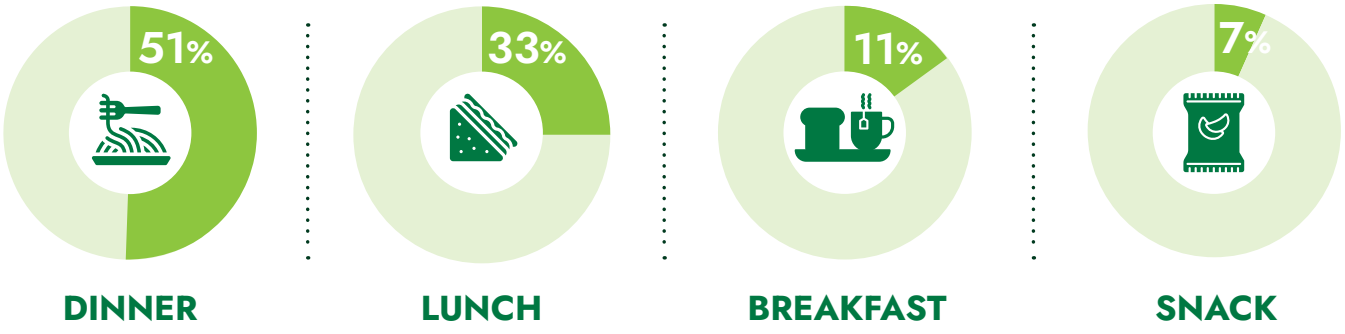
When we looked at the most popular bean-containing dishes eaten in the UK, including a wider range of products and meals that contain any amount of beans, **we found that half of children's bean intake (50%) and over a third (37%) of adult's total bean intake comes from baked beans**. While baked beans are undoubtedly a British classic, it nevertheless demonstrates there is potential for citizens to be supported to eat a greater diversity of beans. Families with young children (particularly those aged under 5) may also want to ensure they are opting for lower salt and sugar versions of this product where possible. Stews and soups also emerge as popular bean-containing dishes for both adults and children, with chili con carne the second most commonly eaten bean-containing dish, closely followed by lentil soup and curry.

TABLE 3: **The the top five most commonly eaten bean-containing dishes for adults and children (% of total intake)**

Adults (>19 years)		Children (1-18 years)	
Baked beans	**37%**	Baked beans	**50%**
Chili con carne	**12%**	Chili con carne	**11%**
Lentil soup	**9%**	Lentil curry/dahl	**9%**
Lentil curry/dahl	**7%**	Lentil soup	**5%**
Vegetable soup (with beans)	**5.5%**	Vegetable soup (with beans)	**4.7%**

WHEN ARE WE MOST LIKELY TO EAT BEANS?

Dinner (or tea, or supper, depending of course on where in the UK you are) emerges as the meal most likely to contain beans for both adults and children. Half (51%) of meals that contained beans were eaten at dinner time, with lunch time contributing a third (33%) of bean intake. Breakfast and snacks contributed less, 11% and 7% of total bean consumption respectively, but nevertheless show that there are opportunities throughout the day for beans and bean-containing foods to be eaten.



WHERE ARE WE BUYING OUR BEANS?

We looked at where people are buying and obtaining their beans and bean-containing foods from using NDNS data. The vast majority of beans are bought to eat in the home, with a striking lack of bean options when out and about. **Just 5% of the beans people eat are bought out of the home with less than 1% of all bean-containing dishes bought from the Quick Service (fast food) sector**.

What types of bean-containing dishes we eat in different settings varies surprisingly little. Baked beans dominate regardless of whether beans are being eaten at home, in restaurants and cafes, or in workplace and school and university canteens, with familiar favourites chili con carne and lentil soup the second and third most commonly eaten bean-containing dishes at home and in canteen settings. The greatest diversity of bean-containing dishes is seen in the casual dining sector (restaurants, pubs and cafes) where dishes drawing on other global cuisines are – perhaps unsurprisingly – more frequently eaten. Burritos and enchiladas, curries and hummus are all commonly eaten in this setting in contrast to the type of dishes being eaten at home.

TABLE 4: **The top five most commonly bought bean-containing dishes by the three highest contributing settings**

	Households	Out of Home – casual dining	Workplace and school and university canteens
1	Baked beans	Baked beans	Baked beans
2	Chili con carne	Burrito/enchilda	Chili con carne
3	Lentil soup	Vegetable casserole/stew/ curry with beans	Lentil soup
4	Lentil curry/dahl	Hummus	Lentil curry/dahl
5	Vegetable soup with beans	Lentil curry/dahl	Plain dosa, made with lentils

When we looked at the type of beans being bought from different settings these align with the most commonly eaten dishes, with haricot beans (the main ingredient of baked beans), lentils and chickpeas contributing the majority of bean intake. Given the huge variety of bean dishes and bean varieties available there are therefore huge opportunities not only to increase our bean consumption overall, but to also diversify what types of beans and bean dishes we are eating in pursuit of an increased consumption goal.

TABLE 5: **top five most commonly bought type of beans by setting**

Households		Out of Home – casual dining		Workplace and school and university canteens	
Haricot beans	**40%**	Chickpeas	**29%**	Lentils	**41%**
Lentils	**23%**	Lentil	**26%**	Haricot beans	**36%**
Chickpea	**18%**	Haricot Beans	**26%**	Mixed beans	**10%**
Kidney beans	**6%**	Soybeans	**7%**	Chickpeas	**7%**
Mixed beans	**5%**	Pinto beans	**5%**	Kidney beans	**6%**

Further data looking at the availability of beans on menus in major restaurant chains and in supermarket ready meals can be found in our forthcoming *State of the Nation's Food Industry 2025* report.

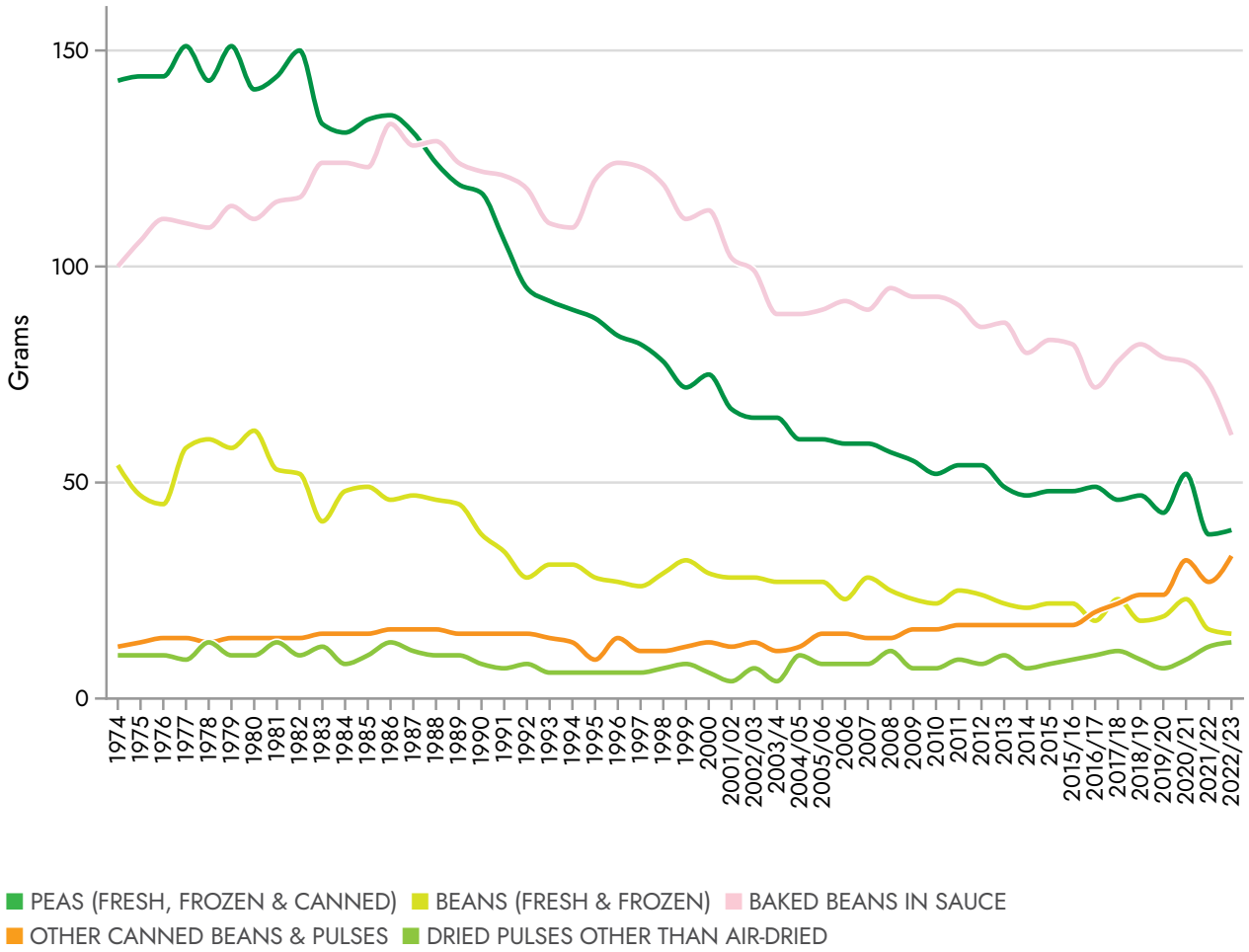
ON THE PULSE: HOW HAVE PURCHASING PATTERNS CHANGED OVER TIME?

While consumption of beans has remained at a fairly flat and low level for the last 15 years, we used to buy considerably more beans than we currently do, and purchases of beans and peas in the UK have been falling steadily since the late 1980s. This is mostly due to a drop in purchases of peas and baked beans, although these remain the most frequently bought type of beans in the UK (Lane, Wells and Reynolds, 2023). Purchases of beans, peas and pulses peaked in 1979, at 346g per person per week which is equivalent to 46g purchased per person per day, or four portions a week. This is four times more than we currently eat.

However, despite this overall decline over time, there are several examples of recent subcategory growth. Purchases of different types of bean beyond simply baked beans and peas have increased in recent years, with changing food trends impacting on the types of beans being purchased. Canned peas for example, have fallen out of favour, with purchases falling by 84% per person between 1974 and 2020-1. Conversely, purchases of canned beans (excluding baked beans) have doubled in the last decade, from 17g per person per week in 2015-16 to 33g in 2022-23. Additionally, new entrants to the bean category in recent years have championed alternative, more convenient formats such as jarred beans (Southey, 2025). As a result, the bean category has seen notable growth in recent years with sales of the Branded Canned Pulse category up 19.4% in the 26 weeks to June 2025 compared to the same period in 2024. This is outpacing sales growth of canned vegetables by quite some way with year-on-year growth for this category lagging at just 1.8% (IRI, 2025).

Puchases of beans in the UK have been falling steadily since the late 1980s

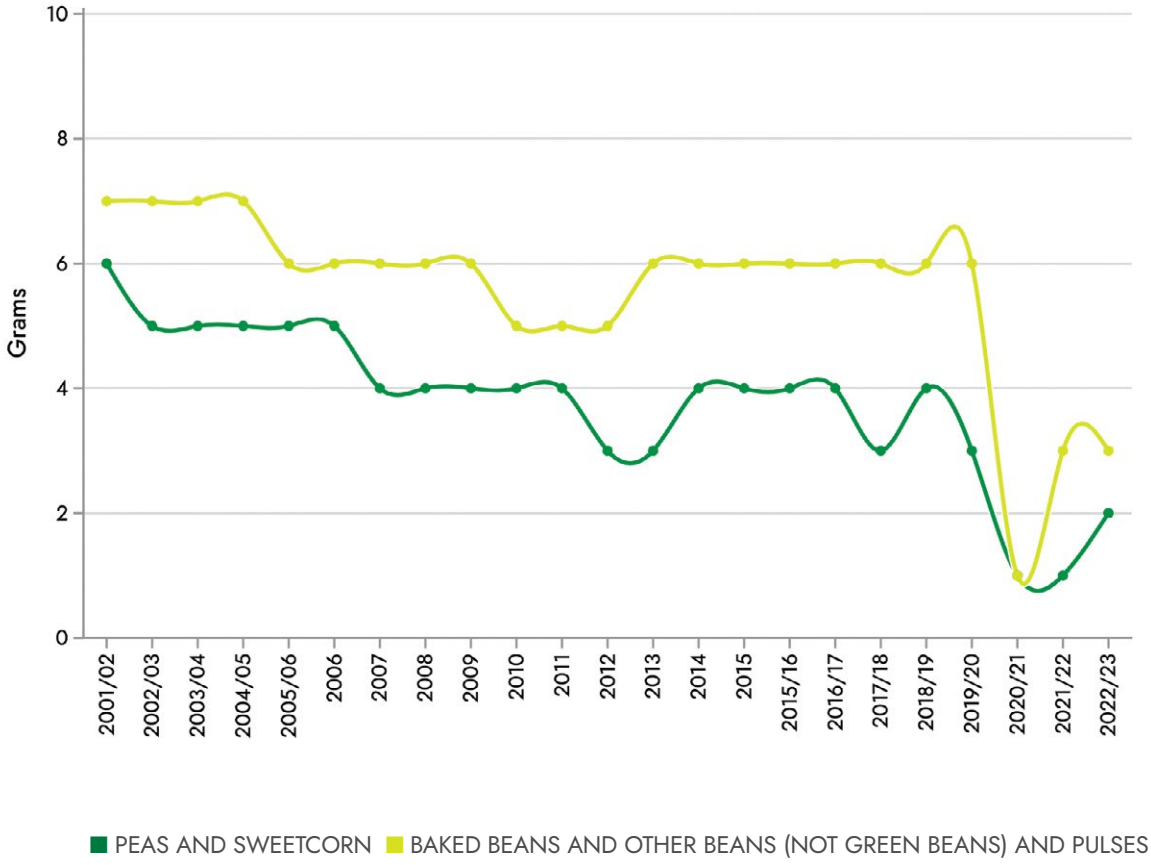
FIGURE 9: **Household purchases of different types of beans, peas and pulses per person per week (g), adapted from Laura Lane et al (2023) and using Defra's Family Food Survey data.**



Source: Family food datasets, 2024

Defra purchasing data corroborates the findings of our analysis of NDNS consumption data, with the vast majority of beans bought to eat in the home, with only incredibly small amounts of beans purchased Out of Home in places like restaurants, cafes and fast food restaurants (Figure 10). Before the pandemic an average of just 6g of beans and pulses were bought out of the home per person per week, and although levels have rebounded following the closure of most of the Out of Home sector during the Covid-19 pandemic, purchases remain well below pre-pandemic levels at just 3g per person per week. Purchases of peas have also declined since 2001 and remain below pre-pandemic levels.

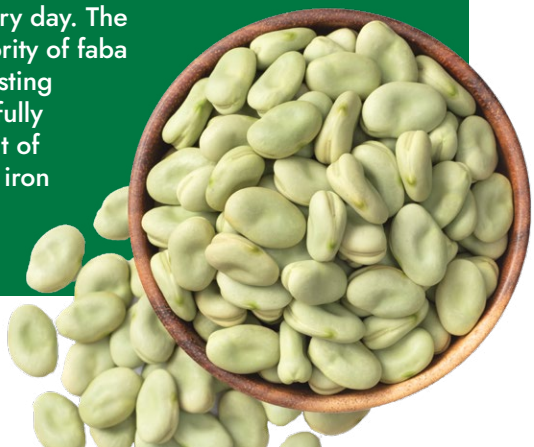
FIGURE 10: **Different types of beans, peas and pulses, eaten out of the home per person per week (g)**



Source: Defra's Family Food Survey. Note: sweetcorn is not part of the legume family, but it is not possible to disaggregate peas and sweetcorn from Defra's Family Food Survey dataset.

Beans IN toast?

University of Reading's 'Raising the pulse' project aims to encourage British consumers and food producers to switch to bread containing faba beans (also known as broad beans), using reformulation to boost the health and environmental credentials of a staple British food. The vast majority of people in the UK eat bread (96%), 90% of which is white bread, which in most cases contains soya bean flour as an 'improver ingredient' to support the quality and consistency of bread. Switching out soy for faba bean as an ingredient has the potential to reduce our reliance on imported soya bean flour as well as providing a simple nutrition boost to a food most people eat every day. The UK's climate is well suited to growing faba beans, but currently the majority of faba beans grown are used as animal feed rather than food. Research and testing by the University of Reading has found that faba bean flour can successfully be used as a replacement for soya bean flour, with the additional benefit of enriched faba bean bread being a bioavailable source of protein, fibre, iron and calcium (Lovegrove, et al., 2023; Ayala-Rodríguez et al., 2022)



Spill the beans: Public attitudes towards beans

WHAT'S STOPPING MORE BRITS FROM BEING KEEN BEANS?

With price having only a weak relationship to purchase and consumption patterns for beans (The Food Foundation, 2023), studies have found that in the UK time, lack of knowledge, and the perceived difficulty of cooking with pulses are the main barriers to increased consumption rather than price (Henn et al., 2022). Concerns over taste and texture also feature as a reoccurring theme (Whittall et al., 2024). In a pan-European study comparing attitudes towards beans in the UK, Denmark, Spain, Germany and Poland, British citizens were found to be least familiar with different types of beans (Henn et al, 2022). Additionally, beans are sometimes perceived to be difficult to digest and a cause of flatulence. However, although a side effect of rapidly increasing the fibre content of diets can be bloating and some gastrointestinal discomfort, this is typically a temporary effect and can be easily avoided if fibre intake is increased gradually (British Dietetic Association, 2021).

ATTITUDES FROM CITIZEN SURVEYS

To better understand attitudes towards beans in the UK, The Food Foundation alongside Veg Power and the Eating Better Alliance have commissioned several surveys to understand how the public perceives beans. These surveys found that:

There is appetite for eating more beans and widespread awareness of beans being healthy, but despite this few eat beans regularly

- Eating Better's Public Attitudes survey found that **73%** of people agree that beans are good for you, with **66%** of people saying they enjoy eating beans and 44% saying they would like to eat more beans. Despite this, only **24%** of people eat beans two or more times a week (Eating Better, 2025)

- A recent YouGov survey told a remarkably similar story, with 86% of people agreeing that beans are good for them and **72%** of people saying they enjoy eating beans, yet only **16%** of people reporting eating beans two or more times a week (Food Foundation, 2025).

Taste, convenience, and health are more important to people than the environmental benefits of more beans

- There is fairly low awareness of the environmental benefits of eating more beans. Half (**50%**) of people in the Eating Better and Food Foundation's surveys thought beans were a good replacement for meat because they're better for the environment.

- The lower cost of beans compared to meat is only a moderate incentive to eat more beans, with between **53-56%** of people agreeing that beans are a good replacement for meat because they cost less (Food Foundation, 2025; Eating Better, 2025)

- In contrast, a 2024 YouGov survey found higher proportions of people saying that they eat beans because they are tasty (**88%**) and easy to prepare (**80%**) (Food Foundation, 2024).

- In a panel survey of 18-35 year olds commissioned by Veg Power that explored the perceived benefits of beans, **55%** agreed that beans were in high in protein, **44%** that beans were 'natural', **40%** that they were high in fibre, and just **19%** that they were good for the environment. Just over a third (**37%**) associated beans with being tasty (Veg Power, 2025).

- The same survey found that those who eat beans more frequently (monthly versus occasionally) are more likely to regard them as tasty and convenient. In contrast, those who ate beans only occasionally are more likely to find beans bland or boring.

There is a lack of familiarity with cooking with beans

- Despite strong interest in eating more beans, people are less confident cooking with beans and pulses compared to other types of food. **42%** of people said they felt confident cooking with beans, a much lower figure than those who feel confident with cooking in general (**69%**) and with meat and meat products (**68%**) (The Food Foundation, 2025)

- Veg Power's panel survey found that those who only ate beans occasionally were more likely to say that they didn't know what to do with beans than those who ate them on a monthly basis (**26%** of people versus **17%**).

- There is also fairly low awareness that many commonly eaten but non-European originating dishes contain beans, with just **50%** of people aware that dahl and burritos contain beans. A quarter (**25%**) of people were unaware that chili con carne contains beans. These sorts of dishes offer a lot of potential for households to increase their bean consumption without having to radically shift the types of dishes they typically cook (Food Foundation, 2024).

PART THREE

Cool beans: why should we eat more beans?

BEANS FOR BETTER HEALTH

A poor diet is now the biggest risk factor for death and disability globally, with four out of the five top risk factors for death and disability in the UK now diet-related (Afshin et al., 2019; IHME, 2020).

Diets that are low in legumes are associated with up to 9,000 premature deaths in the UK each year (Global Burden of Disease Collaborative Network, 2021)

Yet beans are little nutrient powerhouses with a large number of health and nutrition benefits:

- **Beans can count as up to one portion (80g) of your 5-a-day**
- **They are naturally low in salt, saturated fat and are cholesterol free**
- **They are a rich source of fibre, which offers numerous health benefits including healthy digestion and a reduced risk of several chronic diseases (Barber et al., 2020; Veronese et al., 2018).**
- **They are a good source of protein, and one of the few plant foods that provides significant amounts of the essential amino acid lysine, which amongst other functions plays a key role in supporting with calcium absorption and collagen formation (Messina, 2014).**
- **They are a good source of several vitamins and minerals including iron, potassium, phosphorus, manganese, magnesium, folate and zinc, which help to support the normal functioning of the immune system and other essential biological processes**

Increasing the UK's low intake of beans would improve the nutrient density of diets as well as supporting with wider public health nutrition goals such as ensuring more people are eating their 5-a-day and closing the fibre gap.

96%
of adults and children in the UK don't meet the UK's recommendations for fibre intake

And just **17%**
of all adults get their 5-a-day

(NDNS, 2025)

Beans also support with satiety and weight management: data from the National Health and Nutrition Examination Survey (NHANES) in the USA found that adults who consumed a variety of legumes had significantly lower body weights compared with those who did not (Papanikolaou, 2008).

Beans, beans good for your heart...Diets high in beans are routinely associated with a number of health benefits.

Analysis of NDNS data in the UK[4] found that diets higher in pulses and other legumes are associated with better nutrient intakes overall, with higher micronutrient and dietary fibre intakes and lower total fats, saturated fats and free sugar intake (Barber et al., 2020). Consumption of pulses and legumes among adults is also linked to significantly higher intakes of vitamins E and C, vitamin B1, folate, biotin, potassium, phosphorus, magnesium, iron, zinc and manganese.

A large body of evidence suggests that diets that include beans can reduce cholesterol and the risk of both heart disease and type two diabetes (Messina, 2014). The high fibre and resistant starch content of beans means that they are a low gylcaemic index food, with clinical studies consistently finding that pulses can lower blood glucose and insulin levels (Sievenpiper et al., 2009) and decrease the risk of developing type two diabetes (Villegas et al., 2008). In terms of heart disease risk, beans are thought to reduce the risk of heart disease by improving blood pressure, lipid profile, insulin levels and body weight (Lisciani et al., 2024). When eaten regularly, beans can therefore contribute to reduced risk of mortality because of their protective benefits against these diet-related diseases and some types of cancer (Lisciani et al., 2024).

Modelling has even suggested that **out of all food groups legumes offer the greatest gains for life expectancy, with 2.2 additional years of life for women and 2.5 years for men if more legumes were eaten** (Fadnes et al., 2022).

[4]Up to 2019, wave 11

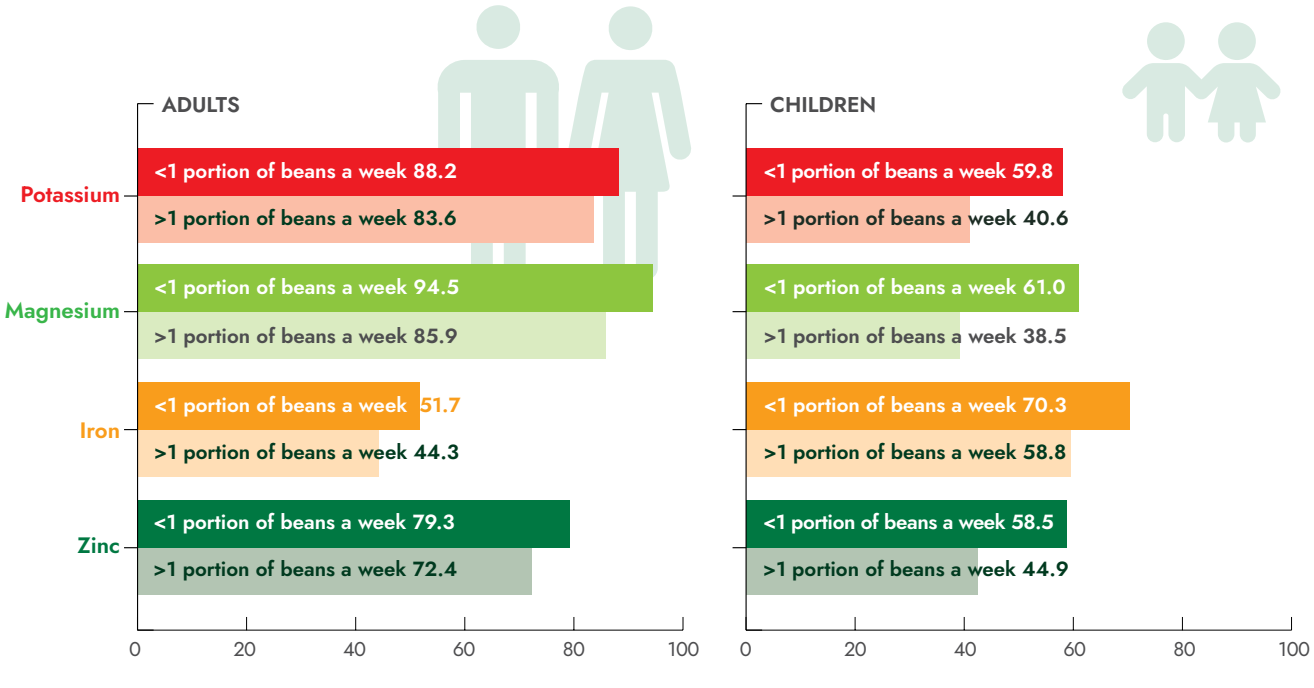
BEANS AND MICRONUTRIENTS

We analysed the NDNS data to look at what proportion of adults and children fall below the lower reference nutrient intake (LRNI) for four essential minerals which beans are a good source of. For most people intakes below the LRNI are not sufficient and individuals are at risk of deficiency. We looked at whether the amount of beans adults and children eat is associated with a lower likelihood of being in this group.

While consuming higher amount of beans (> 1 portion a week) is likely to be associated with healthier and more nutrient dense dietary patterns more generally, we found that both adults and children consuming a higher amount of beans had a lower chance of falling below the LRNI for all four micronutrients in questions. These findings were statistically significant. The differences are particularly notable among children. Children eating less than one portion of beans a week are 47% more likely to be below the LRNI for potassium, 58% more likely for magnesium, 30% more likely for zinc and 20% more likely for iron. Eating more beans could therefore help many children to close this nutrient gap.

One consideration with beans in terms of their bioavailability is that they contain phytates and lectin, so-called anti-nutrients, which can decrease the absorption of minerals such as iron, zinc, magnesium, and calcium (Harvard T.H. Chan School of Public Health, 2022). However, it is unclear as to what extent phytates drive nutrient loss, and the effects can vary between individuals and depending on how food is cooked and prepared. Conversely, heath benefits have also been found for phytates which are linked to lower cholesterol and blood glucose management (Petroski and Minich, 2020).

FIGURE 11: **Proportion of adults and children beneath the lower reference nutrient intake for key micronutrients**[i]



[i]*LRNI values (mg/day) vary by age and sex:*
· Potassium - Adults: 2000, Children: 400-1600
· Magnesium - Adults:150-190, Children: 30-190
· Zinc - Adults: 4.7-8.0, Children: 0.9-8.0
See UK Dietary Reference Values for full details.

Data from the UK National Diet and Nutrition Survey (NDNS) Rolling Programme Years 12-15 (2019/20-2023/24).

BEANS ARE A ROUTE INTO CLOSING THE FIBRE GAP

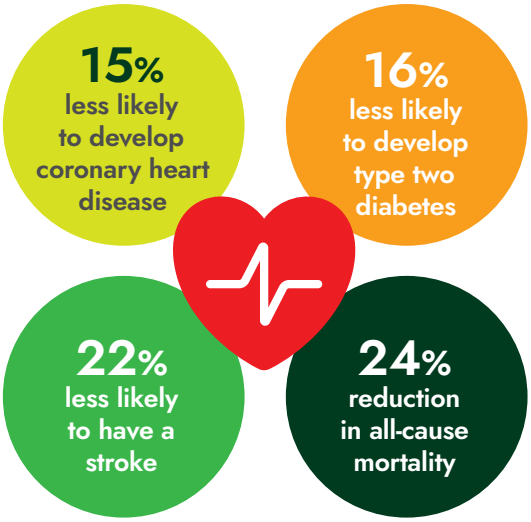
The government recommends adults eat 30g of fibre a day yet virtually noone is meeting this recommendation

There is strong evidence that eating foods containing dietary fibre decreases the risk of colorectal cancer (WCRF, 2025), with many cancer charities recommending we eat fibre rich diets and decrease the amount of processed meat as a result.

The government recommends adults eat 30g of fibre a day and children slightly less[5], yet virtually nobody is meeting this recommendation despite the innumerous benefits of high fibre diets. The latest NDNS data found that the percentage of the following age groups NOT meeting fibre recommendations is:

- **18 months to 3 years → 78%**
- **4 to 10 years → 86%**
- **11 to 18 years → 96%**
- **Aged 19 or over → 96%**

A large systematic review in 2019 (Reynolds et al., 2019) that pooled the results of 243 studies looking at the impact of fibre on health found that, compared to people eating lower intakes, those with diets higher in total fibre were:



A more recent umbrella review of studies that included over 17 million individuals reached a similar conclusion, finding that higher fibre intake reduced the risk of multiple chronic diseases (Veronese, 2025). Boosting the amount of beans in diets is therefore one route into reducing the cancer incidence and diet-related mortality associated with low-fibre diets. The FAO suggests that a substantial part of daily fibre requirements could be met with 120g (1.5 portions) of pulses per day (FAO, 2019). Half a can of chickpeas for example can provide almost a third of an adult's recommended daily fibre intake (9.4g).

BEANS AND POSITIVE NUTRITION: PROTEIN AND FIBRE

Beans are a good source of protein, although they do not contain all nine of the essential amino acids (the building blocks of protein that we can only obtain from our diets) in sufficient amounts. While beans are one of the few plant foods that provide significant amounts of the essential amino acid lysine, the protein quality of beans is limited by lower concentration of other essential amino acids, chiefly methionine, cysteine, cystine and tryptophan.

However, it does not follow that diets rich in beans or plant based will be low in protein. It is entirely possible to achieve full protein adequacy if a reasonable variety of foods are eaten over the course of the day (Mariotti, 2019). Additionally, and in direct contrast to beans, many grains are low in lysine but contain methionine and so combining beans and grains is a good strategy for ensuring plant-based meals contain adequate amounts of all the essential amino acids required for protein intake. Interestingly, meals combining both grains and beans are commonly eaten in many diverse global cuisines (see box out, World Peas).

[5]15g for 2-5 year olds, 20g for 5-11 year olds, 25g for 11-16 year old

In the UK protein contributes 17% of average total calorie/energy intake and on average, UK adults eat 50% more protein than is recommended (British Nutrition Foundation, 2025). The UK therefore does not have issues with protein deficiency at a population level as can be the case in low and middle income countries. Fibre deficiency is much more of an issue.

While meat is a more bioavailable source of protein than many other plant foods, it is worth noting that some commonly eaten processed and ultra processed meat products in the UK such as sausages (The Food Foundation, 2025), contain lower amounts of protein relative to fresh meat cuts. Two pork sausages for example contain 11.8g protein per 100g (21.1% of the recommended daily amount for an adult man) which is not dissimilar to the 11.6g of protein found in 150g of cooked red lentils (20.7%).

However, as the table shows, while lower in protein than meat products, **beans are notably higher in fibre content with animal foods containing little to no fibre**. Half a drained can of kidney beans for example contains almost a quarter of the recommended daily intake of fibre (24.3%). Fibre is therefore a key advantage of adding more beans into diets, with beans also higher in fibre than some staple carbohydrates. A portion of beans (80g) contains 100% more fibre than a chicken breast, and 2.5 times more fibre than two slices of white bread.

TABLE 6: **The fibre and protein content of selected meat and bean products**

Type of food	Amount	% daily recommended intake of fibre	% daily recommended intake of protein for an average woman	% daily recommended intake of protein for an average man
Chicken breast	Chicken breast fillet (100g)	0%	47.8%	38.4%
Sausages	2 pork sausages (94g)	4.0%	26.2%	21.1%
Ham	British crumbed ham (3 slices, 75g)	0.3%	35.3%	28.4%
Kidney	½ drained can (117g)	24.3%	18.2%	14.6%
Cannellini	½ drained can (123g)	23.7%	16.2%	13.0%
Black	½ drained can (117g)	25.3%	16.4%	13.2%
Chickpea	½ drained can (120g)	20.7%	20.9%	16.8%
Lentils (orange)	150g cooked	32.7%	25.8%	20.7%

**all nutritional information from Tesco website. Portion sizes are based on on-pack serving sizes and recommended portion sizes (British Dietetic Association, 2025). Canned kidney beans in water were used as reference for 80g of beans in comparison to the fibre content of chicken and bread.*

BEANS ARE GOOD FOR THE ENVIRONMENT

Global greenhouse gas emissions

Beans have a vastly smaller carbon footprint relative to animal foods (Figure 12). This is largely due to the fact that livestock have much higher resource requirements than plant foods, using more land, water and energy. The largest contribution to diet-related greenhouse gas emissions (GHGEs) comes from animal products even when these are produced using more sustainable production practices (Figure 13) (Ritchie, 2020). While land conversion is much less of an issue in the UK than it is globally, for most animal-based foods, 80% of GHGEs result from land use change and farming practices such as the application of nitrogen fertilisers and the production of methane in the stomachs of ruminant animals (Poore and Nemecek, 2018). Working together with soil bacteria, legume crops can fix nitrogen from the air into the soils, reducing the need for synthetic fertilisers to grow beans and subsequent crop rotations. As a result, swapping some of the meat we eat for beans would reduce the global emissions associated with current diets, with beans producing 55 times fewer GHGEs on average compared to production of an equivalent amount of beef. In the UK, meat accounts for the largest proportion of GHGEs associated with diets (32%), with dairy products contributing an additional14% (Rippin et al., 2021).

FIGURE 12: **The GHGEs associated with the global production of beans and beef**

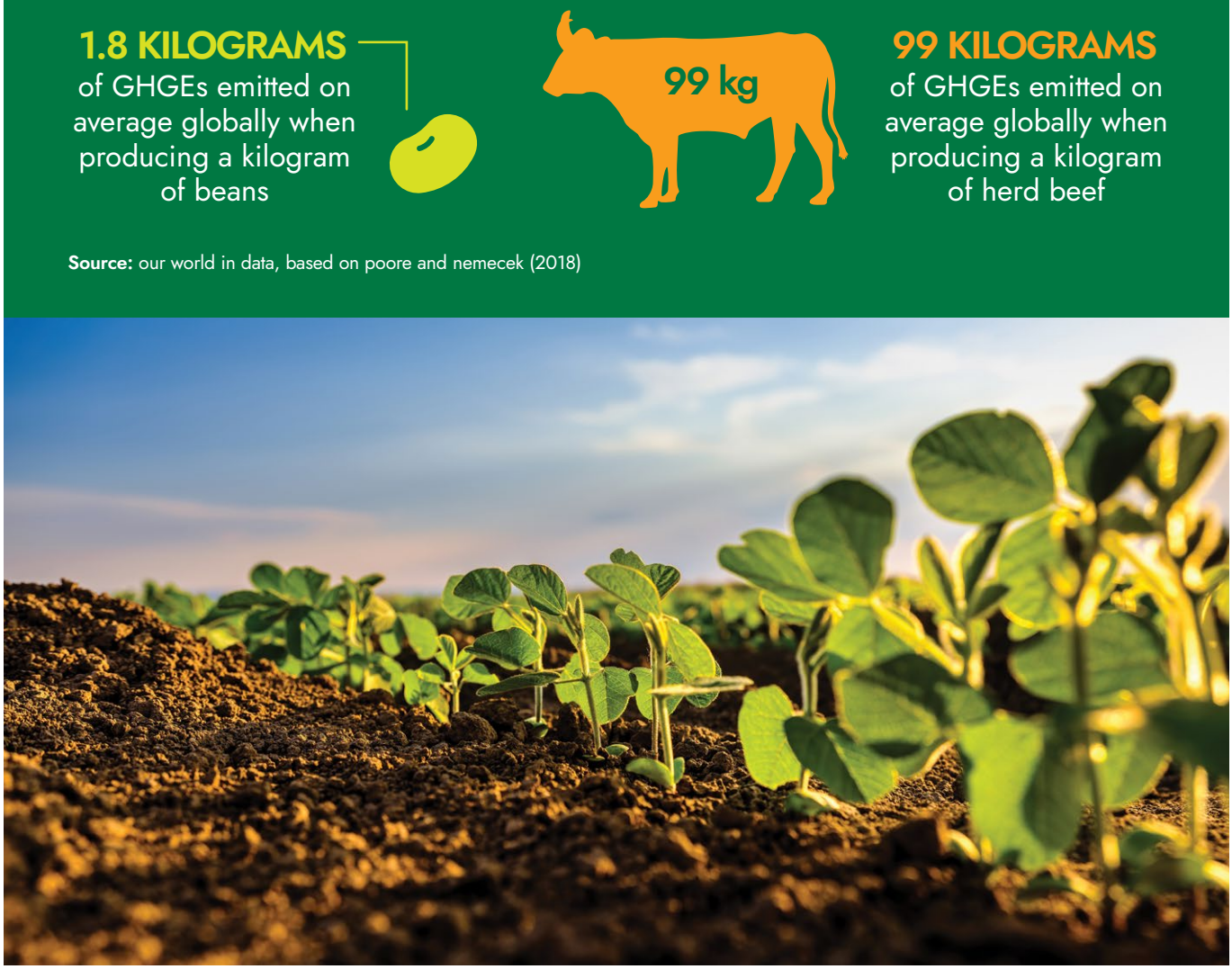
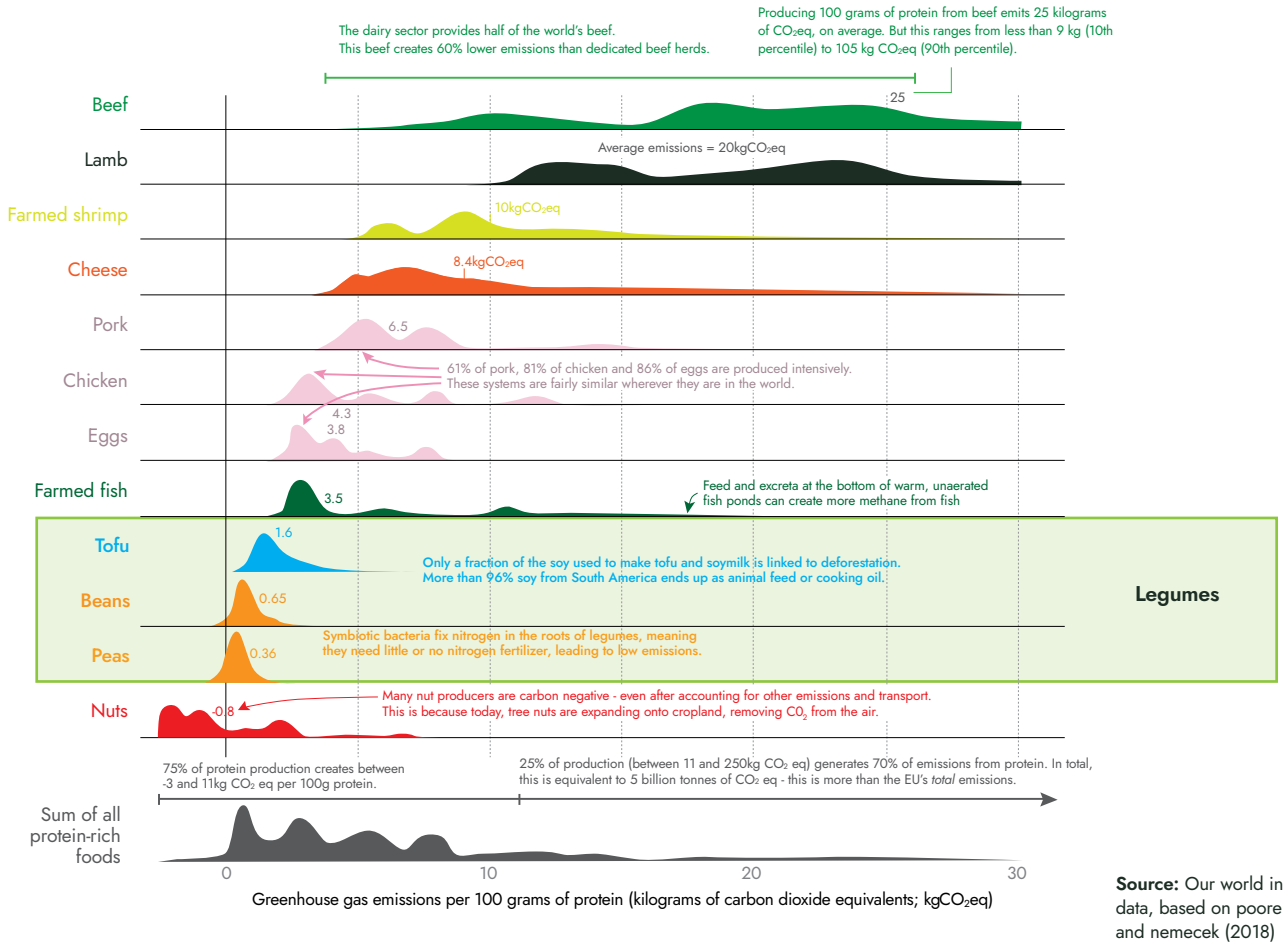


FIGURE 13: **Comparing the greenhouse gas emissions of different protein sources and the range of emissions associated with different production practices**



Source: Our world in data, based on poore and nemecek (2018)

Dried and canned beans also have a very long shelf-life, which is likely to have additional environmental benefits by helping to reduce food waste which is currently responsible for up to 10% of all global GHGEs (UNFCCC, 2024).

SOIL HEALTH AND BIODIVERSITY

Soil health is an essential part of climate change mitigation and resilience, yet a third of the world's soils are moderately to highly degraded (SDG2 Advocacy Hub, 2024). This has ramifications for carbon sequestration and in turn climate change given that degraded soils store less carbon (House of Commons Environmental Audit Committee, 2016). Nature conservation is also at risk given the critical importance of soil for biodiversity, with soil supporting around 60% of all species on earth (Robinson et al., 2024). Additionally, poor soil health can impact yields and affect farmer livelihoods as well as our ability to grow enough food (FAO, 2015). Leguminous crops support soil health via a number of mechanisms, making them a key crop for supporting with regenerative agricultural practices that aim to be more sustainable and support good soil health and biodiversity.

Why are beans good for soil health?

1 **Their natural nitrogen-fixing properties reduce the need for synthetic fertilizers**. Intensive farming practices rely heavily on chemical inputs, which can pollute soils, rivers, and marine environments (FAIRR, 2025). Agricultural run-off from fertilisers

can also lead to harmful algal blooms (eutrophication), which among other things can harm aquatic life in affected areas (World Resources Institute, 2008).

2 **Beans help to increase the amount and diversity of microfauna** in soil which helps with maintaining soil biodiversity (FAO, 2024). More microbes means increased levels of nutrient recycling which in turn improves soil biodiversity.

3 **Including beans in crop rotation can also increase the carbon content of soil,** which can help to enhance carbon sequestration in deeper soils. Legumes can store 30% higher soil organic carbon compared to other species. (SDG2 Advocacy Hub, 2024)

4 **They can also improve soil structure** by improving cohesion in soils, which can improve the water-holding capacity and air circulation and gas exchange of soil. (FAO, 2024).

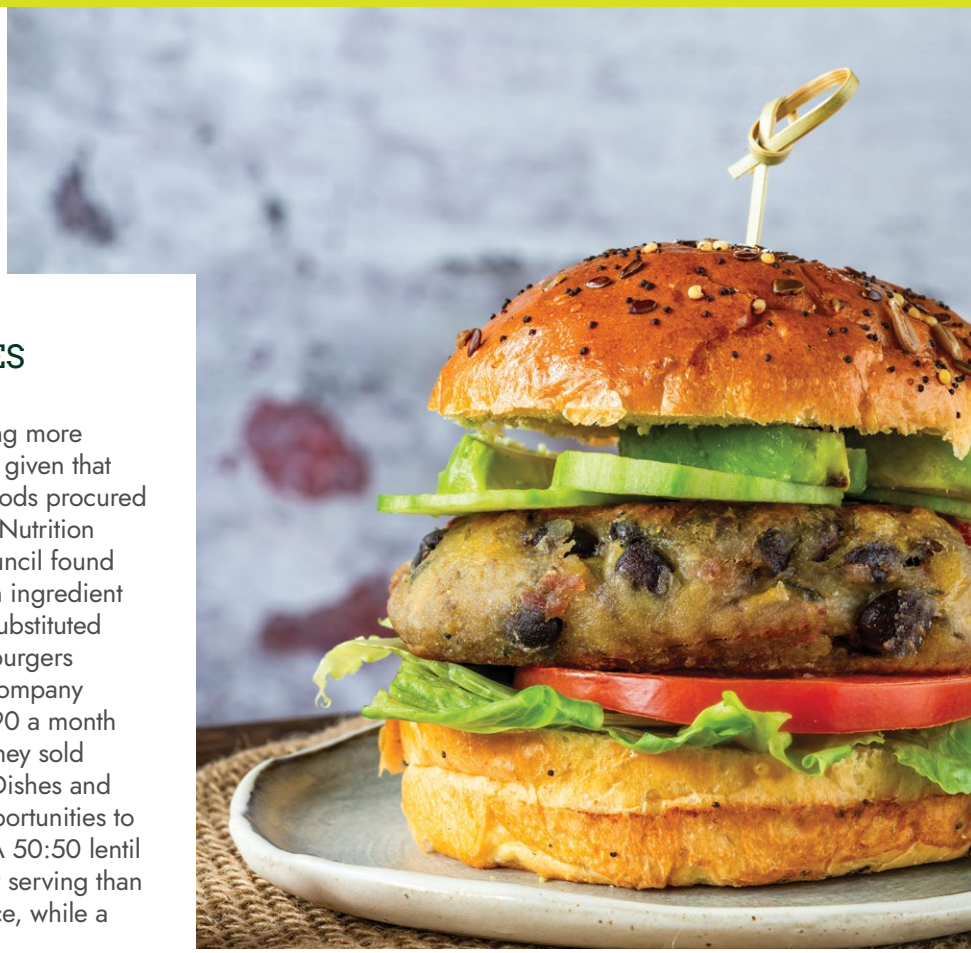
BEANS MEANS AFFORDABLE ALTERNATIVES TO MEAT WHEN MONEY IS TIGHT

Price is a key driver of food choice, yet there is currently a notable price premium for many plant-based meat alternatives even though they have significantly reduced greenhouse gas emissions and water footprints compared to meat (The Food Foundation, 2024). This may put many plant-based options out of reach for those on lower incomes. Research suggests that in the UK, high income households are more likely to purchase plant-based alternatives than those on a lower income (Alae-Carew, 2022).

Analysis of 71 meat alternatives available to buy from UK supermarkets undertaken in 2024 by the Food Foundation found that **beans are the most affordable plant-based alternative to meat by quite some way** (The Food Foundation, 2024). Beans cost on average 4.5 times less per 100g than other plant-based alternatives and were the only type of plant based alternative costing less than meat. Beans cost 2.6 times less per 100g than meat.

In contrast, more processed plant-based alternatives to meat were more expensive than meat products, with processed (new generation) alternative brands such as Beyond Meat are on average 73% more expensive per 100g than meat products, while traditional processed meat alternatives such as tofu and tempeh were on average 38% more expensive. We found a similar pattern when we looked at price per 100 calories as an alternative measure of price, given that calories can be used as a proxy for satiety. Although prices for meat alternatives are expected to decline as the plant-based market grows and the cost of production falls, price remains a key consideration for many UK households in a cost-of-living crisis, and beans stand out as being an affordable option amongst plant-based meat alternatives.

FIGURE 14: **Price per 100g vs price per 100 kcal for meat and three different categories of plantbased alternatives to meat**



BEANS BRINGS OPPORTUNITIES FOR BUSINESS COST SAVING

For caterers and food service providers serving more beans in place of meat may offer cost savings given that meat is typically one of the more expensive foods procured by businesses. Analysis undertaken by British Nutrition Foundation on behalf of Birmingham City Council found that businesses could save as much as 98p on ingredient costs per customer meal if beef burgers are substituted for bean burgers or blended bean and beef burgers (Figure 15) (British Nutrition Foundation). A company could therefore look to save as much as £1,490 a month in ingredient costs if 50 of the beef burgers they sold each day were substituted for bean burgers. Dishes and meals such as stews and sauces also offer opportunities to increase the bean content of popular meals. A 50:50 lentil and beef bolognese sauce costs 22% less per serving than the cost of cooking traditional bolognese sauce, while a fully lentil pasta sauce costs 44% less.

FIGURE 15: **Cost comparison of a burger using beans vs 50/50 beans/beef vs beef burger***

Bean burger: serves 6 (230g per serving)	**50/50 bean and beef burger: serves 4 (274g per serving)**	**Beef burger: serves 4 (279g per serving)**
2x400g large can kidney beans, drained and rinsed (480g drained weight) 100g breadcrumbs 2 tsp mild chili powder 1 egg 6 wholemeal burger buns Sliced red onion, tomato and salad leaves 6 tbsp ketchup 6 tbsp mayonnaise	**1x400g large can kidney beans**, drained and rinsed (240g drained weight) **250g beef mince** 50g breadcrumbs 2 tsp mild chili powder 1 egg 6 wholemeal burger buns Sliced red onion, tomato and salad leaves 6 tbsp ketchup 6 tbsp mayonnaise	**500g beef mince** 1 small onion, diced 2 tsp mild chili powder 1 egg 4 wholemeal burger buns Sliced red onion, tomato and salad leaves 4 tbsp ketchup 4 tbsp mayonnaise
£** per serving: **£1.01** **(49% less than the beef burger)**	£** per serving: **£1.61** **(19% less than the beef burger)**	£** per serving: **£1.99**

**Adapted from recipes: Spicy bean burgers; Homemade beef burgers (these recipes are for illustrative purposes only – beef burgers will incur greater weight loss than the bean burgers) **costs based on raw ingredients from Brakes as of 3rd Oct 2024. Costs calculated using Nutricalc software.*

FIGURE 16: **Cost comparison for a) Lentil pasta sauce, b) 50/50 Bolognese sauce, c) Traditional Bolognese sauce**

Lentil pasta sauce:	50/50 bolognese sauce	Traditional bolognese sauce
£**	£**	£**
per serving:	per serving:	per serving:
£1.31	**£1.81**	**£2.33**

BEANS OFFERS OPPORTUNITIES FOR BRITISH HORTICULTURE

Supporting British farmers to grow more edible bean crops would also benefit the domestic horticulture sector. For example, in order to meet dietary guidance around fruit and veg intake, UK consumption would need to increase by 86% (Food Foundation, 2024). According to the Green Alliance, expanding domestic horticulture to meet this demand could add £2.3 billion to the economy, create up to 23,520 additional jobs, and boost farm incomes by 3% across the country (Green Alliance, 2025). **The horticulture industry is currently worth over £5 billion a year and employs over 50,000 people yet is often overlooked despite the opportunities it offers for growth**. Horticulture accounts for 9% of the total contribution agriculture makes to the UK economy but uses less than 1% of the UK's farmland. In contrast the beef and lamb industries combined are worth 1.9 times more to the economy but use 76 times more land (Green Alliance, 2025).

Currently few farmers in the UK grow beans to sell for food, citing the lack of financial support, UK climate conditions limiting the yields of some varieties of bean, a lack of infrastructure for getting beans from farm to shelf, and weak consumer demand for beans as key barriers. Increased support and investment from policymakers and UK food businesses for farmers and the infrastructure required to get beans to market could shift this, and there are huge opportunities to better link production of UK beans to increased consumption.

Growing pulses as part of crop rotations may also provide economic benefits to farmers. A review of European farm

experiments found that growing legumes can significantly benefit the next crop grown by increasing yields as well as reducing some input costs (Preissel et al., 2015). Moreover, legumes can be grown in a variety of soil types and require less water and fertilizer than other crops, making them a sustainable and lower input crop option for farmers (Yanni et al., 2023).

There are huge opportunities to better link production of UK beans to increased consumption

PART FOUR

If we eat more beans, where will they come from?

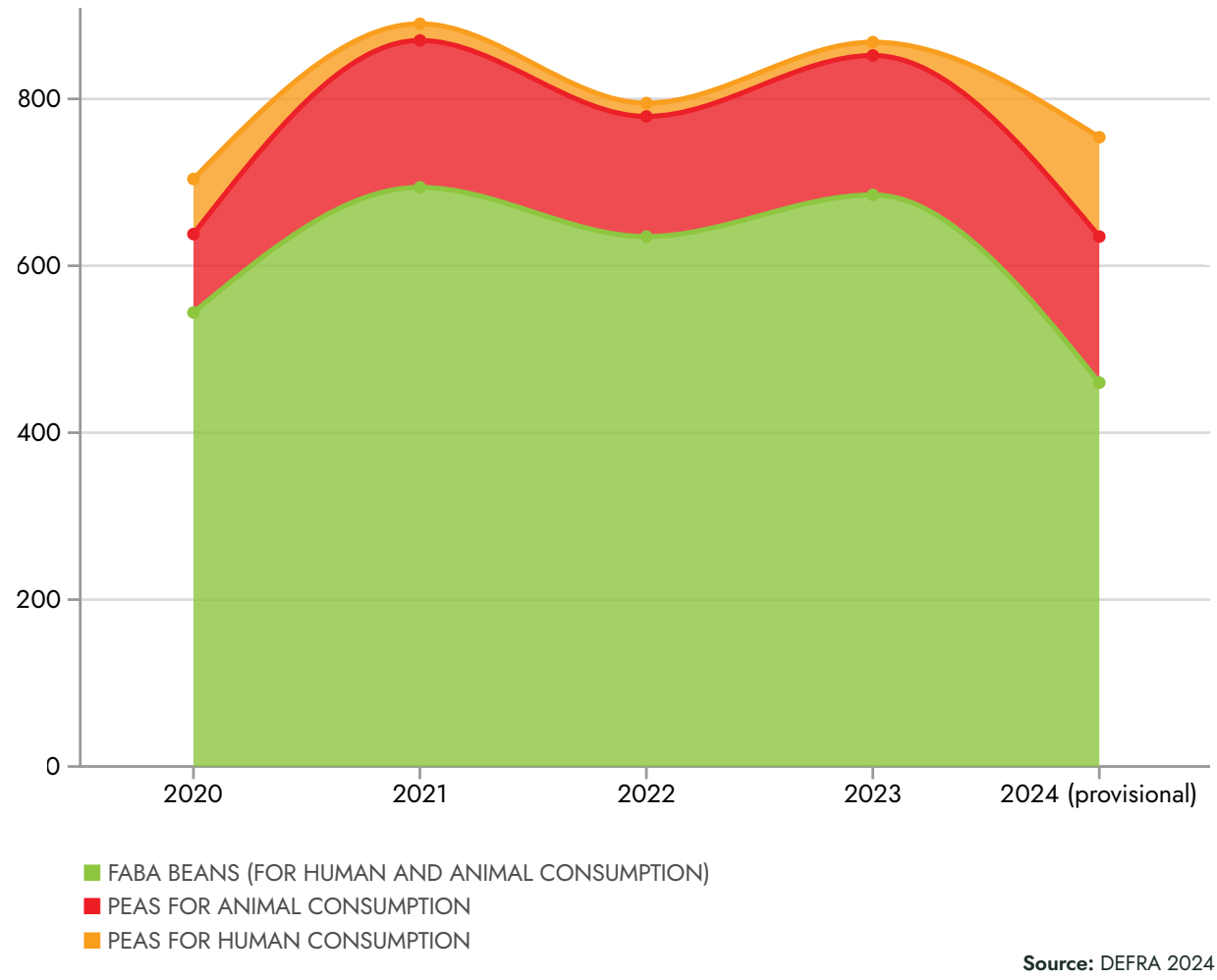
FULL OF BEANS? WHICH BEANS DOES THE UK GROW

The UK does grow beans and other legumes, but production is dominated by just two types: faba beans (otherwise known as field beans or broad beans) and peas. **The majority of UK domestically grown beans are used as livestock feed, rather that consumed by humans**. According to DEFRA, the UK produces around 800,000 tonnes of beans a year, but this varies year on year depending on weather. Just over half of this is faba beans, and the remaining amount produced is peas.

Cultivating beans in the UK uses 275,000 hectares of land – around 1.1% of the UK's total land area, or equivalent to an area the size of Dorset.

Remarkably, according to UN FAO data, in 2023 the UK was the world's third-largest producer of faba beans, behind only China and Ethiopia. Yet despite this global standing beans are far from a staple in British diets.

FIGURE 17: **UK bean production in thousand tonnes**



Source: DEFRA 2024

COULD THE UK GROW MORE BEANS?

Apart from faba beans and peas, few of the edible bean varieties eaten in the UK are grown commercially at scale (3Keel, 2023), despite there being some potential for growing other types. There have been some promising trials of UK grown lentils for example, although currently this remains at a very small scale with a number of challenges around harvesting them (Meldrum, 2017).

Mapping work undertaken by the the BeanMeals project identified regions in the UK where peas and faba beans were grown between 2016 and 2023 (Figure 18). Their work suggests that land south of a line running from the Severn Estuary to The Wash in East Anglia has climate conditions well suited to growing more beans (Ingram, et al.,2025), yet only a relatively small share of land is currently used.

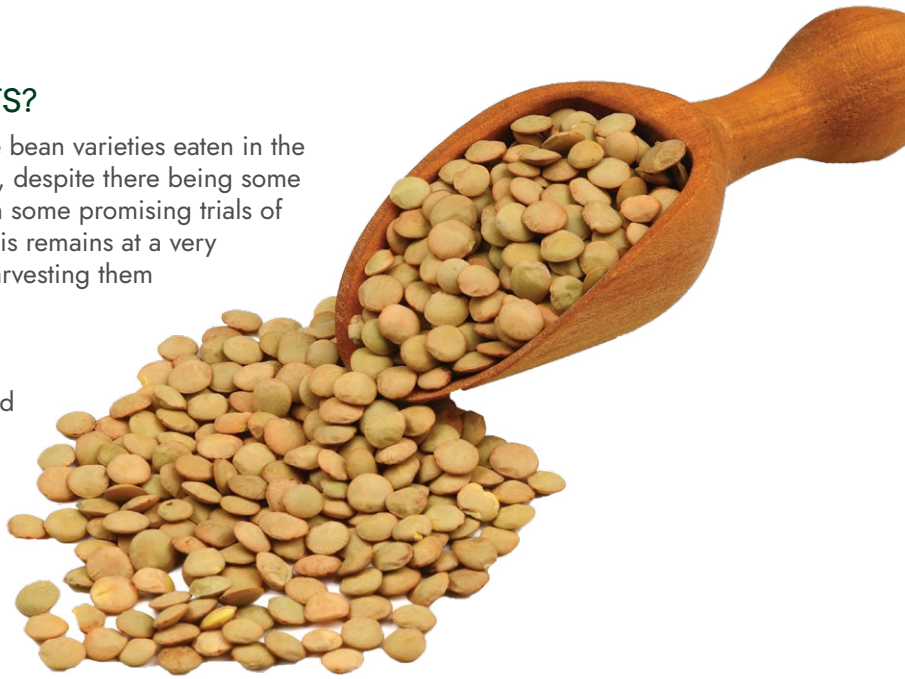
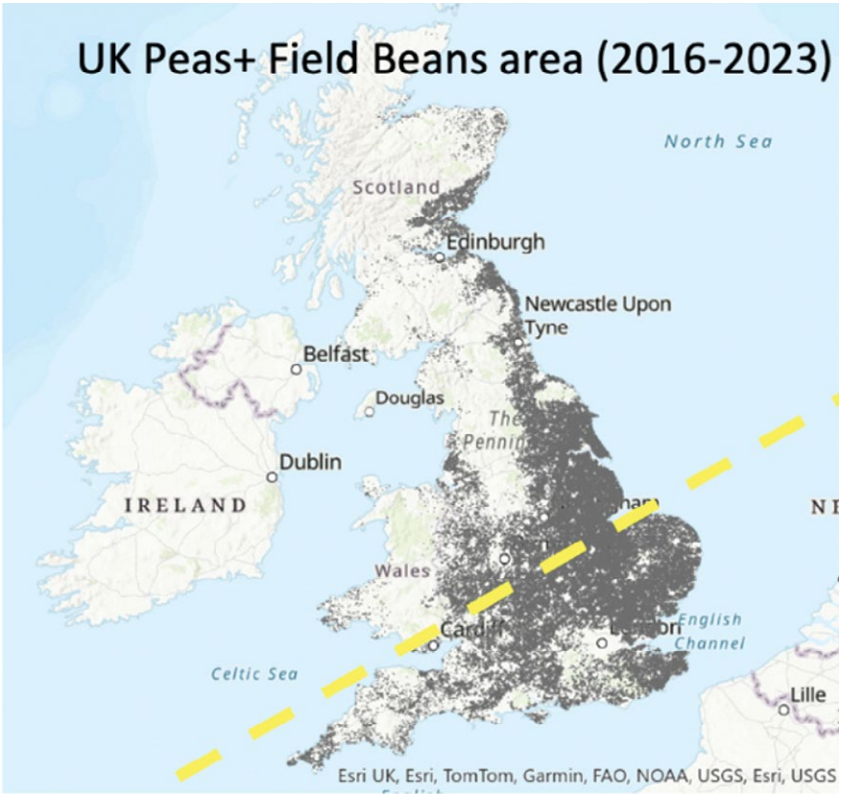


Figure 18: **Map of UK, the shaded areas show regions in the UK where peas and field beans were grown between 2016 and 2023. The map uses data downloaded from UKCEH Land Cover® Plus: Crops processed in GIS. With thanks to Dr. Jing Zhang.**



Yet while the UK is currently underutilising its bean-growing capabilities it wasn't always this way. Beans have long been grown in the UK and were first introduced during the Neolithic period (c.4,000 – c.2,500 BC in the UK), with archaeological evidence from Iron Age sites in Leicestershire suggesting that cultivation of peas and beans was once widespread, particularly faba beans (Tingle, 2024). However, from the 1950s onwards legume production across Europe declined, driven by a number of policy-driven market changes including higher returns for cereal crops and the availability of cheap imported animal feed (Cusworth et al., 2021).

In recent years there has been a growing effort to develop bean varieties suited to the British climate and growing season

Market incentives remain an ongoing barrier to wider production. Under the Environmental Land Management Scheme (ELMS) and the Sustainable Farming Incentive (SFI), farmers can receive payments for planting legumes in nitrogen management or fallow rotations. By contrast, there are no equivalent schemes to support bean cultivation for food (Ingram et al., 2025).

Even so, there are signs of promise. In recent years there has been a growing effort to develop bean varieties suited to the British climate and growing season. The University of Warwick has registered three new types—Capulet, Godiva, and Olivia beans (UK Research and Innovation, 2024). Particularly exciting is the

harvest of the Capulet bean (similar to imported haricot beans) in Lincolnshire, raising the prospect that with further efforts the nation's iconic baked beans could one day be made from beans grown in Britain itself rather than imported haricot beans. At the same time, some traditional staple crops are being revived, with companies such as Hodmedod's and Bold Bean Co championing the carlin pea. This small brown pea was once traditionally eaten at Lent in the North of England before falling out of favour, and is now having something of a renaissance.

A MISSING MIDDLE?

Scaling up UK bean production will require better investment in processing infrastructure. Research by BeanMeals has shown that the UK has a shortage of facilities for cleaning, drying, storing, canning, and preparing beans (3Keel, 2023). Without this "missing middle" farmers face a harder route to market, and consumers have fewer opportunities to buy British-grown beans (3Keel, 2024). While investment in this infrastructure does appear to be increasing it is still at a very slow rate (3Keel, 2023). Investing in this 'missing middle' could support farmers to grow more beans as well as providing opportunities for business growth along the bean supply chain (3Keel, 2024), as recently happened with the construction of the Navara oat facility in Cambridge which allowed Alpro to switch to using British oats for its drinks (Bradshaw, 2025). That said, the UK does have some examples of successful large-scale canning facilities. Heinz operates the world's largest baked bean factory in Wigan, producing around three million cans every day (BBC, 2016).

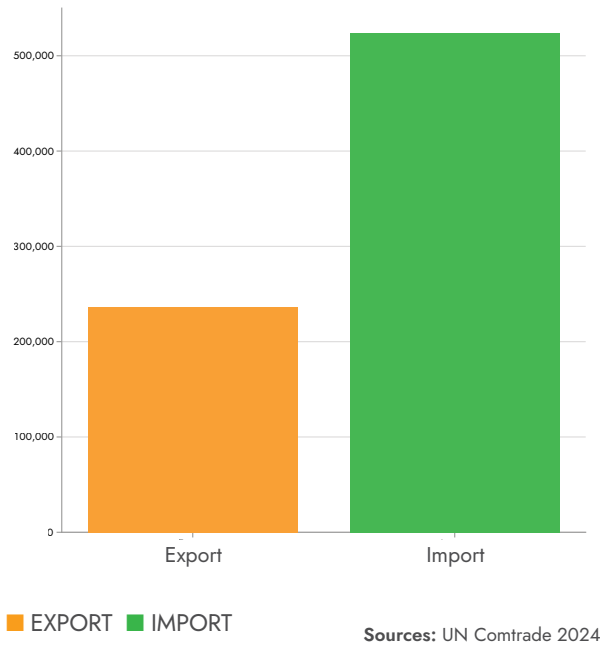
Growing more beans in the UK therefore offers potential economic, environmental and health benefits, particularly if public procurement can be used as a lever for incentivising change by procuring and serving more UK grown beans in public settings, thus better linking supply and demand. Two recent pilot projects aiming to get more UK grown dried peas into school meals - Give Peas a Chance in Aberdeen and the BeanMeals work in Leicester - have demonstrated the potential of such approaches (Sustain, 2024; Zurek et al., 2025).

With the right infrastructure and incentives, the UK could see more beans grown, processed, and eaten closer to home.

WHICH BEANS DOES THE UK IMPORT AND FROM WHERE?

The UK imports more beans than it exports, creating a bean trade deficit of over 287,000 tonnes (excluding soy) in 2024 (United Nations, 2024). Including soy would make the deficit much larger, but since most imported soy is used for livestock feed rather than human consumption, it has been excluded from this analysis. To put this in perspective, **the UK's bean deficit is equivalent in weight to nearly 692 million tins of baked beans, or around 10 tins of beans per person. In value terms, the shortfall amounts to £436 million**.

Figure 19: **Tonnage of UK bean exports versus imports (excludes soy)**



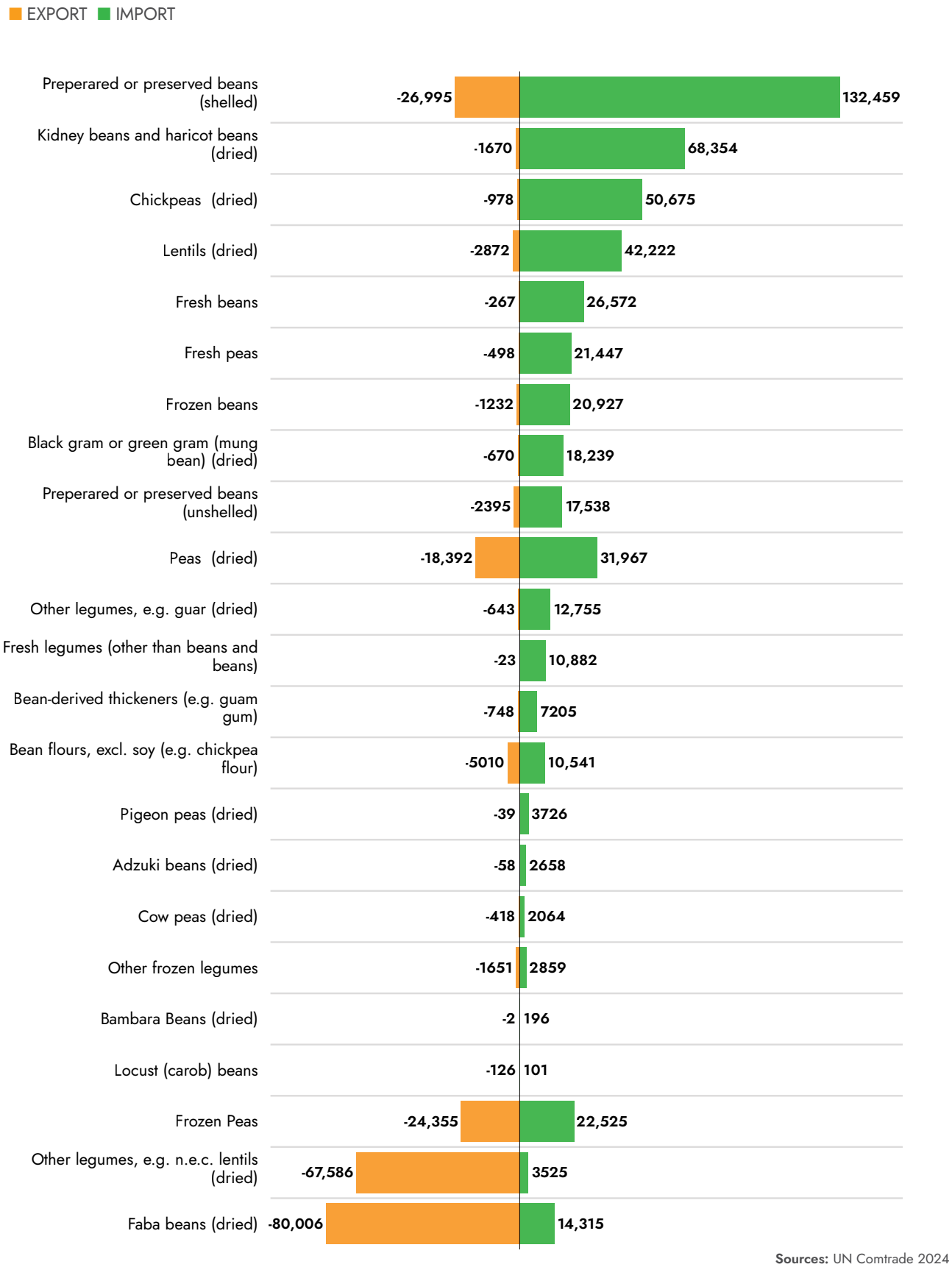
Sources: UN Comtrade 2024

Scaling up UK bean production will require better investment in processing infrastructure

The largest trade deficit by weight is for prepared or preserved beans (which includes tinned baked beans) followed by kidney and haricot beans, chickpeas, then lentils. The UK only has a trade surplus in three categories: frozen peas, faba beans, and 'other dried legumes'.

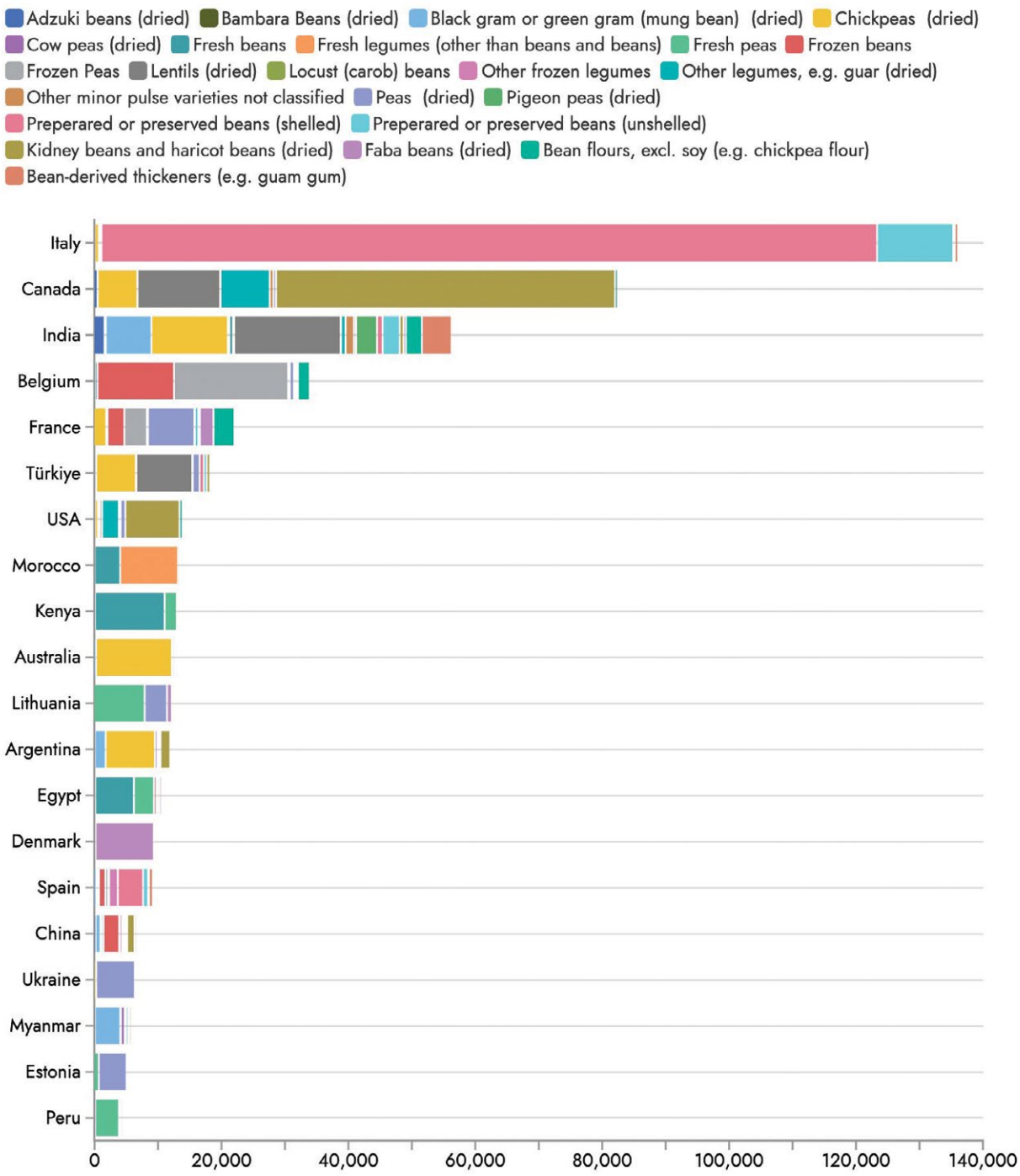
Ful Medames: an Egyptian delicacy using faba beans

Figure 20: **The UK bean deficit**



Sources: UN Comtrade 2024

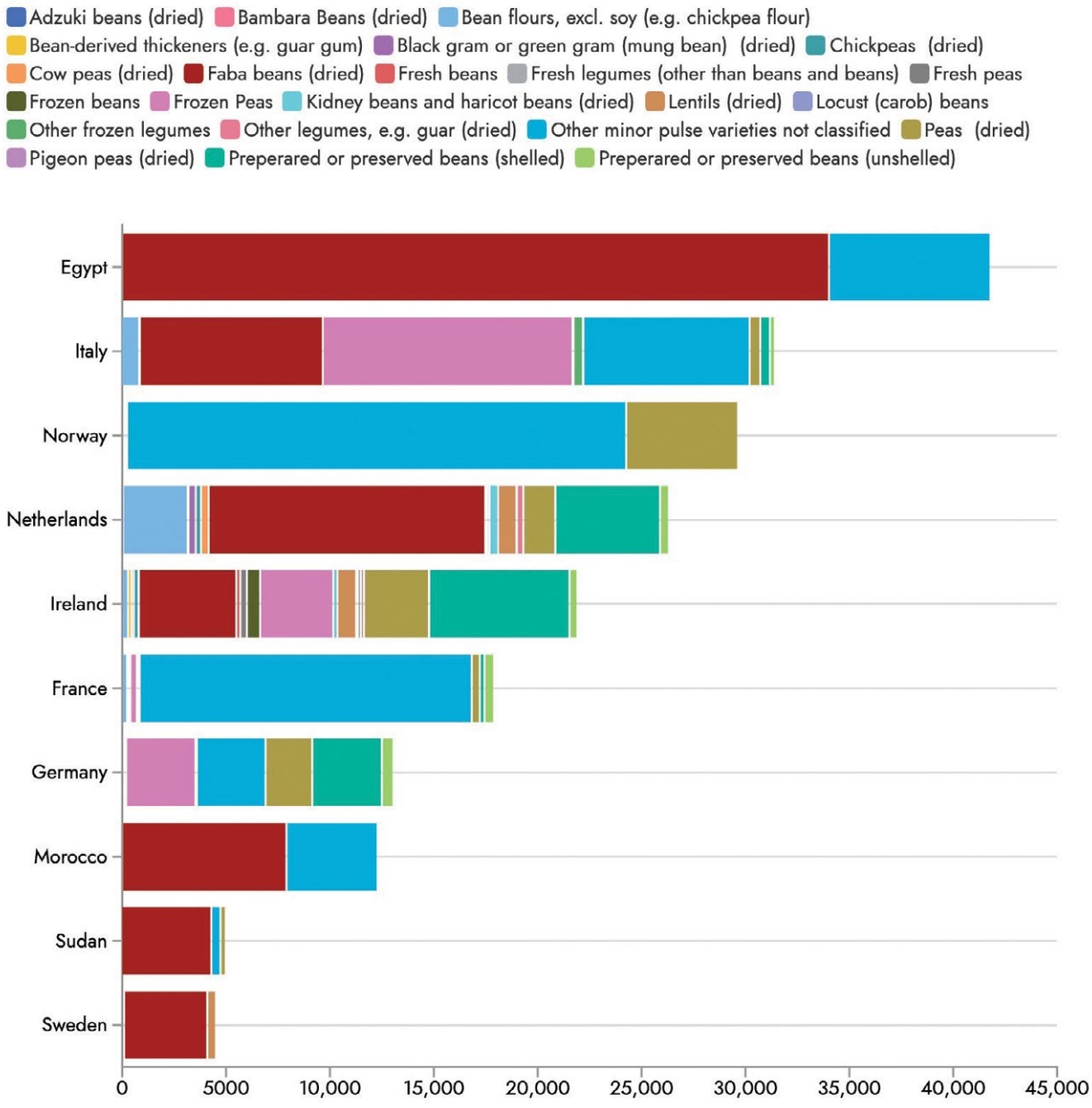
Figure 21: **Where does the UK import beans from? Top 20 countries for bean imports**



Sources: UN Comtrade 2024

Looking more closely at the UK's bean imports (Figure 20), most beans arrive in dried form, followed by preserved (which includes canned). Perhaps surprisingly, Italy is the UK's top bean source, accounting for 26% of total imports in 2024 (Figure 21). This is presumably due in large part due to the baked bean supply chain: haricot beans from Canada or the US are often shipped to Italy, combined with tomato sauce, canned, and then exported to the UK. The source of imported beans varies widely depending on type. Chickpeas come from a geographically diverse range of countries, with Australia, India, and Argentina as the top exporters. In contrast, kidney and haricot beans are almost exclusively imported from Canada, while nearly all Belgium's bean exports reach the UK in frozen form.

Figure 22: **Where does the UK export beans to?**



Sources: UN Comtrade 2024

UK bean exports tell a different story. **The largest category exported is faba beans, which make up at least 36% of UK bean exports (United Nations, 2024), with Egypt the leading destination. Faba beans (known as ful in Arabic) are a cornerstone of Egyptian cuisine — the key ingredient in the national dish ful medames** and used as the base for ta'ameya (Egyptian falafel), in place of chickpeas. These beans have even been discovered in the tombs of the pharaohs. The UK should look to take inspiration from Egypt in giving the humble faba bean a starring role in national cuisine.

Whilst the UK climate is not currently suitable for cultivating certain imported varieties, such as chickpeas, strategic investment in domestic processing facilities and climate-adapted bean breeding could significantly reduce reliance on imports and help close the UK's sizeable bean deficit.

Recommendations

Despite the many compelling reasons for the UK to eat and grow more beans we are currently eating very few, and what beans we do produce typically end up as animal feed or are exported. To shift this current state of play we will need concerted action from a number of different food system stakeholders. Both businesses and government must act to better support growers and citizens to boost bean production and consumption - with beans playing a critical role in the urgently needed transition towards diets that are healthier and more sustainable.

BUSINESSES SHOULD:

- **Join our community of action and support our goal of doubling UK bean consumption by becoming a Keen Bean pledger or promoter**. Large retailers, manufacturers and food service companies should commit to increasing sales/servings of beans and look at our commitment framework for businesses which includes a long list of evidence-based actions for driving up sales and servings of beans.

- **Make beans and whole plant foods more appealing**. Promotional spend should be redirected towards nutritious plant foods in order to make them more appealing. Advertising and promotional strategies should be focused specifically on beans as the most affordable, sustainable and healthiest plant-based alternatives to meat. Our sister organisation Veg Power is keen to explore branded content and marketing opportunities with companies to support the reach of our digital campaign promoting beans.

GOVERNMENT SHOULD:

- **Strengthen government procurement rule**s for schools, hospitals, prisons, and other public spaces to ensure more beans are served. Specifically ensure that the new School Food Standards include guidance around including beans in meals at least once a week.

- **Support the production and increased consumption of fruit, vegetables and edible legumes**. Specifically, there should be a strategy across all the devolved nations for an expanded, vibrant, and thriving edible horticulture sector.

- **Use farming support schemes to better incentivise farmers to grow more beans for food.** For example, incorporate further legume cultivation within rotations as a funded measure within agri-environment schemes to support farmers in upskilling and shifting product to these crops.

- **Fiscal incentives**: consider fiscal incentives to support the establishment of food manufacturing and processing infrastructure designed to utilise and innovate with plant proteins, including beans. This would support growers in finding routes to market and address the current 'missing middle'.

If you're an individual and would like to support the campaign, head to Veg Power's website to register your support: **vegpower.org.uk/boosting-beans**

To support the campaign follow #BangInSomeBeans

REFERENCES

References

3Keel, Environmental Change Institute, University of Oxford (2023) *BeanMeals: Demand & value chain for beans*. Available at: https://www.eci.ox.ac.uk/sites/default/files/2023-09/BeanMeals-Demand-value-chain-beans.pdf

AGES (2025) *New nutritional recommendations*. Austrian Agency for Health and Food Safety. Available at: https://www.ages.at/en/human/nutrition-food/nutrition-recommendations/new-nutritional-recommendations

Alae-Carew, C., Green, R., Stewart, C., Cook, B., Dangour, A.D. & Scheelbeek, P.F.D. (2022) 'The role of plant-based alternative foods in sustainable and healthy food systems: Consumption trends in the UK', *Science of the Total Environment*, 807, 151041. doi:10.1016/j.scitotenv.2021.151041

Ayala-Rodríguez, V.A., González, M., & García, M. (2022). Nutritional quality of protein flours of fava bean (Vicia faba L.) and their potential applications in food systems. *Food Research International*, 156, 111-118. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC9018142

Barber, T.M., Kabisch, S., Pfeiffer, A.F.H. and Weickert, M.O., 2020. The health benefits of dietary fibre. *Nutrients*, 12(10), p.3209. Available at: https://doi.org/10.3390/nu12103209

BBC (2016) *Inside The Factory: Baked Beans*. BBC Media Centre, 9 August. Available at: https://www.bbc.co.uk/mediacentre/proginfo/2016/32/inside-the-factory-baked-beans

Bradshaw, M. (2025) 'Alpro UK switches to 100% British oats, supported by major investment', *FoodBev Media*, 24 March. Available at: https://www.foodbev.com/news/alpro-uk-switches-to-100-british-oats-supported-by-major-investment

British Dietetic Association (BDA) (2021) *Fibre: food fact sheet*. Available at: https://www.bda.uk.com/static/f602fc35-ff7f-4d2c-90c89b145c43396c/d1e5de73-14ad-4d53-a9a79d1f66f0e7f8/Fibre-food-fact-sheet.pdf

British Dietetic Association, 2025. *Food Facts: Portion Sizes*. Available at: https://www.bda.uk.com/resource/food-facts-portion-sizes.html

Cancer Research UK, 2025. *Risks and causes of bowel cancer*. Available at: https://www.cancerresearchuk.org/about-cancer/bowel-cancer/risks-causes

Cusworth, G., Garnett, T. & Lorimer, J. (2021) 'Legume dreams: The contested futures of sustainable plant-based food systems in Europe', *Global Environmental Change*, 69, 102321. doi:10.1016/j.gloenvcha.2021.102321

EAT Lancet (2025) *EAT-Lancet Commission Summary Report: healthy, sustainable, and just food systems* Available at: https://www.thelancet.com/commissions-do/EAT-2025

Eating Better (2025) *Public Attitudes Survey report*. Available at: https://foodfoundation.org.uk/sites/default/files/2025-09/Public%20Attitudes%20Survey%20report.pdf

Fadnes, L.T., Økland, J.-M., Haaland, Ø.A. and Johansson, K.A., 2022. Estimating impact of food choices on life expectancy: A modeling study. *PLOS Medicine*, 19(2), e1003889. https://doi.org/10.1371/journal.pmed.1003889

Ferreira, H., Vasconcelos, M., Gil, A. M. & Pinto, E. (2021) 'Benefits of pulse consumption on metabolism and health: A systematic review of randomized controlled trials', *Critical Reviews in Food Science and Nutrition*, 61(1), pp. 85-96. doi:10.1080/10408398.2020.1716680

Food and Agriculture Organization (FAO) (2015) *Healthy soils for healthy food: What is a healthy soil?* Available at: https://www.fao.org/fileadmin/user_upload/soils-2015/docs/EN/EN_Print_IYS_food.pdf

Food and Agriculture Organization of the United Nations (FAO), 2024. *Pulses and soils: a dynamic duo*. Available at: https://www.fao.org/newsroom/story/Pulses-and-soils-a-dynamic-duo/en

Full of Beans business research carried out by British Nutrition Foundation in 2024/25 on behalf of Birmingham City Council as part of the Full of Beans Exploration. Publication due in 2026.

Global Burden of Disease Collaborative Network (2022) *Global Burden of Disease Study 2021 (GBD 2021) Results*. Institute for Health Metrics and Evaluation (IHME). Available at: https://vizhub.healthdata.org/gbd-results/

Green Alliance, 2025. *The strong economic case for expanding UK horticulture*. Available at: https://green-alliance.org.uk/briefing/the-strong-economic-case-for-expanding-uk-horticulture/ (Accessed: 1 October 2025)

Harvard T.H. Chan School of Public Health (2022) 'Are Anti-Nutrients Harmful?', *The Nutrition Source*. Available at: https://nutritionsource.hsph.harvard.edu/anti-nutrients/

Henn, K. et al. (2022) 'Identifying behavioral and attitudinal barriers and drivers to promote consumption of pulses: A quantitative survey across five European countries', Food Quality and Preference. Elsevier, 98, p. 104455. doi: 10.1016/J.FOODQUAL.2021.104455

Hoge Gezondheidsraad (2025) *Voedingsaanbevelingen voor de Belgische bevolking – 2025*. Advies nr. 9805-9807. Available at: https://www.hgr-css.be/file/download/23fea4f7-5bdb-4901-a5b2-971e07d2e52e/UFb43vRSIsVndlrcyc0R8ldR2Vw1FmMIOvD9xNrUQuY3d.pdf

House of Commons Environmental Audit Committee (2016) *Soil Health* (Report, 2015/16 session). Available at: https://publications.parliament.uk/pa/cm201617/cmselect/cmenvaud/180/18006.htm

Ingram, J., Barling, D., Bayes, N., Cotte, J., Dickinson, A., Hardman, C., Holub, E. B., Jones, K., Leadley, C., Maguire, R., Michaels, L., Midgley, G., Rajagopalan, R., Zhang, J. & Zurek, M. (2025) 'Fork to farm: reverse engineering a food system', *Philosophical Transactions of the Royal Society B: Biological Sciences*. doi:10.1098/rstb.2024.0158.

IRI Northstar, 26 weeks to 14 June 2025 vs YA. With thanks to Bold Bean.

Lane, L., Wells, R. & Reynolds, C (2023) *Beans, Peas and Pulses: UK consumption patterns and the impact of recipes*. City, University of London. Preprint available via ResearchGate. doi:10.13140/RG.2.2.29413.27369. Available at: https://www.researchgate.net/publication/369371129_Beans_Peas_and_Pulses_UK_consumption_patterns_and_the_impact_of_recipe

Lisciani, S., Marconi, S., Le Donne, C., Camilli, E., Aguzzi, A., Gabrielli, P., Gambelli, L., Kunert, K., Marais, D., Vorster, B.J., Alvarado-Ramos, K., Reboul, E., Cominelli, E., Preite, C., Sparvoli, F., Losa, A., Sala, T., Botha, A.-M., Ferrari, M., 2024. Legumes and common beans in sustainable diets: nutritional quality, environmental benefits, spread and use in food preparations. *Frontiers in Nutrition*, 11, 1385232. https://doi.org/10.3389/fnut.2024.1385232

Lovegrove, J.A., O'Sullivan, D.M., Tosi, P., Millan, E., Todman, L.C., Bishop, J., Chatzifragkou, A., Clegg, M.E., Hammond, J., Jackson, K.G., Jones, P.J., Lignou, S., Macready, A.L., McMeel, Y., Parker, J., Rodriguez-Garcia, J., Sharp, P., Shaw, L.J., Smith, L.G. and Tebbit, M. (2023) 'Raising the Pulse': The environmental, nutritional and health benefits of pulse-enhanced foods, *Nutrition Bulletin*, 48(1), pp. 134–143. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC10947378/

Marinangeli, C.P.F., Curran, J., Barr, S.I., Slavin, J., Puri, S., Swaminathan, S., Tapsell, L. and Patterson, C.A. (2017) *Enhancing nutrition with pulses: Defining a recommended serving size for adults*. Pulse Canada. Available at: https://pulsecanada.com/uploads/resources/Enhancing-nutrition-with-pulses.pdf

Mariotti, F., 2019. Dietary protein and amino acids in vegetarian diets—A review. *Frontiers in Nutrition*, 6, p.47. Available at: https://www.frontiersin.org/articles/10.3389/fnut.2019.00047/full

Meldrum, J. (2017) 'First British lentil harvest underway', *Hodmedod's Wholefoods blog*, 31 August. Available at: https://hodmedods.co.uk/blogs/news/first-british-lentil-harvest-underway

Messina, V. (2014) 'Nutritional and health benefits of dried beans', *American Journal of Clinical Nutrition*, 100(Suppl 1), pp. 437S–442S. doi: 10.3945/ajcn.113.071472.

Office for Health Improvement and Disparities (2018) *The Eatwell Guide: booklet (version 4)*. GOV.UK. Available at: https://assets.publishing.service.gov.uk/media/5ba8a50540f0b605084c9501/Eatwell_Guide_booklet_2018v4.pdf

Office for Health Improvement and Disparities (2025) *National Diet and Nutrition Survey 2019 to 2023: report*. Available at: https://www.gov.uk/government/statistics/national-diet-and-nutrition-survey-2019-to-2023/national-diet-and-nutrition-survey-2019-to-2023-report

Papanikolaou, Y. (2008) 'Bean consumption is associated with greater nutrient intake and lower risk of obesity and metabolic syndrome in US adults', *Nutrition Research*, 28(11), pp. 701–709. doi: 10.1080/07315724.2008.10719740.

Petroski, W. & Minich, D.M. (2020) 'Is There Such a Thing as "Anti-Nutrients"? A narrative review of perceived problematic plant compounds', *Nutrients*, 12(10), article 2929. doi:10.3390/nu12102929

Poore, J. & Nemecek, T. (2018) 'Reducing food's environmental impacts through producers and consumers', *Science*, 360(6392), pp. 987-992. doi:10.1126/science.aaq0216.

Preissel, S., Reckling, M., Schläfke, N. and Zander, P., 2015. Magnitude and farm-economic value of grain legume pre-crop benefits in Europe: A review. *Field Crops Research*, 175, pp.64–79. https://doi.org/10.1016/j.fcr.2015.01.012

Public Health England (2016) *Eatwell Guide: colour edition*. Available at: https://assets.publishing.service.gov.uk/media/5bbb790de5274a22415d7fee/Eatwell_guide_colour_edition.pdf

Public Health England (2016) *From plate to guide: What, why and how for the Eatwell model*. Available at: https://assets.publishing.service.gov.uk/media/5a7f73f7e5274a2e8ab4c461/eatwell_model_guide_report.pdf

Reynolds, A., Mann, J., Cummings, J., Winter, N., Mete, E. & Te Morenga, L. (2019) 'Carbohydrate quality and human health: a series of systematic reviews and meta-analyses', *The Lancet*, 393(10170), pp. 434–445. doi:10.1016/S0140-6736(18)31809-9

Rippin, H.L., Cade, J.E., Berrang-Ford, L., Benton, T.G., Hancock, N. & Greenwood, D.C. (2021) 'Variations in greenhouse gas emissions of individual diets: Associations between the greenhouse gas emissions and nutrient intake in the United Kingdom', *PLoS ONE*, 16(11), e0259418. doi:10.1371/journal.pone.0259418

Ritchie, H. (2020) Less meat is nearly always better than sustainable meat, to reduce your carbon footprint. Available at: https://ourworldindata.org/lessmeat-or-sustainable-meat

Robinson, J.M., Liddicoat, C., Muñoz-Rojas, M. & Breed, M.F. (2024) 'Restoring soil biodiversity', *Current Biology*, 34(9), pp. R393–R398. doi:10.1016/j.cub.2024.02.035

Rossi, L. (2022) 'The 2018 revision of Italian dietary guidelines: Development process, novelties, main recommendations, and policy implications', *Frontiers in Nutrition*, 9. Available at: https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2022.861526/full

SDG2 Advocacy Hub, 2024. *Beans: Soil's Secret Superheroes*. Available at: https://sdg2advocacyhub.org/latest/beans-soils-secret-superheroes/

Sievenpiper, J.L., Kendall, C.W.C., Esfahani, A., Wong, J.M.W., Carleton, A.J., Jiang, H.Y., Bazinet, R.P., Vidgen, E. and Jenkins, D.J.A., 2009. Effect of non-oil-seed pulses on glycaemic control: a systematic review and meta-analysis of randomised controlled experimental trials in people with and without diabetes. *Diabetologia*, 52(8), pp.1479–1495. https://doi.org/10.1007/s00125-009-1395-7

Southey, F. (2025) 'Beans get bold: Meet the challenger brand disrupting pulses', *FoodNavigator*, 5 June. Available at: https://www.foodnavigator.com/Article/2025/06/05/bold-bean-co/

Superior Health Council (2019) *Dietary guidelines for the Belgian adult population*. SHC Report No. 9284. Available at: https://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/20190902_shc-9284_fbdg_vweb.pdf

Sustain (2024) 'Aberdeen gives peas a chance', *Bridging the Gap*, 15 April. Available at: https://www.sustainweb.org/bridging-the-gap/aberdeen-gives-peas-a-chance/

The Food Foundation (2023) *Low Income, Low Emissions? A briefing exploring whether reducing the emissions footprint of UK diets is equally achievable for different income groups*. Available at: https://foodfoundation.org.uk/sites/default/files/2023-07/TFF_CLIMATE%20BRIEFING.pdf

The Food Foundation (2024) *Is the UK's Supply of Fruit and Vegetables Future Proof? – SHEFS Fruit & Vegetables Policy Brief 1*. The Food Foundation / SHEFS. Available at: https://foodfoundation.org.uk/sites/default/files/2024-11/SHEFS_Fruit-and-Veg-Briefing-1-FINAL.pdf

The Food Foundation (2025) *The Broken Plate 2025*. Available at: https://foodfoundation.org.uk/sites/default/files/2025-04/TFF_The%20Broken%20Plate%202025.pdf

The Food Foundation Food Insecurity Tracker, July 2025 (Unpublished)

The Food Foundation Food Insecurity Tracker, July 2024

The Food Foundation, 2024. *Rethinking Plant-Based Meat Alternatives*. Available at: https://foodfoundation.org.uk/sites/default/files/2024-08/Rethinking%20Plant-Based%20Meat%20Alternatives.pdf

The Food Foundation, 2025. *Meat Facts: What meat is the UK eating and why does it matter?* Available at: https://foodfoundation.org.uk/sites/default/files/2025-05/TFF_Meat%20Facts.pdf

Tingle, E. (2024) 'The Bean-Bellies of Leicestershire — an Eco-History of a Name', *LAHS blog*, 10 March. Available at: https://lahs.org.uk/blog/the-bean-bellies-of-leicestershire-an-eco-history-of-a-name

U.S. Department of Agriculture and U.S. Department of Health and Human Services (2020) *Dietary Guidelines for Americans, 2020-2025*. 9th ed. Available at: https://www.dietaryguidelines.gov/sites/default/files/2020-12/Dietary_Guidelines_for_Americans_2020-2025.pdf

UK Research and Innovation (2024) 'UK's first crop of homegrown designer beans', *UKRI – Research outcomes and impact*, 4 March. Available at: https://www.ukri.org/who-we-are/how-we-are-doing/research-outcomes-and-impact/bbsrc/uks-first-crop-of-homegrown-designer-beans/

UNFCCC, 2024. *Food loss and waste account for 8–10% of annual global greenhouse gas emissions; cost USD 1 trillion annually*. Available at: https://unfccc.int/news/food-loss-and-waste-account-for-8-10-of-annual-global-greenhouse-gas-emissions-cost-usd-1-trillion

United Nations (2024) *UN Comtrade TradeFlow*. Available at: https://comtradeplus.un.org/TradeFlow

Veg Power, consumer panel survey results, 2025 (Unpublished)

Veronese, N., 2025. The impact of dietary fiber consumption on human health. *Clinical Nutrition*, 44(3), pp. 1–8. https://doi.org/10.1016/j.clnu.2025.01.001

Veronese, N., Solmi, M., Caruso, M.G., Giannelli, G., Osella, A.R., Evangelou, E., Maggi, S., Fontana, L., Stubbs, B. and Tzoulaki, I., 2018. Dietary fiber and health outcomes: an umbrella review of systematic reviews and meta-analyses. *American Journal of Clinical Nutrition*, 107(3), pp.436–444. https://doi.org/10.1093/ajcn/nqx082

Villegas, R., Gao, Y.-T., Yang, G., Li, H.-L., Elasy, T.A., Zheng, W. and Shu, X.O., 2008. Legume and soy food intake and the incidence of type 2 diabetes in the Shanghai Women's Health Study. *American Journal of Clinical Nutrition*, 87(1), pp.162–167.

Whittall, B., et al. (2024) 'Barriers and facilitators to consuming pulses: a qualitative exploration including effects of trying recipes at home', *Journal of Nutritional Science*, 13, e6. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10877139/

World Cancer Research Fund, 2025. *Bowel cancer | What causes cancer?* Available at: https://www.wcrf.org/preventing-cancer/cancer-types/bowel-cancer/

WWF-UK (2023) *Eating For Net Zero: How diet shift can enable a nature positive net-zero transition in the UK*. Available at: https://www.wwf.org.uk/sites/default/files/2023-05/Eating_For_Net_Zero_Full_Report.pdf

Yanni, A.E., Iakovidi, S., Vasilikopoulou, E. & Karathanos, V.T. (2024) 'Legumes: A vehicle for transition to sustainability', *Frontiers in Nutrition*, 16(1), p.98. doi:10.3390/nu16010098. Available at: https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2024.1385232/full

Yanni, A.E., Iakovidi, S., Vasilikopoulou, E. and Karathanos, V.T., 2023. Legumes: A vehicle for transition to sustainability. *Nutrients*, 16(1), p.98. Available at: https://doi.org/10.3390/nu16010098

Zurek, M., Ingram, J., Bayes, N., Cotte, J., Dickinson, A., Hardman, C., Holub, E. B., Jones, K., Leadley, C., Maguire, R., Michaels, L., Midgley, G., Rajagopalan, R., Zhang, J. & Zurek, M. (2025) *BeanMeals: Transforming school food*. Available at: https://www.eci.ox.ac.uk/sites/default/files/2025-02/BeanMeals_Transforming_school_food.pdf

The Food Foundation

International House, 6 Canterbury Crescent, London, SW9 7QD

foodfoundation.org.uk | the-food-foundation

Charity number: 1187611