

Summary for policymakers | Sustainable proteins in the United Kingdom – an ecosystem review



The UK Government has expressed an ambition to develop and scale-up sustainable proteins in Britain, most clearly in its Food Strategy. The remainder of this decade will be crucial to deliver on this ambition and unlock the environmental and societal benefits of plant-based, fermentation-made and cultivated meat, seafood, eggs and dairy.

British entrepreneurs, food producers and scientists need an enabling environment to make new discoveries, grow innovative businesses and produce sustainable proteins which are affordable and delicious.

Forged by a clear vision and decisive action, this ecosystem can foster the rapid growth of a new green industry in the UK, helping us deliver on national priorities for the climate, economy, food, nature, public health and science.

This summary reviews the development of the UK's sustainable protein ecosystem to date. It focuses on two key pillars: public investments in research and development (R&D) and private-sector commercial activity. We put forward nine policy recommendations to catalyse the development of plant-based, fermentation and cultivated meat over the remainder of the 2020s - a critical period in the global race to develop and scale sustainable proteins.

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### Key insights

Public research & development

• UK Research and Innovation (UKRI) is the key public funding agency for investing in sustainable protein R&D. Since 2012, the UK has invested at least £43 million in R&D specifically for plant-based, fermentation and cultivated meat, seafood, eggs and dairy.

- Of this funding, almost two-thirds (65%) was allocated between January 2022 and May 2023, suggesting the UK is beginning to seize the opportunity.
- Cultivated meat has received the largest proportion of funding (£20 million), largely due to the creation of a new cellular agriculture manufacturing research hub (£12 million). Plant-based foods and precision fermentation have been more neglected.
- A diverse range of sustainable protein research is taking place at British universities. However, much more could be done to tap into the UK's latent strengths in relevant fields such as crop breeding, mycology, food science, stem cell biology and bioprocess engineering.
- Public funding is critical for encouraging researchers active in neighbouring fields to apply their expertise to plant-based, fermentation and cultivated meat R&D.

### Private sector activity

- Our research identified a total of 138 sustainable protein companies 100 in the plant-based sector, 23 developing cultivated meat and 15 in the fermentation space. It is very likely that we have underestimated the real total.
- There is a rich diversity in the commercial ecosystem, in terms of business models, geography and scale. Many plant-based brands are headquartered in major cities, but much of the economic potential of the plant-based sector is in the food manufacturing capacity growing throughout the regions.
- The UK private sector has demonstrated a competitive edge in some areas more than others. Quorn operates the world's largest sustainable protein production facility, and UK cultivated meat companies attracted more private investment in 2022 than the rest of Europe combined.
- However, precision fermentation is comparatively underdeveloped, particularly when compared to Israel and the United States.
- It is uncertain whether the UK will develop a strong sustainable protein manufacturing base, but the economic benefits of doing so could be significant. Analysis from Green Alliance indicates that up to 25,000 jobs could be created throughout the UK by 2035, with £6.4 billion added to the economy.
- A critical bottleneck is the lack of pilot infrastructure, particularly for fermentation and cultivated meat, designed to help grow sustainable protein companies from the lab to market.



#### Future industry clusters

- Our analysis mapped the UK's sustainable protein science and technology and commercial ecosystem to identify areas of regional strength. We found several areas of high potential, including Yorkshire and the North East, the Cambridge-Norwich Corridor, and the Golden Triangle.
- Coordinated action between the public and private sectors could foster the creation of flourishing sustainable protein clusters, as has been the case in other green industries.



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# Nine policy recommendations to create a thriving UK sustainable protein ecosystem by 2030

## Pillar 1: Political leadership

- **1.** Use the forthcoming engineering biology action plan to decisively affirm a cross-government ambition to develop and scale sustainable protein production in the UK.
- 2. Develop a national plan for sustainable proteins.

### Pillar 2: Research and development

 Between 2025 and 2030, UKRI, DSIT and Defra should together target an average annual spend of £49 million (£245 million total) on public R&D to support plant-based, fermentation-made and cultivated meat, seafood, eggs and dairy. To truly compete internationally, this should increase to a £78 million average annual spend (£390 million) between 2025 and 2030.

### Pillar 3: Infrastructure

**4.** Defra and DSIT should conduct or commission a review of sustainable protein infrastructure and use this as a basis for detailing plans of how the government can derisk the necessary private investment to scale sustainable proteins in the UK.

## Pillar 4: Regulation

- **5.** The FSA should focus on 'quick win' reforms that would improve trust and confidence in the novel foods pre-market authorisation process.
- **6.** The FSA should learn from best practices of more innovation-focused regulators, both in the UK and overseas.
- 7. The Chancellor should give a one-off £30 million injection to the FSA at the 2023 Autumn Statement and the next Comprehensive Spending review should ensure that its budget continues to grow in real-terms over the rest of the decade.

## Pillar 5: Fair competition

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- **8.** Remove existing restrictions on the use of dairy terminology provided adequate qualifiers are used.
- **9.** Defra and the FSA should implement a fit-for-purpose framework that allows sustainable proteins to communicate clearly the nature of their products to consumers













## Sustainable proteins in the United Kingdom – key statistics

# £43 million

Invested by UK Research and Innovation in sustainable proteins between January 2012 and May 2023.

# 65%

Of the total value of investments made by UK Research and Innovation came between January 2022 and May 2023.

# 25,000 jobs

could be created by 2035

# 30 UK universities

Identified who are conducting sustainable protein research and development.

# £12 million

Engineering and Physical Sciences Research Council investment in the UK's new cellular agriculture manufacturing research hub – a landmark for cultivated meat.

# 138 companies

Developing and producing plant-based, fermentationmade and cultivated meat, seafood, eggs and dairy.

# £964 million

Spent by UK consumers on plant-based meat and dairy in 2022 – a record. The UK is the second largest consumer market for plant-based foods in Europe.

# £143 million

Raised by British sustainable protein companies in 2022. UK cultivated meat companies secured more investment than the rest of Europe combined.



# About the Good Food Institute Europe

<u>The Good Food Institute Europe</u> is an international NGO helping to build a more sustainable, secure and just food system by transforming meat production.

We work with scientists, businesses and policymakers to advance plant-based and cultivated meat – making them delicious, affordable and accessible across Europe.

By making meat from plants and cultivating it from cells, we can reduce the environmental impact of our food system and feed more people with fewer resources. GFI Europe is powered by philanthropy.

# Contact



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### **Read the full report**

Dive into a comprehensive summary of university, supporting institution and company maps, as well as analysis of key policy levers to enable the UK to realise its potential.

Access the full report here



