

The Big Read **Food diet**

## Have we reached 'peak meat'?

Slowing consumption of beef and pork has been exacerbated by health scares and environmental concerns

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Smithfield prides itself on being the oldest and biggest meat market in the UK. Even in the Middle Ages, it was used as a livestock market. But the 800-year old institution in the City of London recently found itself on the frontline of the fight over [the future of meat](#) after it was invaded by protesters who strung a banner across the front of the building, renaming it “Smithfield Fruit and Vegetable Market”.

“Veganism is the future,” declared Cristiano Vitelli, a chef serving vegan fare to the protesters from [Extinction Rebellion](#). “It is like cigarettes; if you find a cigarette that is not going to harm you, you will definitely try it. So it is the same with meat and dairy.”

If the location of the conversation was unusual the message is becoming familiar, especially in developed countries where meat consumption shows signs of having peaked amid health scares and environmental and sustainability concerns. It has enormous implications for the planet, the \$1.2tn livestock meat market and individual traders.

Just weeks after the activists' stunt, Smithfield's [PJ Martinelli](#) became the first vendor in the market to stock a plant-based meat substitute, offering burgers made from ingredients including soyabeans and peas from UK based start-up Moving Mountains.



Meat alternatives: packages of Impossible Burger and Beyond Meat on a shelf for sale in November 15 in New York © Angela Weiss/AFP/Getty

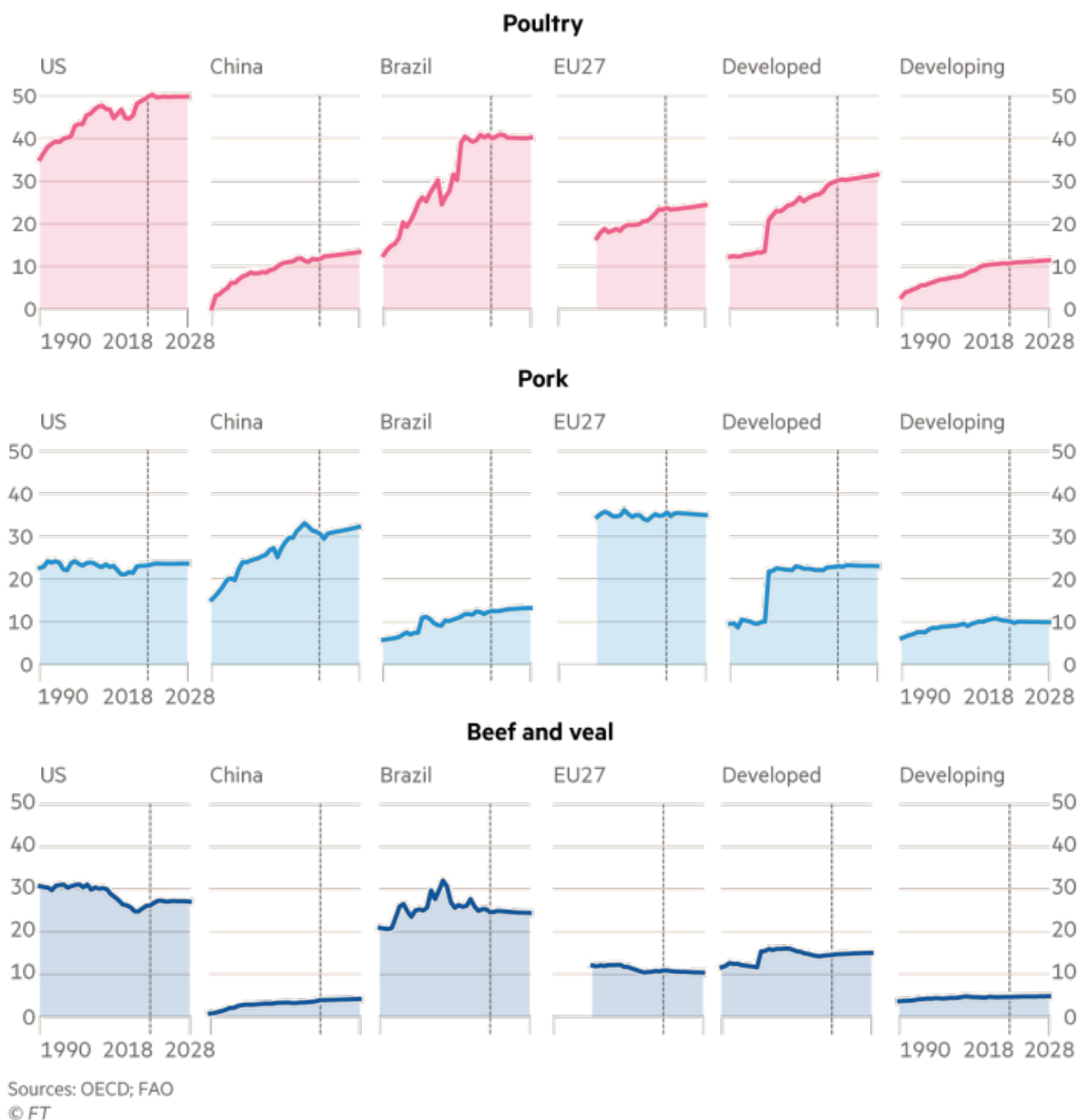
“I see it as a natural development in the food industry,” says Paul Martinelli, managing director of the meat supplier that has been working out of Smithfield since the 1980s. “There is a lot of interest in the product and our clients are asking us about it. They may choose to do it more in January and February than in the run-up to Christmas but we are having the discussions.”

Sales of [plant-based meat](#) substitutes are still minuscule compared with the real thing. In the US, in 2018-19 total sales of about \$800m pale in comparison with a meat market worth \$74bn, according to the Good Food Institute, a consulting group, but they are rapidly growing. The trend highlights the challenge facing the meat industry: in the US and Europe consumers may not all be [turning vegan](#) but many are eating less meat and boosting the fortunes of alternative protein providers such as Impossible Foods and Beyond Meats.

Consumption of beef and pork has stopped growing in the US and Europe while vegan and vegetarian foods command larger sections of supermarket shelves. Research from Whole Foods Market in the UK shows that about 15 per cent of the Christmas dinners served in the country this week were meat-free.

## Has the world reached peak meat consumption?

Consumption per capita (kg per year)



Food companies and restaurants are responding with new launches of meat free foods, while meat processors such as Tyson Foods and Maple Leaf and multinationals such as Nestlé and Unilever have introduced their [own alternative proteins](#). Burger King is offering customers plant-based Whoppers while McDonald’s is trialling vegan burger options.

With meat consumption — especially beef — increasingly seen as a contributory factor to carbon emissions, deforestation and high water usage, a key question among food experts, environmentalists and agricultural economists is when “peak meat” — where consumption hits a ceiling — will be reached.

“Growth is slowing considerably in the OECD area. We are coming closer to peak meat [in some of those countries]” says Josef Schmidhuber, deputy director of the UN Food and Agricultural Organisation’s trade and markets division. “In India and Latin America, don’t expect rapid growth [either]. Also in Africa, consumption growth has not been as rapid as we thought. Even for poultry consumption, future growth will be below past rates, in parts considerably so.”

**The US, which is still the biggest consumer** of meat per capita, is forecast to hit a high point in 2020 at just over 100kg per year, according to OECD data. This is then predicted to plateau over the next decade. The trend is estimated to be similar for the EU, where consumers ate 71kg of meat per person last year.

This drop has been largely blamed on studies linking eating too much meat with everything from cancer to strokes and heart disease. But more recently, the climate impact of livestock farming, partly through increased methane emissions, has come under the spotlight. According to the latest report from the UN Intergovernmental Panel on Climate Change, livestock, including its land and energy use as well as transportation, accounts for around 10 per cent of total global carbon emissions.

The [EAT-Lancet Commission](#) provided scientific targets in January for a healthier diet that would be good both for the individual and the planet. Its report, commissioned by the medical journal Lancet and non-governmental organisation Eat Forum, called for a cut of more than 50 per cent cut in foods such as red meat and sugar while increasing the intake of nuts, fruits, vegetables and legumes.

In terms of environmental and health impacts, “processed red meat is lose-lose, while vegetables are win-win,” says Michael Clark, researcher at the Oxford Martin Programme on the Future of Food and co-author of the EAT-Lancet report. In a [recent study](#), he and his colleagues plotted links between various foods and diseases and mortality as well as emissions and water use, showing red meat and processed red meat as having the biggest impacts. The intention is not to demonise red meat but to encourage consumers to adjust their diets, says Mr Clark.



A worker checks a side of British beef at Smithfield Market in London © David Rose/Bloomberg

These concerns are also playing out among investors, with pension funds and other institutions looking closely at the risk to food companies.

“Animal agriculture is a huge part of the global carbon footprint. We are coming to a turning point where companies [and] investors understand the importance of carbon emissions,” says Peter van der Werf, engagement specialist, at Dutch asset manager Robeco, which has about €200bn of assets under management. “I won’t go as far as saying [meat is comparable to coal], but you do see a parallel in that they share a high carbon footprint which has become a liability for their business models.”

Despite the growing awareness about the impact of meat among consumers in the west, this trend will have a slower impact on emerging markets.

Barry Popkin, professor of nutrition at the University of North Carolina, an expert on how eating habits shift with economic and societal changes, doubts that meat will lose its status as a symbol of wealth and prosperity in developing countries any time soon. “I don’t hear climate and food talked about at all in Asia and Africa,” says Prof Popkin, an adviser to several governments including China, India and Mexico. “It’s a long way before it reaches enough people [around the world] to have an impact.”

**One country that will make a profound difference** to global meat consumption is China: the world's most populous nation accounts for almost a third of the total meat eaten, even if per capita consumption is under half that of the US.

A [2018 report](#) from the OECD/FAO suggests that the [country's demand for meat](#) will continue to grow, but that growth is expected to slow considerably over growing health concerns, including high obesity levels and a peak in the country's population before 2030.

China's state-backed national nutrition association in 2016 recommended a per person maximum of 27.3kg of meat consumption per year, about half current average levels. And while environmental concerns may not be at the forefront of the concerns of the urban elite in China, awareness about the [link between diet and health](#) is increasing.



People try to buy discounted pork this month at a new supermarket in Binzhou, in China's eastern Shandong Province. Pork prices in China have doubled this year following an outbreak of African swine fever © AFP/Getty

[African swine fever](#) — a deadly virus wiping out pig populations in China and south-east Asia — is making pork scarce for Chinese consumers. But even before the outbreak, consumption had been levelling off. The country saw “peak pork” in 2014, at around 40kg per capita, as consumers began to diversify their protein intake to other meats and fish.

Anecdotally, pork lost its allure for many Chinese families as it became more readily available and they moved from being able to afford it once every two-three days to every day.

Yet it might not be demand that ultimately determines when meat consumption peaks, say analysts. Limited by land and water usage as well as climate change, production of meat from animals as well as the crops that feed livestock cannot go on indefinitely, says Bahige El-Rayes, a partner at consultancy AT Kearney.

“Production of meat from slaughtered animals is set to peak,” he says, adding: “The only way to satisfy demand is alternative supplies [of protein].” Many food and agritech specialists share his view that substitutes made from alternative sources, including plant proteins, cell-based meat which is grown from animal cells, [insects](#) and [microbials](#), are expected to meet the increasing demand.

David Yeung, the co-founder of Green Common, a Hong Kong-based retailer of plant based food, is one of those trying to exploit that shift. He says a wide range of leading restaurants in Hong Kong, Singapore and Taiwan and food service groups across Asia now use [Omnipork](#), a plant-based substitute produced by his company. Its product was launched in mainland China last month.

“The [Chinese food groups’] costs have gone up astronomically,” says Mr Leung. “That cost can’t be transferred to customers. You can’t double the price of a dish. They have no choice but to look at alternative proteins.”

In the longer term, the swine fever outbreak could also taint Chinese attitudes to industrial-scale livestock production, including the widespread overuse of antibiotics and hormones, say food executives. “As people become more concerned about antibiotic resistance, they will be moving to where there isn’t a risk,” says Darian McBain, head of sustainability at Thai Union, one of the world’s largest seafood companies. “[African swine fever] could be a trigger of what happens in China.”

It is still early days. Cell-based meat might take another five years before it is available to ordinary shoppers and its viability remains untested. Some food specialists and health experts question the proclaimed benefits of highly processed plant-based meat.

But some predict that within a generation the market for meat will look very different. Meat from livestock, which is currently part of a regular meal for many, will become a niche product as resources become scarce,” says Mr El-Rayes. Instead conventional meat produced at high standards will become a luxury food. “Eating meat in 2040 will be a luxury,” he adds. “It will be a premium product, at a much higher price.”

*Additional reporting by Xueqiao Wang in Shanghai*

Letters in response to this column:

[\*We must eat less meat but it doesn't follow that we need lab-grown proteins / From David A McM Wilson, Aberedw, Powys, UK\*](#)

[\*Pasture and ruminants will heal the soil / From John Meadley, Hon President, Pasture-fed Livestock Association\*](#)

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