

Alternative Protein Fact Sheet

Exploring market opportunities,
consumer trends, and innovation
potential for Wales.



What's included:

This factsheet is designed to support **Welsh food and drink producers, researchers and stakeholders** to explore, innovate and develop new products in the fast growing alternative protein sector and to better understand emerging protein trends, consumer insights, market opportunities and strategic innovation areas relevant to Wales.

Market overview – where alternative proteins are now and where they're heading

Market size & growth – opportunities for Welsh food and drink businesses

Consumer acceptability – what's driving demand and purchasing decisions

Alternative protein categories – what are alternative proteins with examples from producers already succeeding in this space.

Market Overview

Alternative proteins represent a rapidly growing global market opportunity driven by changing consumer demand, sustainability pressures, health trends and retailer innovation priorities. Strategic protein diversification could support higher-value manufacturing, supply chain resilience, rural economic development and export growth across the Welsh food and drink sector.

Alternative proteins and diversified protein systems include plant-based, fermentation-derived, marine and novel protein sources that complement existing food production systems and can create new opportunities for value-added food manufacturing. Industry trends increasingly show growth shifting beyond traditional meat alternatives towards high-protein foods, clean-label ingredients, fungi and fermentation systems, and minimally processed functional nutrition products. The UK protein market is also expanding more broadly, with demand increasing for plant proteins, functional proteins, sports nutrition, and healthy ageing products.



£1.5 billion – Projected value of the UK alternative protein market by 2030.



23% – Around one in four UK consumers now identify as flexitarian, actively reducing their meat consumption



38% – UK adults intend to increase their consumption of alternative proteins, reflecting growing interest in protein diversification



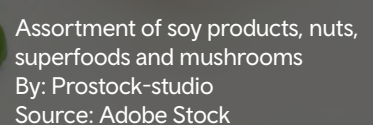
89% – Plant proteins account for most of the UK alternative protein market, while fungi, fermentation and cultivated proteins are expected to see the fastest future growth



The fastest-growing opportunities are now in high-protein foods, functional ingredients, healthy ageing, sports nutrition and clean-label products, rather than meat substitutes

Alternative proteins and diversified protein systems offer significant potential to support:

- Higher-value food manufacturing, creating premium products with greater nutritional, functional or commercial value
- Sustainable ingredient innovation, that reduces environmental impact while meeting consumer and industry needs
- Circular economy development, by keeping resources in use for as long as possible by transforming by-products and waste streams into valuable products
- Agricultural diversification, creating new markets and revenue streams for farmers
- Public health, by improving nutritional outcomes and supporting healthier diets across the population.
- Food resilience, strengthening the ability of the food system to withstand supply chain disruptions, climate change and market volatility.



Market Size & Growth

The alternative protein market in the UK is expected to reach a projected revenue of £1.5bn by 2030 with a compound annual growth rate of 8.2%¹, with 89% of the value attributed to plant protein.

The sales value of fresh meat substitutes in Wales hit £10.7m in 2025, growing by 1.9% YoY, offset by a decline in frozen meat substitutes. Key product sectors are breast and steak grills and strips, with burgers and sausage rolls showing strong growth.

Current trends show growth shifting away from meat alternatives to high-protein foods, clean-label ingredients, fungi and fermentation systems, and minimally processed functional nutrition products.

The Grocer² recently highlighted a focus on ingredient-led proteins with Tofu value growing 15% YoY and Tiba Tempeh enjoying a 736% YoY growth in retail. The report detailed that protein diversification is key for retailer resilience to manage future supply chain pressures with retailers having plant-based protein sales targets, providing a clear opportunity for food manufacturing businesses to imbed alternative proteins in their innovation strategies.

According to YouGov³, only 9% of the UK specify they have a meat-free diet, so the main opportunity is to complement animal-based foods and diets by appealing to the growing flexitarian population (23% in the UK⁴), a substantial proportion of consumers actively seeking more sustainable and diverse protein sources. Most flexitarians (reducing their meat consumption) still eat meat regularly and are driven by cost, health and quality.

38% of UK adults intend to increase their consumption of alternative proteins, with many opting for eggs, beans, pulses and cheese as their protein base in meals. However, intent does not always translate to behaviour changes. Food industry leaders are supporting the 'Bang in Some Beans' campaign⁵ which aims to double bean consumption by 2028 by promoting the benefits to consumers.

Hybrid protein products which combine meat, fish or dairy with alternative protein ingredients such as pulses, fungi or seaweed, can provide solutions that reduce environmental impact whilst maintaining familiar taste and texture as well providing a practical option for flexitarians.

Protein diversification should be viewed as a gradual expansion of the range of protein sources available to consumers, complementing existing livestock production while supporting more sustainable, resilient and diverse food systems. The European Environment Agency report 'Protein diversification in Europe: risks and opportunities for sustainable food systems'⁶ explores this diversification in more detail.



Flat lay view at Soy Bean curd tofu in wooden bowl on kitchen table. Non-dairy alternative substitute for cheese
By: Mikhailov Studio
Source: Adobe Stock

Consumer Acceptability

A quarter of GB households purchased plant-based alternatives more than once in 2025

In the **Sustainability Cluster Alternative Protein Survey (2025)**, taste was by far the most frequently mentioned factor consumers consider when choosing which alternative proteins to buy. Taste and texture were the most frequently cited aspects (positive and negative), highlighting the importance of product development focusing on these crucial aspects.

Consumers are increasingly concerned about ultra-processed foods and transparency resulting in natural, shorter ingredient lists becoming increasingly important purchase drivers. Consumers increasingly favour products with recognisable ingredients, minimal processing and clear nutritional benefits. Alternative protein products that combine high-quality protein content and functional nutrition with simple ingredient lists will have stronger consumer appeal than heavily processed meat substitutes.

Areas of consideration for companies offering and developing alternative proteins

- Deliver on taste and enjoyment
- Provide recipe suggestions (on pack QR codes)
- Focus on affordability without compromising on taste
- Endorsements through marketing and social media
- Education of nutritional value, including complete amino acid profiles, digestibility and protein quality.
- Communicate clear nutritional, provenance and sustainability benefits, supported by evidence where possible
- Utilise the expertise of the Food Centres to ensure products deliver against consumer requirements
- Collaborate with leading researchers across Welsh universities

Food and drink companies should use consumer insight to ensure innovation is providing consumer acceptability and then collate feedback and track repeat purchase rates to ensure products are perceived as high quality whilst delivering satisfying and delicious food to remain relevant in the market.



Homemade tofu with soybean seed, Vegan food ingredients in Asian cuisine, Plant based, Table top view
By: nungning20
Source: Adobe Stock

Alternative Protein Categories

Category	Description	Welsh Opportunity Areas
Plant-based protein	Pea, bean, soy, oat and wheat proteins	Welsh pulses, hemp, oats and ingredient innovation
Fermentation & fungi protein	Mycoprotein and fungi-derived ingredients	Circular bioeconomy and sustainable manufacturing
Marine protein	Seaweed and algae-based systems	Coastal economies and regenerative aquaculture
Novel protein	Insects, microalgae and emerging systems	Sustainable feed and functional ingredients
Cellular agriculture	Precision fermentation and cultivated ingredients	Long-term biotech and ingredient innovation

Plant-based Protein^{7,8}

- **Soya Protein:** Soybeans can be used to create a variety of different products including **Tofu** (Soybean Curd), **Tempeh** (Fermented Soybean), **Yumba** (Dried Soybean Curd) & **Miso** (Fermented Soybean Paste).
- **Pea Protein:** Pea Proteins derive from both **yellow and green split peas**. They contain all nine essential amino acids but as some are only present in small amounts it is best to blend with another protein such as rice protein. Pea proteins have a wide range of protein content depending on dry/cooked weight and protein extraction methods. Both whole and split peas, when dry, contain 20g-25g of protein per 100g, which reduces to 8g-9g when cooked. Pea flour matches dry whole/split peas at 20g-25g per 100g, while pea protein concentrate sits at 50g-60g, and isolates at 80g-85g of protein per 100g.
- **Faba Bean**, also known as field beans, are a high-protein pulse crop well suited to Welsh growing conditions, with a protein content of 25-30% on a dry weight basis. They are increasingly recognised as a sustainable, locally grown alternative protein source for food and functional ingredient development.
- **Wheat protein:** Wheat proteins can be found in the **grains of wheat plants**, which can come as a powdered form or baked to produce an almost chicken-like product. When wheat flour is mixed with water it creates a dough which can then be washed to remove starch, creating a protein-rich gluten. This is the same process used to make Seitan. The downside to wheat protein is that it is not considered a complete protein due to being low in lysine.
- **Oat protein:** Oat protein is being increasingly used in functional foods, beverages and nutritional products. It offers a balanced nutritional profile, naturally containing fibre, beta-glucans and essential amino acids, while supporting clean-label and allergen-conscious product development. Oat protein is valued for its mild flavour, smooth texture and versatility across applications including dairy alternatives. Oat protein concentrates can contain 35–60% protein, depending on processing method and oat protein isolates may reach up to 80–90% protein content.

Welsh-grown legumes and protein crops such as field beans, peas, lupins and hemp could play an important role in developing more resilient domestic protein systems. These crops support soil health, reduce fertiliser dependency and create opportunities for Welsh food businesses to develop sustainable, locally sourced protein ingredients and minimally processed foods. IBERS⁹ actively delivers research to expand grains for health.

Grains for Health, IBERS

Pulses (field beans and peas) introduce a much-needed nitrogen fixing crop for arable rotations and give a high-protein product for human nutrition and animal feed that is more sustainable than imported soya alternatives. Winter bean varieties developed at IBERS include varieties with the highest protein content.

Hemp protein is attractive because it grows relatively quickly, requires lower pesticide inputs, improves soil structure, supports biodiversity, and can contribute to regenerative agriculture systems. Hemp seeds are rich in protein, omega fatty acids, fibre, minerals, and functional nutrients so relevant for sports nutrition, functional foods and sustainable food ingredient systems.

Fiercely Fine

Fiercely Fine specialise in Kimchi and Tempeh (fermented soya beans) and Mixed Bean Tempeh (soya bean free). Tempeh is a controlled fermentation process that binds soya beans into a firm cake form. Vegan friendly containing all 8 essential amino acids it is packed high in protein. It can be sliced, chopped or grated and used in a variety of dishes as the main protein source.



Website: <https://www.fiercelyfine.co.uk>

Marvelous Superfood

Marvelous Superfood produces plant-based protein powders, functional blends (including fungi), and superfood nutrition products. Pea and hemp protein is commonly used across their vegan protein powders and functional nutrition systems. They are also dedicated to the environment, using organic ingredients and compostable packaging.



Website: <https://www.marvelloussuperfood.co.uk/>

Fermentation & Fungi Protein

Fermentation and fungi-derived proteins represent one of the most commercially scalable areas of alternative protein innovation. Mycoprotein was developed in the 1960s to provide alternative protein sources via starch fermenting fungi, Quorn being the most well-known brand. Mycoprotein is considered a complete protein source and can be used to produce a wide range of products, including mince, chicken fillet and nugget imitations.

Wales is well positioned to explore fungi fermentation, mycoprotein systems and circular bioeconomy applications. AberInnovation acts as a key biotechnology and agri-food innovation hub supporting fermentation-based startups, scale-up facilities and commercialisation.

Fungi-based ingredients offer commercial potential because they can provide naturally high protein content, umami flavour enhancement, meat texture replacement, fibre and micronutrients, clean-label functionality, and potentially lower environmental impact than animal protein. Depending on the species and processing method, fungal biomass ingredients can contain approximately 20–45% protein dry weight.

The Fungi Folks

The Fungi Folks is a Welsh fungi and mushroom ingredient business focused on developing sustainable fungi-based food products and ingredients for retail, foodservice and manufacturing applications. The company promotes mushrooms and fungal biomass as nutrient-rich, lower environmental impact alternative proteins.

 Website: <https://thefungifolks.co.uk>

Marine Protein

Wales has significant potential in seaweed and marine ingredient innovation due to its extensive coastline, growing regenerative aquaculture activity and strong sustainability credentials. Seaweed is naturally low in calories and provides protein alongside fibre, iodine and other essential nutrients, providing opportunities across alternative proteins, functional foods, nutraceuticals and low-impact ingredient systems, while also supporting coastal economic development and resilient food production.

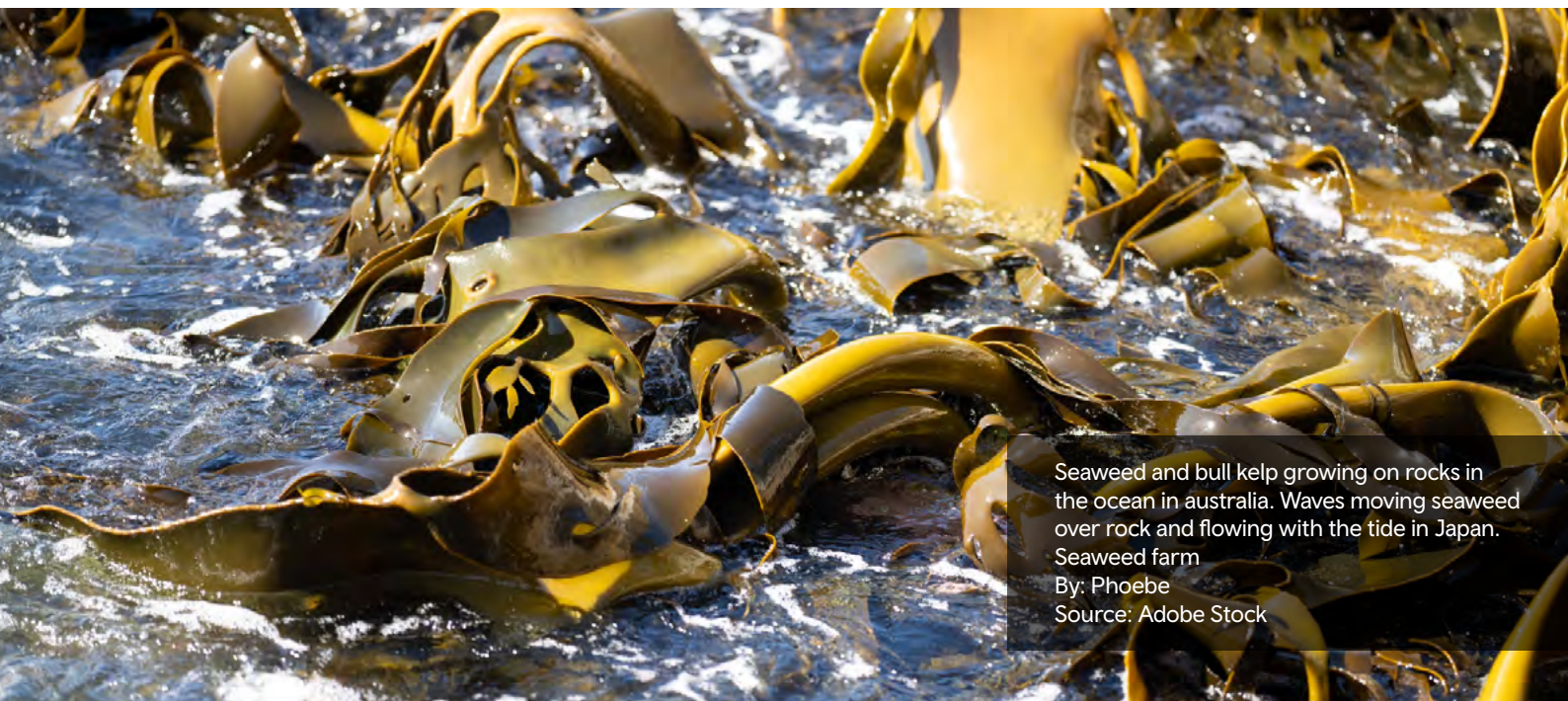
The protein content of seaweed differs based on the species. Brown seaweed dry weight protein ranges from 3%-15%, and green/red seaweeds protein content can range from 10%-47% (Gov UK, 2024). Natural Resources Wales¹⁰ provides guidance on the collection of seaweed for both personal and commercial use.

Câr y Môr

Câr y Môr is Wales' only licensed seaweed farm, pioneering regenerative ocean farming to produce sustainable, nutrient rich food ingredients. Operating as a community benefit society, they grow multiple species of seaweed alongside shellfish, supporting biodiversity while producing food with minimal environmental impact. Their approach demonstrates how seaweed can contribute to protein diversification while also delivering wider benefits, including local job creation, coastal regeneration and resilient food systems.

By supplying seaweed for food products and ingredients, Câr y Môr highlights the opportunity for Welsh producers to explore home grown, low input protein sources that align with sustainability, provenance and innovation.

 Website: <https://www.carymor.wales>



Seaweed and bull kelp growing on rocks in the ocean in australia. Waves moving seaweed over rock and flowing with the tide in Japan.
Seaweed farm
By: Phoebe
Source: Adobe Stock

Pembrokeshire Beach Food Company

The Pembrokeshire Beach Food Company is an established Welsh food business specialising in seaweed based foods, including laverbread, dulse and seaweed flakes. Building on Wales' long tradition of seaweed consumption the company demonstrates how traditional Welsh ingredients can be repositioned as contemporary, sustainable food products that meet growing consumer interest in natural and minimally processed alternatives.

Their success shows how seaweed can be used not only as a standalone product, but also as an ingredient within wider food ranges, offering producers flexibility to innovate while maintaining strong Welsh provenance.

 Website: <https://www.beachfood.co.uk>

Novel Protein

Future protein innovation is increasingly linked to health, healthy ageing and functional nutrition rather than plant-based meat alternatives. This creates opportunities for Wales to develop high-protein foods, functional ingredients and healthier convenience products aligned with growing demand for sports nutrition, satiety, preventative health and protein-enriched diets.

Insects

The most consumed edible insects in the UK include mealworms, crickets and black soldier fly larvae, which are being explored for use in protein powders, snack products and sustainable alternative protein applications. Insects are highly protein-rich, with crickets averaging around 60–70% protein, mealworms 50–60%, and black soldier fly larvae approximately 40–55%, depending on species, feed and processing methods.

The biggest challenge facing insect protein in the UK is consumer acceptance, often referred to as the “yuck factor” or food neophobia (reluctance to eat unfamiliar foods). Consumers are more receptive when insects are incorporated into familiar foods: 37% would try insect protein when ground into products such as bread, burgers or protein ingredients, compared with 60% unwilling to eat whole insects.

Although insect protein offers strong sustainability and circular economy potential, businesses operating within the insect sector face several significant commercial and operational challenges including competitive pricing, scaling potential, limited investor potential and novel food regulations.

Bug Farm Foods

Based in Pembrokeshire, have an innovative product range of cookies, cricket powder and whole crickets, giving customers versatile ways to explore insect-based protein.

 Website: <https://www.bugfarmfoods.com>

Algae biologists exploring new strains of microalgae for their nutritional and environmental benefits

By: basketman23

Source: Adobe Stock



Microalgae

Microalgae are microscopic, photosynthetic organisms found in freshwater and marine environments, different from macroalgae (seaweeds) as they are often cultivated in bioreactors or open ponds. Examples of Microalgae include Spirulina and Chlorella; these are typically anywhere from 50%-70% dry weight protein content. These can be processed into powders for supplements, protein concentrates/isolates and ingredients in various snacks, pastas and baked goods etc.

Researchers have demonstrated the technical feasibility of producing protein-rich microalgae at pilot and industrially relevant scales, wider commercial adoption will depend on reducing cultivation and harvesting costs, developing robust supply chains and securing regulatory pathways for food applications.

Lewtress Natural Health

Based in Llandysul and supply herbal supplements, including chlorella.

 Website: <https://www.lewtress.co.uk/>

Swansea University's Algal Research Group

SUARG is pioneering the production of protein-rich microalgae from agricultural, food and wastewater nutrient streams, creating sustainable alternatives to imported protein sources while supporting nutrient recovery, circular economy development and future food security.

Cellular Agriculture

Cellular Agriculture is an emerging food production system that uses cell culture, tissue engineering and precision fermentation technologies to produce food ingredients and agricultural products without conventional livestock farming. It includes cultivated meat, cultivated fat, dairy proteins, egg proteins and other functional ingredients produced at the cellular level. The Food Standards Agency are working on guidance that may allow cultivated meat to be sold for human consumption in the future. The link to the FSA guidance can be found here: [FSA and FSS publish first UK safety guidance on cell-cultivated products | Food Standards Agency](#).

The Cellular Agriculture Manufacturing Hub (CARMA) is an academic collaboration between several universities including Aberystwyth University, which aims to responsibly develop and integrate novel cellular agriculture tools and technologies into current food systems to deliver sustainable food manufacturing in the UK and beyond.

While cellular agriculture offers significant long-term sustainability and food security potential, current challenges remain around high production costs, energy demands and achieving scalable commercial manufacturing capable of competing with conventional food systems at mass-market prices.



Scientist in sterile gloves removes a cultivated protein sample from a laboratory bioreactor rack under clinical white lighting, lab-grown meat production, cellular agriculture innovation, food tech
By: Maksym Tereshchenko
Source: Adobe Stock

Alternative Proteins as Functional Ingredients

Alternative proteins are increasingly being used as functional ingredients within mainstream food manufacturing. Protein systems derived from plants, fungi, fermentation and marine sources are being incorporated into bakery, snacks, dairy alternatives, sports nutrition and convenience foods to support improved protein delivery, texture, satiety and nutritional functionality. Growing demand for high-protein, minimally processed and health-focused foods is driving interest in sustainable functional ingredients that can support healthy ageing, reformulation and resilient food systems. This creates opportunities for Welsh food businesses to explore oats, pulses, fungi proteins and fermentation systems as part of future ingredient innovation and sustainable food manufacturing.

CleoburyPM

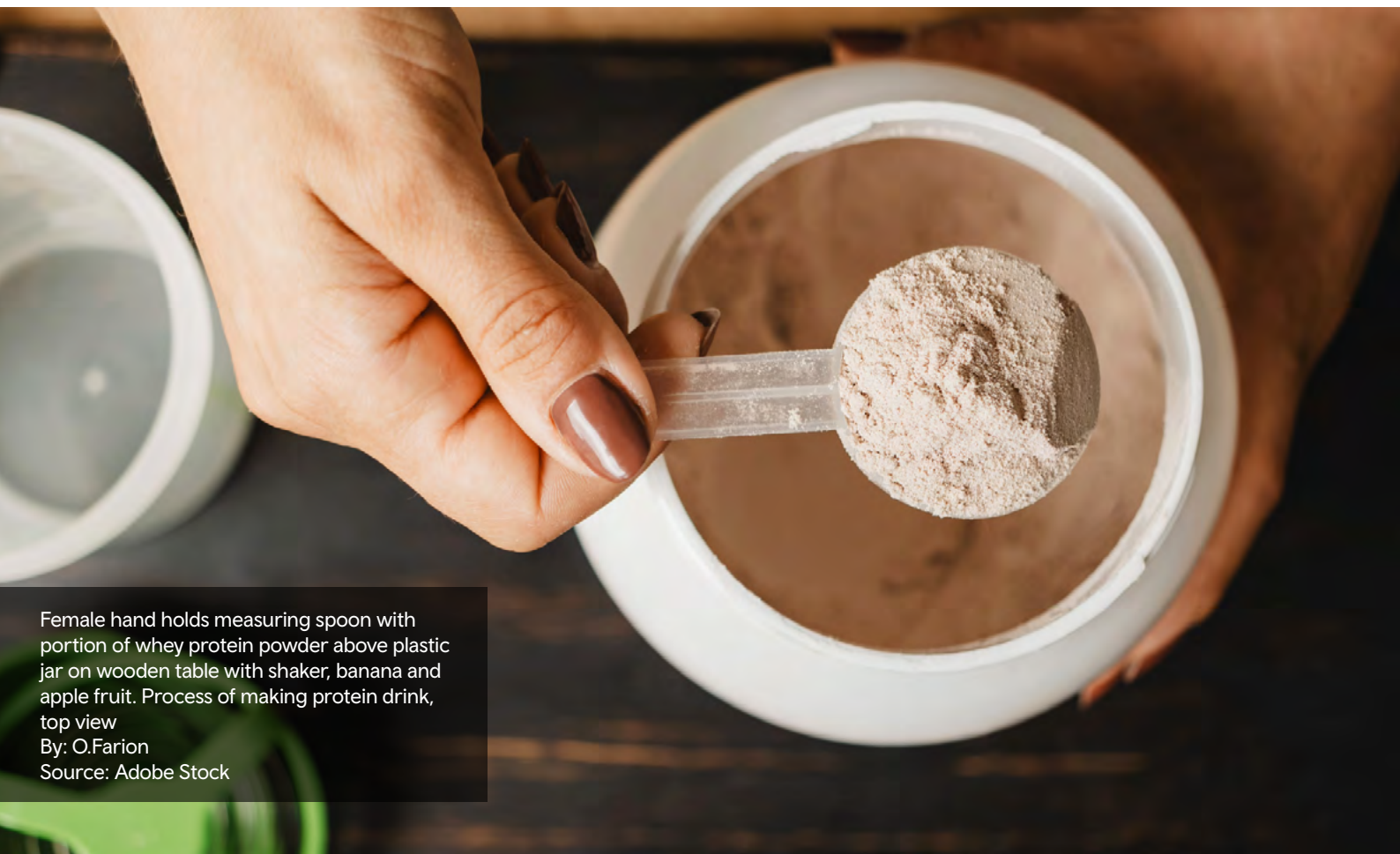
CleoburyPM is helping to unlock the potential of alternative proteins in Wales through innovative ingredient development and spray-drying technologies. Working with partners across the food and drink supply chain, the company is developing functional ingredients using hemp protein, mushrooms and plant-based materials for applications ranging from healthy ageing nutrition products to sustainable food manufacturing. By improving ingredient stability, shelf life and functionality through encapsulation technologies, CleoburyPM is supporting Welsh businesses to bring new alternative protein products to market while creating value from locally sourced and underutilised resources.

 Website: <https://www.cleoburypm.com/>

Arla Food Ingredients

Operates a single, centralised manufacturing and processing site located at Felinfach, specialising in processing large whey volumes for health and sports nutrition, producing whey protein isolate – a highly refined protein powder.

 Website: www.arlafoodsingredients.com



Female hand holds measuring spoon with portion of whey protein powder above plastic jar on wooden table with shaker, banana and apple fruit. Process of making protein drink, top view
By: O.Farion
Source: Adobe Stock

Summary

Alternative proteins represent a growing opportunity for Welsh food and drink businesses, driven by increasing consumer demand for sustainability, food security and high-protein products. While plant-based proteins currently dominate the market, emerging areas such as fungi, fermentation, seaweed, microalgae and cellular agriculture are creating new opportunities for innovation, higher-value manufacturing and ingredient development.

Wales is well positioned to benefit from this growth through its strong agricultural, marine and research capabilities.

Successful commercialisation requires businesses to address key challenges including consumer acceptance, affordability, taste, texture, scalability and regulatory compliance. Consumer research consistently demonstrates that taste and enjoyment remain the most important drivers of purchase, highlighting the need for product development to balance sustainability benefits with excellent eating experiences.

Through collaboration, innovation and investment, Wales can become a leader in sustainable protein diversification, creating new markets, supporting rural and coastal economies, strengthening domestic supply chains and developing future food products that meet evolving consumer and retailer demands.

Get in Touch

For further information and further enquiries, email us at:

SustainableFD@gov.wales



Lions mane mushroom on tree bark
By: Edwin Butter
Source: Adobe Stock

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