



Everything a journalist needs to know about **cultivated meat and ingredients**

A short handbook of key facts,
statistics and resources

Image: Parima

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01 What is cultivated meat?

Cultivated meat aims to deliver chicken, pork, beef and seafood that is indistinguishable from the meat we eat today. It's made from animal cells, which are cultivated in fermentors (like those used for brewing beer) and mixed with plant ingredients to produce familiar meat products. It's already available in Australia, Singapore and the United States, and European governments are investing in its development – but **how is it made, and why do we need it?**

Quick facts:



Singapore was the first country to approve the sale of cultivated meat to consumers in December 2020.

Since then, the United States and Australia have also [granted approval](#).



In July 2023, the **first regulatory application in Europe** was made to Swiss regulators by Aleph Farms, shortly followed by an application in the UK.



In July 2024, French startup Parima submitted the **first application to sell cultivated meat in the EU**. Dutch startup Mosa Meat has also applied to sell cultivated beef fat as an ingredient.



The **Dutch Government invested €60 million in 2022** to help establish an ecosystem for cultivated meat and precision fermentation.



The **UK's £12 million cultivated meat** and precision fermentation research hub is one of the world's largest publicly funded alternative protein research centres.



In May 2026, the **German government announced plans to invest up to €15 million** in an innovation hub for cultivated meat and precision fermentation under its High-Tech Agenda.

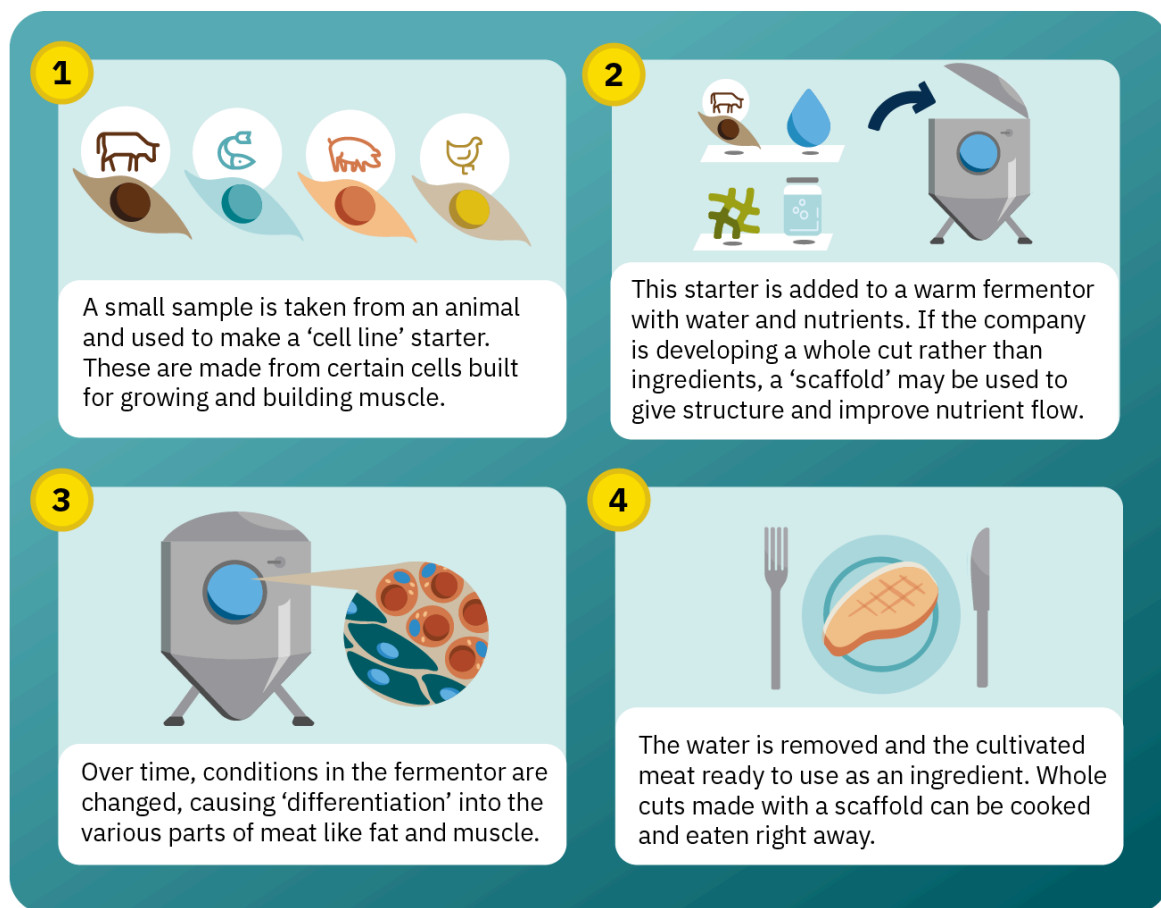
02 How is cultivated meat made?

In one sentence:

Cultivated meat aims to deliver chicken, pork, beef and seafood that is indistinguishable from the meat we eat today using fermentors (like those used for brewing beer) instead of by farming animals.

In a little more detail:

Cultivating meat is similar to growing plants from cuttings in a greenhouse, which provides the warmth, fertile soil, water and nutrients the cutting needs to grow. This process results in ground meat or animal fat, which can be mixed with plant-based ingredients to make final products that are indistinguishable from conventionally produced meat.



03 Why cultivate meat?

Environmental benefits

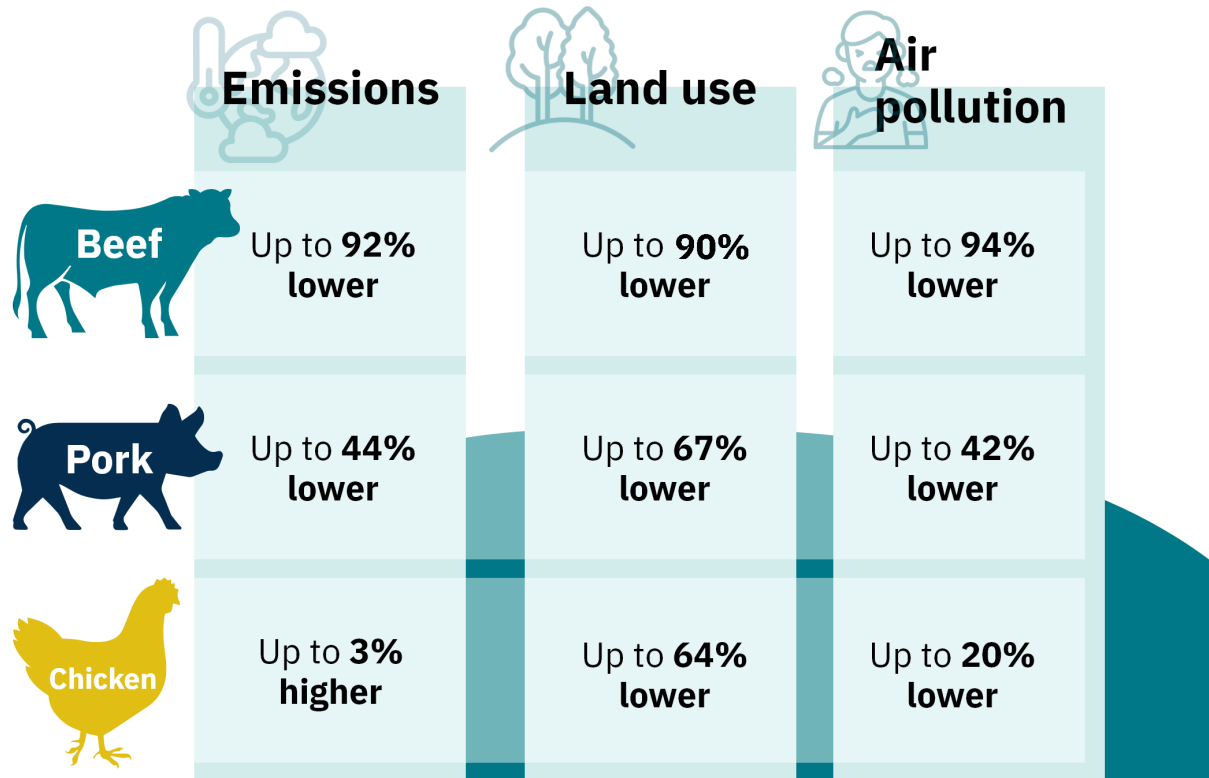
Because large-scale commercial production of cultivated meat doesn't yet exist, current analyses can only estimate the environmental impacts. However, most studies indicate that cultivated meat could reduce land use and climate impacts, assuming renewable energy is used in production.

A [life cycle analysis](#) (LCA) published in the International Journal of Lifecycle Assessment modelled what commercial-scale cultivated meat production might look like in 2030, drawing on data from more than 15 companies active in the industry and its supply chain. It suggests that cultivated meat made with renewable energy could cut climate impacts by up to 92%, reduce air pollution by up to 94%, and use up to 90% less land compared with animal agriculture.

A [2026 study](#) based on primary process data from a pilot facility, scaled to a planned industrial plant, found that cultivated meat's carbon footprint was comparable to conventional European chicken. On a combined measure of 16 environmental impacts, its best-case scenario scored around 35% below chicken, 57% below pork and 63% below dairy beef.

The [first LCA of cultivated seafood](#), using primary pilot data to model commercial-scale hybrid products (30% cultivated cells, 70% plant-based proteins/oils), found that their carbon footprints were at least 43% lower than conventional seafood, and that they used less land than farmed seafood products. The hybrid products used more freshwater than conventional seafood, but less than farmed salmon.

One [study](#) has received widespread attention for estimating that cultivated meat could have a significantly higher environmental impact than conventional beef, based on an assumption that pharmaceutical-grade inputs would be used. However, this approach is [not feasible at commercial scale](#) due to prohibitive costs.



Source: Sinke, P. et al. Int J Life Cycle Assess 28, 234–254 (2023). Figures compared to optimistic projections of conventional animal agriculture emissions by 2030. Assumes all systems use renewable energy sources.

Food security

Enhancing food security is a priority across Europe, as war, climate shocks and supply chain vulnerabilities drive inflation and food shortages. And yet, Europe feeds [over 45% of the crops it grows](#) to animals, and imports [over 25 million tonnes](#) of soy for animal feed each year.

Research suggests cultivated meat could be [up to 5.8 times more efficient](#) at converting feed into meat – so it could help to reduce Europe’s reliance on imported soy, feeding more people with fewer resources. It also suggests cultivated meat could require up to [90% less land](#) than conventional beef, which means it could help to satisfy demand for meat while reducing pressure on existing farmland and avoiding deforestation.

Europe is the world’s [largest importer of seafood](#). Cultivated seafood can help to meet this demand locally – even in landlocked countries.

Green growth

With supportive policies and sustained investment, [research suggests](#) the cultivated meat and ingredients sector could contribute between €14 billion and €50 billion a year to the EU economy by 2050, depending on the level of policy ambition, and support 50,000-184,000 jobs. To achieve this, both the public and private sectors would need to invest significant sums in research and development to overcome existing challenges.

Public health benefits

Making meat with a better nutritional profile. Cultivated ingredients offer the opportunity to improve the nutritional profile of conventional meat. The Spanish government [has funded research](#) aiming to develop cultivated meat that is healthier than conventional meat to reduce the rates of pressing health issues in Spain associated with red and processed meat consumption, such as high cholesterol and colon cancer.

Making meat without antibiotics. All animals get sick, particularly those raised in intensive conditions, so many farm animals are routinely given antibiotics either as a treatment or as a preventative measure if a disease begins circulating. Because of this – by volume – [more antibiotics are consumed by farm animals than by people in Europe](#), although there are notable [differences between](#) countries, and some places have seen considerable reductions in recent years. These antibiotics are often [excreted by the animals](#), posing a risk of environmental contamination (especially in contexts like fish farms where animals live in direct contact with the wild environment). This pollution [has been shown to](#) lead to a greater prevalence of antibiotic-resistant bacteria within the environment at large. Cultivated meat [can be made without antibiotics](#), so it could help to satisfy growing global demand for meat without further undermining these lifesaving medicines.

Making meat without driving pandemic risk. In Europe, [90% of chickens](#) and [75% of pigs](#) are intensively farmed, creating hotspots for animal pandemics such as African Swine Fever and Bird Flu. [These diseases pose a major risk to public health if they can jump to humans](#). Cultivated ingredients circumvent this problem entirely.

Making meat free of foodborne illness. Cultivated ingredients are made in environments free of disease-causing bacteria such as campylobacter and salmonella, reducing the risk of food poisoning and cross-contamination, which affect [hundreds of thousands](#) of Europeans per year.

Nature and sustainable farming

European leaders have set ambitious targets for expanding organic farming and restoring natural habitats to ensure food production works hand in hand with nature – but we can't make space for this without changing how we produce meat.

[Research suggests](#) that diversifying protein production, including by investing in cultivated meat, could enable 21% of European domestic farmland to transition to agroecological farming, or be used to boost domestic food production or restore natural habitats.

Animal agriculture is the [biggest driver](#) of deforestation, and global demand for meat is only increasing. Cultivated meat could use up to [90% less land](#), helping to satisfy demand while creating space for nature.

Animal welfare

Cultivated meat starts with a small cell sample from an animal, taken through a harmless procedure. These few cells can be multiplied over and over, producing huge quantities of meat or ingredients without harming animals.

04 Cultivated meat in Europe

The cultivated meat ecosystem in Europe is diverse and widespread, comprising **dozens of companies**.



How Europe can realise the potential of cultivated meat

The cultivated meat field remains at an early stage. To realise its potential to create local jobs and contribute to a resilient and diversified food supply, European governments must:



Invest in open-access research

Public sector investment in open-access research can address foundational issues and ensure advancements benefit the entire field, rather than just one company.



Increase regulatory transparency

European food safety regulations are the most robust in the world, and those standards must be upheld for cultivated meat and ingredients. But transparency and guidance from regulators can prevent unnecessary delays.

05 Frequently asked questions

When will cultivated meat be available in Europe?

The first cultivated products to become widely available in Europe are likely to be ingredients like cultivated fat, which can enhance the flavour of plant-based meat, or products containing small quantities of cultivated meat cells.

Since mid-2023, several companies have submitted applications to sell cultivated meat and ingredients in the EU, Switzerland and the UK. Regulators are now undertaking thorough and evidence-based assessments of the safety and nutritional value of cultivated meat, and in practice the [approval processes](#) can take several years from first submission to final authorisation.

Cultivated meat products have already been approved for sale in Singapore, the United States and Australia, so the fact that it has passed rigorous approval processes in those countries suggests it can play a role in a safe and sustainable future for Europe's food system. However, cultivated meat remains at an early stage in its development, and still requires significant investment from governments into research and infrastructure to support product development and scale-up before products with cultivated ingredients become widely available, and before 100% cultivated meat products become a reality.

Why call it “cultivated meat” rather than “lab-grown meat”?

GFI uses the term “cultivated meat” because it is grown in cultivators, which provide the warmth and nutrients cells need to become functional ingredients.

Many terms have been used to describe this food – from “slaughter-free meat” to “cultured meat” and “lab-grown meat”. “Lab-grown meat” is an especially misleading term. At scale, cultivated ingredients are produced in cultivators, in a facility similar to a brewery. All sorts of food, from beer to bread, begins in a food lab – but we don't call cornflakes “lab-created cornflakes”. “Synthetic meat” is also incorrect, as cultivated meat is made from real animal cells.

[Research conducted by Opinium](#) highlighted the importance of accurate labelling to reduce confusion and allergen risks.

Will people eat cultivated meat?

[YouGov surveys](#) of consumers in 15 countries suggest between 35% and 63% of Europeans are already interested in trying cultivated meat.

[Earlier research](#) suggests a majority of consumers in France, Germany, Italy and Spain want to see alternatives to conventional animal agriculture developed.

Products made using cultivated ingredients are not yet available in Europe, so the industry has a long way to go before all those who are interested can try them. Even if just 10% of Europeans ultimately adopted cultivated meat, this could make an important contribution to protein diversification.

What are the biggest challenges for the cultivated meat sector?

To achieve its full potential, cultivated meat needs to match conventionally produced meat on taste, price and convenience – so researchers and companies are improving processes, scaling up production and bringing down costs.

Government investment in open-access research is crucial for overcoming the key technical barriers companies currently face, and accelerating progress by ensuring key breakthroughs can be exploited by the entire sector – not just the first companies to achieve them.

Priority challenges include reducing cell culture media costs, increasing cell line availability, improving scaffolding and building larger cultivators.

Italy has passed a ban on cultivated meat – what do you say to that?

This law shuts down the economic potential of this nascent field in Italy, holding back scientific progress and climate mitigation efforts, and limiting consumer choice. It [prevents Italian scientists from undertaking crucial work](#), and Italian cultivated meat startups from existing at all. And it could prevent the [54% of Italians](#) who already want to try cultivated meat from doing so.

Nobody wants to be told what they can and can't eat. If cultivated meat is approved by the EU, it should be up to consumers to decide whether or not they want to eat it.

How will cultivated meat affect farmers?

Europe's farmers are facing a number of pressing problems, but [research by the UK's Royal Agricultural University \(RAU\) suggests](#) they don't think cultivated meat will be one of them

anytime soon. Increasingly erratic weather, price pressures driven by rising prices of fuel and feed and the intensification of the meat sector are all of greater concern for family farms than cultivated meat.

Nevertheless, it is very important for cultivated meat researchers, startups and policymakers to work with farmers to help them seize the opportunities of diversifying Europe's protein supply. While the RAU's research found that many farmers were understandably cautious about this emerging sector, they were also interested in potential collaboration, through both sourcing starter cells and producing the required inputs for cell culture medium. More research like this on how the two sectors can work together will be of growing importance as cultivated meat develops.

What is in the growth medium used for cultivated meat?

Cells need water, proteins, carbohydrates, fats, vitamins and minerals and grow – so they are fed a solution that provides all of these nutrients, usually sourced from plants. This can be made from a multitude of sources – even agricultural products that would otherwise go to waste.

Some initial methods of cultivating meat used byproducts from slaughter in the production of conventional meat such as foetal bovine serum (FBS). However, this is becoming increasingly rare and most cultivated meat startups in Europe use entirely plant-based media. Aside from animal welfare concerns, FBS is expensive and batches are inconsistent, so it is not suitable for use in commercial-scale production of cultivated meat.

For more on this topic, check out our [deep dive on the science of cell culture media](#).

For more answers to frequently asked questions, check out our [web page](#).

06 Resources

Interested in learning more or need resources to help communicate about cultivated meat and ingredients? Check out the resources below.

Illustrate your story

- [Library of free-to-use photos of real cultivated meat](#)
- [Toolkit of graphs and visualisations showing the key stats](#)

The sector

- [Latest GFI Cultivated Meat, Seafood and Ingredients State of the Industry report](#)
- [Company database](#)
- [European consumer research](#)

The science

- [Guide to the science of cultivated meat](#)
- [Life cycle assessment of cultivated meat's environmental impacts](#)
- [How cultivated meat can help fight antibiotic resistance](#)

The policy

- [Latest GFI State of Global Policy report](#)
- [Key takeaways from the FAO's report on cultivated meat safety](#)

07 Contacts and experts

GFI Europe experts

[The Good Food Institute Europe](#) 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 foods, cultivated meat and fermentation – making these options delicious, affordable and accessible across Europe.

To speak to our experts, contact our communications team at europe-media@gfi.org.

		
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