

Accelerating protein diversification through the Good Food Cycle

“Our strong research and development and advanced manufacturing base mean the UK is well placed to develop new products and markets, including for healthier products and in alternative proteins.”

Towards a Good Food Cycle (2025)

The National Food Strategy has set an ambition to accelerate the development of alternative proteins. This [builds on](#) commitments in the [government food strategy](#) (2022), the [National Vision for Engineering Biology](#) (2024), and follows the advice of the Climate Change Committee’s (CCC) [Seventh Carbon Budget](#) (2025). Protein diversification is crucial for addressing the individual and societal costs of dietary ill-health and reaching climate and nature targets. Towards a Good Food Cycle recognises that alternative proteins can contribute to Outcome 3 of the food strategy, relating to economic growth. Two recent studies emphasise this:

- Scaling up fermentation to produce foods like animal-free dairy proteins can add nearly [£10 billion](#) to the UK economy by 2050.
- If plant-based meat consumption increases in line with the CCC’s 2035 diet scenario, the market for these foods would be worth [£2.7 billion](#).

This paper sets out the [Good Food Institute Europe](#)’s recommendations for the Good Food Cycle to enable sustained growth in the [plant-based food](#) sector and catalyse the scale-up of [fermentation](#) and [cultivated meat](#), which can help deliver tastier and more nutritious products and ingredients.

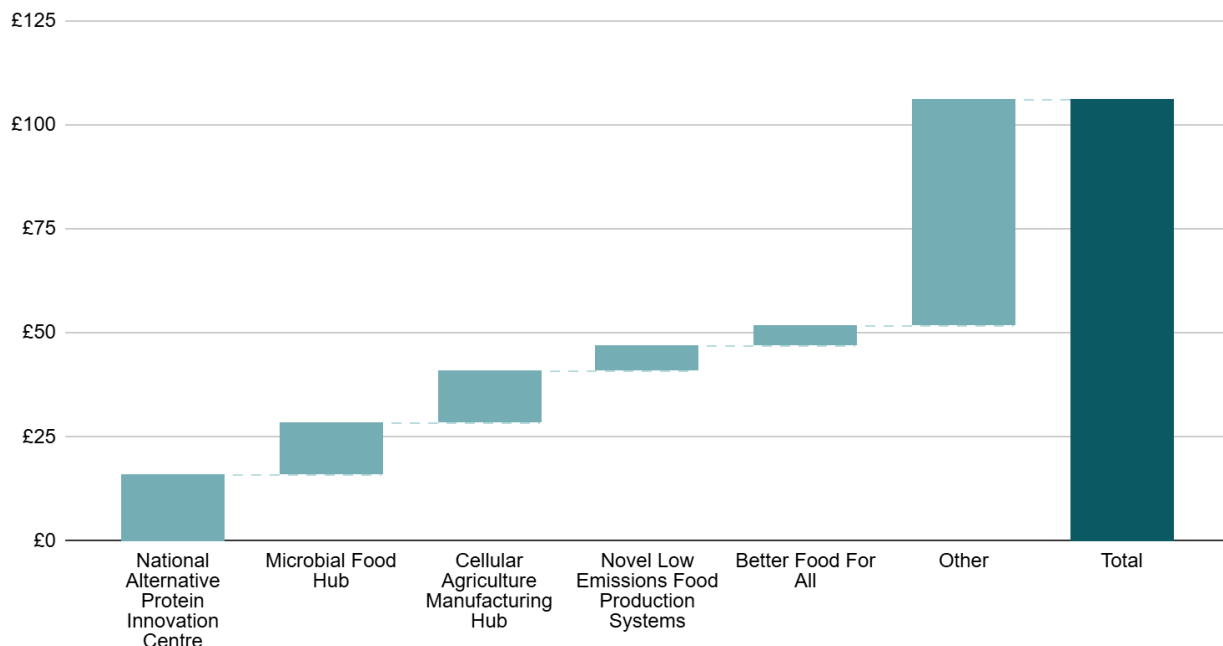
Summary of recommendations

- 1 Invest £150 million in research, innovation and infrastructure for alternative proteins between 2026-2030.
- 2 Identify and address gaps in plant protein infrastructure.
- 3 Implement the Food Standards Agency’s proposed reforms to its regulated product system and introduce a cost-recovery fee for regulated products.
- 4 Negotiate a carve-out for novel foods in a UK-EU Sanitary and Phytosanitary agreement.
- 5 Include fortified plant-based meat and mycoprotein in the Eatwell Guide.
- 6 Set a target for the proportion of protein-rich foods sold by large food businesses from animal-based, seafood-based and plant-based sources.
- 7 Create a level playing field for plant-based meat in public procurement guidelines.

1 | Invest £150 million in research, innovation and infrastructure for alternative proteins between 2026-2030

Between 2020 and 2024, the [UK invested over £100 million of public funding](#) into research and innovation (R&I) for plant-based foods, cultivated meat and fermentation. It is now Europe's largest national funder after Denmark. The core of this public funding is three major research centres (totalling £41 million), alongside the Bezos Earth Fund investment establishing the Centre for Sustainable Proteins at Imperial College London. [Two major](#) UKRI funding calls have also allocated £11 million across 24 innovation projects, while £3 million of the Farming Innovation Programme has been dedicated to plant-based protein projects that aim to deliver new market opportunities for British farmers.

Breakdown of UK public investments in alternative protein R&I, 2020-2024 (£ million)



Source: UKRI Gateway to Research, GFI Europe [Alternative protein Research and Innovation funding landscape analysis](#) (2025)

The UK should build on its successful investment strategy for protein diversification. As our annual [State of Global Policy](#) and [Research & Innovation Funding Analysis](#) reports show, countries around the world, including China and the United States, are expanding their public investments in protein diversification R&I. Projects funded by the Better Food for All and Novel Low Emissions Food Production System calls are now ending and our [recent analysis](#) shows important innovation gaps that are yet to be addressed in the UK. With the [Transforming UK Food Systems programme](#) also ending, this is an ideal moment to set out how alternative proteins fit into a wider vision for science and innovation that can support a healthy, resilient and sustainable food system (such as the £1 billion recommended by the independent National Food Strategy).

Recommendation

Defra and DSIT should develop a five-year commitment to invest £150 million in research, innovation, and infrastructure for alternative proteins as part of the food strategy, delivered primarily by UKRI. This should stitch together the government's commitment to engineering biology and advanced manufacturing in the Industrial Strategy. For context, investing an average of £30 million per year would be equivalent to just 2.4% of the [2025/26 annual budget](#) for UKRI's two main funders of alternative protein R&I - the BBSRC and Innovate UK. Our proposed solutions, split across five complementary pillars, would be funded via UKRI's budget and existing spending commitments in the Industrial Strategy:

£30 million Plant-Based Innovation Fund, running until 2030, delivered primarily by Innovate UK and BBSRC, in collaboration with Defra. This could be funded through annual competitive funding calls and international partnerships. Three near-term priorities for this funding should include:

- **Generating new opportunities for UK agriculture.** Not enough has been done to stimulate R&I collaboration between plant-based businesses and British farmers to develop domestic supply chains for plant-based meat and dairy ingredients and products (discuss below). [Germany's Farm Opportunity Programme](#) and [Denmark's Plant Grant](#) could be learned from to develop funding calls in this area.
- **Improving health & nutrition.** Maximising the nutritional density of plant-based foods should be an ongoing priority, for example, by improving protein fractionation methods and continuing to reduce salt content.
- **Developing more appealing products.** Focus areas should include scaling new texturisation methods for plant-based meat. To generate opportunities for farmers, approaches should focus on using crops such as fava and pea that can be grown successfully in some parts of the UK.

£30 million Engineering Biology Alternative Protein Innovation Fund, running until 2030. This should be funded primarily via the National Engineering Biology Programme and international partnerships. Near-term priorities should include:

- Strain discovery and engineering for precision fermentation.
- Food-grade components for cell-culture media and scaffolding to support cost-effective scale-up of cultivated meat production.
- End-product formulation for cultivated meat and ingredients.
- Technoeconomic modelling and life cycle assessments of cultivated meat and precision fermentation production systems.
- Food safety for fermentation and cultivated meat, to enable robust and timely regulatory authorisations.

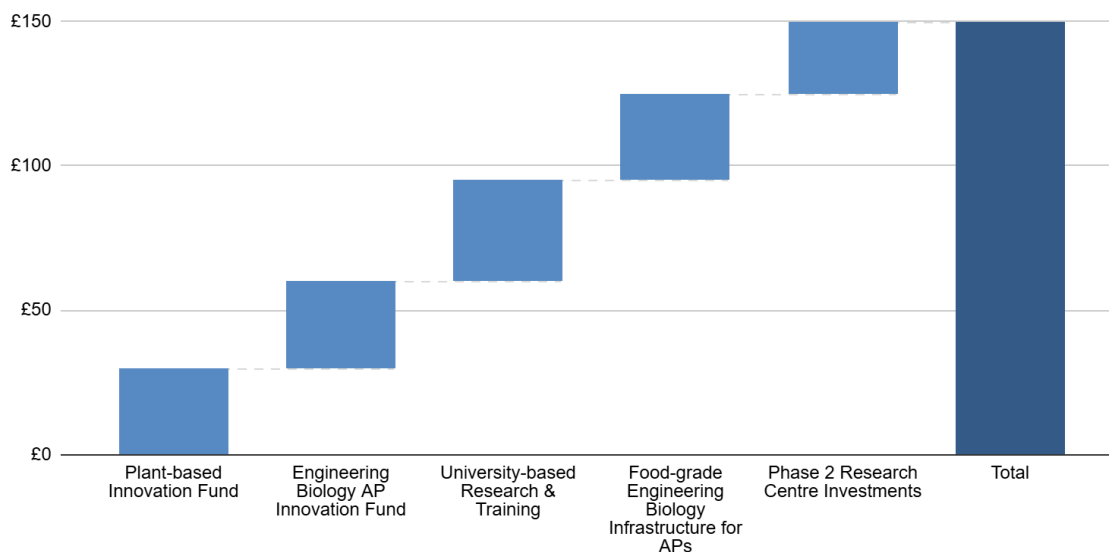
£35 million in university-based training, networks and open-access research, running until 2030. This should include:

- A doctoral training programme for alternative proteins.
- An annual £5 million funding call that enables UK-based researchers to address key [science and technology challenges facing alternative proteins](#). Existing research centres should be consulted on the content of these calls to identify scientific white spaces.
- A network for plant-based researchers working throughout the value chain, from agronomy and crop processing to food manufacturing and consumer insights.
- Evidencing the potential effects of plant-based meat and dairy in supporting healthy and sustainable dietary patterns. This should include commissioning new randomised interventional trials, such as pilots with medical practices to assess the impact of guidance to reduce processed meat intake by substituting with processed and unprocessed plant-based foods. Evidence from these trials could be used to design new nutritional standards for plant-based meat and dairy products, which are already [driving improvements in product formulation in the Netherlands](#).

£30 million investment in food-grade alternative protein infrastructure, funded via the Engineering Biology Scale-Up Infrastructure fund. This investment should consider existing infrastructure in the UK (both private companies and universities) and other parts of the world (such as Cultivate at Scale (Netherlands), the Cultured Hub (Switzerland) and BioBase Europe (Belgium)). It must be suitable to allow businesses to pilot processes beyond lab scale and run meaningful production volumes (eg, for cultivated meat, this would likely be in the low thousands of metric tonnes per year).

£25 million in follow-on funding for UK alternative protein research centres; these investments would take place towards the end of the decade.

Breakdown of our proposal for alternative protein R&I, 2026-2030 (£ million)



2 | Identify and address gaps in plant protein infrastructure

The majority of plant-based meat products in the UK use either soy, wheat and/or pea protein as a base ingredient. Soya is the most common of these. Of the top 30 plant-based products sold in the UK in 2024 (excluding Quorn, which is made from mycoprotein), 57% were soya-based, and 13% soya and wheat-based.

Only an [estimated](#) 20% of global soya production is used for human consumption – three-quarters is fed to animals. Although soya used in plant-based meat and dairy is typically [sourced](#) from Europe, the United States or Canada, it cannot be readily grown in the UK, which limits the potential benefits of plant-based meat for British farmers and growers.

Pea protein has been [gaining in popularity](#) in recent years among producers, including among newer brands like Beyond and THIS. Peas can be grown in some parts of the UK and [research](#) supported by the Farming Innovation Programme is aiming to optimise pea varieties for plant-based meat. Currently, however, supply chains are not geared toward producing for human consumption: [80% of pea production was used for animal feed](#) between 2022 and 2024, and the planted area of peas is equivalent to just 4% of the cropland used for wheat.

Fava beans (broad beans) are also a promising protein source for plant-based meat; Beyond's plant-based chicken uses fava, for example. [Defra-funded research](#) identifies that fava is suitable for growing in many parts of the UK, but it is an underutilised crop. An Innovate UK [project](#) is exploring routes to commercialise plant-based meat produced from UK-grown fava. Peas and fava also deliver ecosystem services, particularly as pollinators and fixing atmospheric nitrogen into soils.

A lack of processing infrastructure, such as fractionation capacity, is often [cited](#) as a reason that more businesses do not currently use more UK-grown plant proteins in their products. This goes beyond plant-based meat and also impacts the processing of whole pulses and legumes. The availability of affordable pea protein, particularly from China and Canada, as well as the vastly more developed supply chain for soya, compounds this challenge.

Other countries are seizing this opportunity. Swedish agricultural cooperative [Lantmännen](#) is investing £93 million in a new protein extraction facility for pea and fava. The opening of [Novara's oat processing plant in Northamptonshire](#) is a positive example of how crop processing infrastructure can drive the plant-based market forward. Since opening in 2023, Alpro has switched its main oat drink product to 100% British oats, sourced locally to the mill. [Research](#) from Green Alliance estimates that if the UK's current oat milk market ([valued](#) at £411 million in the year to January 2025) were 100% produced with home-grown oats, the total supply of oats would need to increase by 7%.

Supply chains also need to be developed for fermentation and cultivated meat inputs. This includes carbon-rich feedstocks for fermentation processes, for example, from [upcycled sugar beet](#), and [cell-culture media ingredients valorised from agricultural sidestreams](#). Unlocking these

opportunities depends on further research, with the public sector well-placed to address these kinds of pre-competitive questions.

Recommendation

Developing strong supply chains for alternative protein inputs and ingredients is crucial for building food systems resilience and creating opportunities for British agriculture. **The government should leverage its convening power to identify the most pressing gaps in plant protein infrastructure across the UK.** This should involve convening farmers, food businesses, researchers and investors to identify and derisk investment opportunities.

Our proposed Plant-Based Innovation Fund includes a competitive funding call for collaborative partnerships between UK farmers, crop processors, researchers and plant-based brands, designed to commercialise UK-grown plant proteins in plant-based meat and dairy products. This should build on the £12.5 million ‘sustainable farm-based proteins’ strand of the Farming Innovation Programme, but focus specifically on plant proteins for human consumption.

The £30 million Engineering Biology Alternative Protein Innovation Fund should include research partnerships between agricultural producers and processors, researchers, and fermentation and cultivated meat businesses to pilot processes for deriving inputs for feedstocks and cell-culture media from plant sources.

3 | Implement the FSA’s proposed reforms to its regulated product system and introduce a cost-recovery fee

The Food Standards Agency (FSA), with support from DSIT, has been making [progress](#) on modernising the regulatory pathway for alternative proteins. This includes:

- Establishing a [regulatory sandbox for cultivated meat](#) and launching a consultation service for applicants.
- Establishing an [Innovation Research Programme](#) and launching a consultation service with a focus on fermentation.
- Implementing [two reforms](#) to the FSA’s regulated product system, including replacing the need for a statutory instrument for every market authorisation with a digital register.

In line with the Chancellor’s drive to ensure [regulators promote growth and innovation](#), the FSA has [proposed](#) further reforms to its regulated product system. These include:

- Formalising the use of overseas regulators’ risk assessment opinions. This has been recommended by the FSA’s Chief Scientific Advisor and can reduce the average time for an application to progress from around six months to six weeks.
- Removing the need for GB ministers to authorise every application that the FSA and its independent advisory committees have assessed as safe, bringing the FSA into line with

other regulators, including the MHRA and HSE. Ministers would retain the power to ‘call-in’ certain applications.

Recommendation

The FSA’s regulatory modernisation agenda is positive and demonstrates a continued commitment to enabling protein diversification while retaining world-leading food safety standards. **Defra, DHSC and DSIT ministers should give clear support to the FSA to deliver the next phase of its reforms. Ideally, these should be implemented using retained EU law powers before they lapse in June 2026, or integrated into a Food Bill if necessary.**

However, reform alone cannot address the growing capacity constraints that the FSA faces in risk assessing and risk managing a wide range of food (and feed) innovations. Introducing a cost-recovery fee for applications could address this issue, given that the FSA’s spending review settlement is unlikely to cover the required expansion of its risk assessment capacity. This is not unprecedented: the [MHRA](#) derives most of its income from statutory fees, which vary depending on the nature of the application. Provided the cost-recovery fee ensured a transparent and efficient path to market within the statutory timelines for authorisation, we believe this proposal would be welcomed by applicants to the FSA’s regulated product system. Therefore, **the FSA should design a cost-recovery fee for its market authorisation service and hold a public consultation before its introduction.**

4 | Negotiate a carve-out for novel foods in a UK-EU Sanitary and Phytosanitary agreement

The UK’s progress in modernising the regulatory framework for alternative proteins has been protracted but ultimately positive. However, a roadblock is now coming into view. In May 2025, the UK and EU [pledged](#) to negotiate a new sanitary and phytosanitary (SPS) agreement. Although the nature and extent of [dynamic alignment](#) on food safety standards will be subject to negotiations, in principle, it involves the UK reflecting the current state of EU regulation.

As the Food Standards Agency has [indicated](#), “it could be that the UK aligns with all EU market authorisation decisions, which would mean that the market authorisation process within GB would look quite different to how it operates now”. Put another way, the UK’s novel food authorisation pathway could become defunct.

We believe this would be a substantial setback. It would undo much of the progress that has been made in making the UK a globally competitive regulatory environment that offers the safety standards, regulatory knowledge and market opportunities to develop and sell the next generation of alternative protein products.

Removing the UK’s autonomy to authorise cultivated meat and fermentation-made foods would also hinder EU businesses, since the UK is developing important risk assessment knowledge and policy positions that will enable market entry.

Recommendation

The EU has signalled that it is willing to accept some limited exemptions under a new SPS agreement, and we recommend that **the UK should seek a carve-out to continue authorising foods under Retained EU Regulation 2015/2283 (Novel Foods)**. We believe this can meet the [three tests](#) that the EU has outlined:

1. **It would not lower standards.** The [UK currently uses the European Food Safety Authority's \(EFSA\) scientific guidance](#) on novel food applications for its risk assessment process. Through the FSA's Innovation Hub and CCP Sandbox programme, the regulator is developing detailed institutional knowledge about the food safety risks and hazards associated with producing cultivated meat and foods made from fermentation, enabling it to regulate more effectively and robustly. Through the CCP Sandbox Programme, FSA is also engaging with international regulators to share knowledge and forge new international standards (eg, via the International Organization for Standardization); this could include aligning on risk assessment guidance with EFSA for cultivated meat and other alternative proteins.
2. **It does not negatively affect European Union animals and goods being placed on the market in the United Kingdom in respect of Great Britain.** As outlined above, the UK is developing institutional knowledge to regulate novel foods like fermentation-made proteins through the work of its Innovation Hub. This is likely to lead to an environment where it is more straightforward to seek authorisation in GB than in the EU. In other words, an exemption could be beneficial for placing EU businesses wishing to sell novel foods on the GB market.
3. **It respects the principle that only animals and goods compliant with EU rules move into the EU.** Established mechanisms, such as the Northern Ireland Retail Movement Scheme, have been agreed and introduced by the UK and EU post-Brexit to avoid leakage of food products onto the EU market via the island of Ireland. Measures such as 'Not for EU' labels and digital transport certificates are something that new industries like the fermentation and cultivated meat sector can plan for. Given that cultivated meat is yet to be sold as a novel food in the UK, we believe businesses could adapt with limited impact to market compliance measures.

5 | Include fortified plant-based meat and mycoprotein in the Eatwell Guide

The [Eatwell Guide](#) was published in 2016, predating [the growth of the plant-based meat market](#). Although [fortified dairy alternatives are included](#), plant-based meat and mycoproteins (such as Quorn) are not. The current edition recommends only "pulses, such as beans, peas and lentils" as "good alternatives to meat".

While variation between products exists, particularly in terms of fortification status, there is a [growing body of evidence](#) on the positive nutritional value and health impact of plant-based meat and mycoprotein, demonstrating these foods to be (on average):

- A source of fibre, while conventional meat is not.
- Low in saturated fat, unlike conventional meat.
- High in protein (similar to conventional meat in terms of percentage of calories from protein, but slightly lower per 100g). Plant-based meat is typically more protein-dense than unprocessed plant proteins per 100g.
- Similar or slightly lower caloric density to conventional meat.
- Neither low nor high in fat, similar to conventional meat.
- Low in sugar, like conventional meat.
- In most categories, neither low nor high in salt. (Large variation exists within categories: plant-based meat is higher in salt than unseasoned, unprocessed conventional meat, but similar or lower compared to processed conventional meat).

Plant-based meat can also improve health outcomes. A recent [systematic review and meta-analysis](#) of randomised controlled trials identified that swapping conventional meat for plant-based meat leads to a significant drop in LDL cholesterol and reductions in body weight. Raised LDL cholesterol is a major risk factor for cardiovascular disease, costing the NHS up to [£7.4 billion annually](#). Obesity and overweight are estimated to cost the NHS [£12.6 billion annually](#). Incentivising plant-based meat consumption would likely reduce intake of processed meat, a widely consumed food category and a major risk factor for colorectal cancer, which is the [second leading cause of cancer-related death](#).

The Eatwell Guide also does not consider the environmental impact of foods. Increasingly, [this puts the UK out of step with other countries](#), which are integrating sustainability metrics into national food-based dietary guidelines. This includes Belgium, Denmark, Germany, Italy, Norway and Sweden. A recent [systematic review](#) of 135 plant-based meat products demonstrated typical reductions in land use, water use and greenhouse gas emissions of at least 70% compared with conventional meat.

[The Netherlands now recommends fortified plant-based meat in its dietary guidelines](#), provided products meet specific nutritional criteria, and the British Dietetic Association recognises plant-based meat as a “[high-quality protein source](#)”. To maximise this opportunity, we propose that a proportion of our recommended health-focused R&D funding could be used to develop new nutritional standards for further improving the quality of plant-based meat.

Recommendation

The Eatwell Guide should be reviewed and updated to reflect the environmental impact of different foods and include fortified plant-based meat and mycoprotein in both visual and text descriptions. In a challenging landscape that has led to significant misinformation about the nutritional value of plant-based foods, integrating plant-based meat into the Eatwell Guide is a practical step that the government can take to provide consumers with accurate information.

The Eatwell Guide must also consider environmental impact metrics, such as land use, greenhouse gas emissions, and air and water pollution. It should be independently reviewed every five years, as is the case in several other countries, such as the United States. As part of a Food Bill, the government should be mandated to introduce any changes identified by this review to ensure the Eatwell Guide stays up to date.

6 | Set a target for the proportion of protein-rich foods sold by large food businesses from animal-based, seafood-based and plant-based sources

The Government's [10 Year Health Plan for England](#) commits to mandatory reporting on healthy food sales for all large food companies, with subsequent sales targets to be set by government. This is welcome, and these targets could be an important lever for expanding the choice of plant-based foods sold in the UK, given the well-established [health impacts of red and processed conventional meat](#).

Reporting metrics of environmental sustainability and public health risks is also critical for driving change throughout the food system. This includes the proportion of protein-rich foods large food businesses sell, segmented by animal-based, seafood-based and plant-based, as set out in the [WWF Basket](#).

'Protein split' reporting is advancing in other countries, such as the [Netherlands](#) and [Germany](#). It should be introduced as mandatory for large retailers and food service businesses (eg, over 250 employees) as part of the food strategy (via a Food Bill, if necessary). A [civil society alliance representing over 200 organisations](#) supports protein split reporting, and [WWF](#) has already proposed a methodology.

This does not involve starting from scratch, as UK food retailers already report annually to WWF on the percentage of protein-rich food sales from animal, seafood, and plant-based sources. Although these data are not made public, some businesses, including the UK's largest retailer, Tesco, have published this data for several years.

Recommendation

The food strategy should introduce mandatory protein split reporting and set a target for the proportion of protein-rich foods sold by large retailers and food service businesses from animal-based, seafood-based and plant-based sources for 2035 at the latest. This follows the

policy logic used in other sectors, notably the 2035 Zero Emissions Vehicle Mandate, which is [recognised](#) for catalysing investment into the electric vehicle sector and driving innovation. Setting this target should take into account:

- The full range of protein-rich plant-based foods commonly sold by businesses, including beans, pulses, tofu, tempeh, nuts, seeds, plant-based meat and plant-based dairy products.
- [Advice](#) from the Climate Change Committee in the Seventh Carbon Budget modelling a 20% reduction in meat consumption by 2035 vs 2019 levels, as well as Defra's farming roadmap and land use strategy.
- High-quality evidence (such as meta-analyses) of the nutritional value and health impacts of different protein-rich foods. Our recommendations for research and development funding would help to address this.

7 | Create a level playing field for plant-based meat in public procurement guidelines

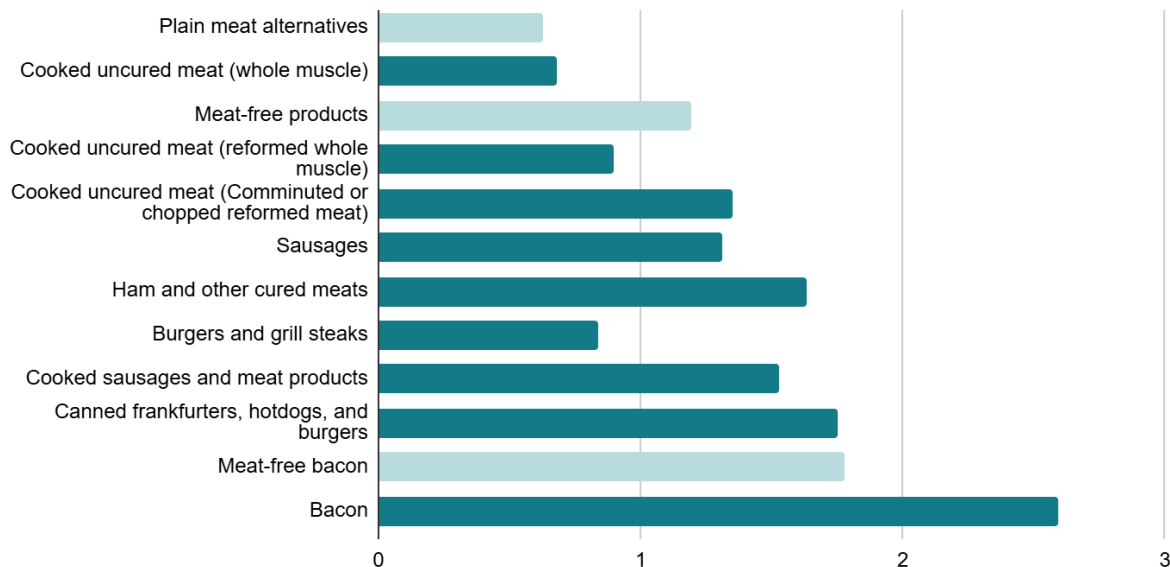
Each year, [£5 billion is spent on procuring food in the UK](#). In its 2024 manifesto, the Labour Party committed to changing how this money is spent, focusing on local sourcing and higher environmental standards. The Government has since pledged to reform the School Food Standards.

There is widespread agreement that updating the Government Buying Standards (GBS) for food is a crucial piece of the procurement puzzle. It is [well-recognised](#) by a broad church of organisations that implementing mandatory and enforced standards across the entire public sector can help the government deliver on its manifesto ambition. However, at present, the GBS are not optimised to help people eat healthy and sustainable foods.

This extends to the current approach to plant-based meat in the [GBS nutrition standards](#). Plant-based meat is described as food for “vegetarians and vegans”, despite good [evidence](#) that meat-eaters buy plant-based options. There is no description of “why these foods are important”, while meat is generically described as “a good source of protein, vitamins and minerals such as iron and all the B vitamins except folate”. Since the environmental impact of food is not factored into the GBS, there is little incentive for procurers and caterers to prioritise serving plant-based options, even though these foods cause [fewer emissions and pollutants and use fewer resources like land and water](#).

We also identified discrepancies in salt targets for plant-based meat and animal-based meat. For example, pork bacon has a salt target 46% higher than plant-based bacon. For ham and sausages, salt targets for the animal-based versions are 37% higher and 10% higher, respectively.

Government Buying Standards salt targets for conventional meat and plant-based meat products (salt g / 100g)



Note: 'Plain meat alternatives' includes mince and plain pieces such as plant-based chicken. 'Meat-free products' includes items such as sausages and burgers, but not ready meals or centre meal items.

Many plant-based meat products are compatible with their salt target. A [review](#) of 495 plant-based meat products indicates the median salt value is 1.2g/100g; the 2024 salt target for 'meat-free products' is 1.19g. This is positive, and continuing to reduce the salt content of plant-based meat is an important nutritional R&I priority. Nevertheless, it is incoherent that animal-based equivalent categories are permitted to have higher salt targets.

Recommendation

The Government Buying Standards for food and catering should be reviewed as part of the food strategy. Environmental sustainability should be embedded in these standards, and they should take a progressive approach to plant-based meat and dairy products. This includes:

- Highlighting the [nutritional value of plant-based meat](#), such as higher fibre and lower saturated fat levels (as is already done for conventional meat).
- Lowering the salt target for animal-based meat in line with plant-based options.
- Removing the exemption for only 75% of conventional meat to meet salt targets (an exemption that does not exist for plant-based meat).
- Encouraging the use of fortified plant-based meat and dairy options.

About the Good Food Institute Europe

The [Good Food Institute Europe](#) is a nonprofit and think tank helping to build a more sustainable, secure and just food system by diversifying protein production. We champion the science, policies and investment needed to make alternative proteins delicious, affordable and accessible across Europe.

Our policy team works to support governments across Europe to develop the enabling environment for protein diversification. By advancing plant-based foods, cultivating meat from cells and producing ingredients through fermentation, we can boost food security, meet our climate targets and support nature-friendly farming. GFI Europe is powered by philanthropy.

To find out more, please contact uk@gfi.org