

The Big Read Agriculture

Big Meat: facing up to the demands for sustainability

Consumers and investors are looking at the environmental damage the industry has done and calling for change

Emiko Terazono in London 3 HOURS AGO

These are frustrating times for Josie Angus. Sitting in her cattle station in the Australian outback, the 46 year-old — the latest of four generations to run a family company producing premium beef — feels that [the livestock industry](#) is being demonised.

“[Farmers] have lost control of the narrative to those who are extremely loud,” says Mrs Angus who, with her husband and four children, raises 35,000 head of cattle on more than 160,000 hectares of land — an area slightly larger than Greater London — in Queensland.

As the effects of the earth’s [warming temperatures](#) become more pronounced, climate change campaigners and investors are responding to the growing demand especially from young people, broadening their approach from the damage caused by fossil fuels to other industries, especially the greenhouse gas emissions attributed to the [meat and dairy industries](#). Amid growing pressure against the meat industry, some of Mrs Angus' own peers have called for the need of a “social licence to operate”, another source of her anger.



Josie Angus's cattle station in Queensland where her family has raised livestock for four generations © Josie Angus
Repudiating the slew of official sustainability reports on the meat and dairy industries as apologies to “virtue signallers”, she argues that it is farmers who are best placed to understand the synergies between animals and land. Kangaroos, wallabies and emu roam her land, where eucalyptus and acacia trees grow. “Our climate has always changed. Responding to climate and weather are part of our day jobs.”

[Meat producers](#), which play a key role in the \$1.4tn global industry, buying from the farmers and slaughtering and processing animals, are also facing calls by consumers and investors for more transparency.

Ancestors of modern humans have been eating animals for millions of years. In the postwar era industrialisation and higher disposable incomes in developed nations boosted meat consumption. But in less than two decades the spectre of environmental damage has thrown a spotlight on the industry which its participants were ill-prepared for.

The emissions case against the livestock industry took root after publication of a 2006 report by the UN Food and Agriculture Organization.



Climate change protesters in Madrid, December 2019. Calls for the meat and dairy industry to curb its emissions, a cause of global warming, are beginning to be heard by investors © Gabriel Bouys/AFP via Getty Images

“[Livestock’s Long Shadow](#)” initially estimated that the GHG emissions produced by the industry were greater than that of the whole transport sector. But after [criticism](#) that the UN body had included both direct and indirect emissions for livestock compared with just the direct emissions data for transport, it settled on a figure of 5 per cent of global emissions, below transport’s contribution of 14 per cent.

For livestock’s “lifecycle” emissions — the end-to-end process of growing the feed to bringing it to the table — there is no direct transport comparison, [FAO analysts said](#). Nevertheless, the idea the industry is as damaging as the energy sector has led to comparisons between emissions from [a burger](#) and those from a flight, and meat companies to the oil majors.

“Initially it was a big concern. Then as you understood what was going on, it became a big frustration,” says Stuart Roberts, a UK farmer who grows crops and raises livestock in the southern county of Kent. At issue is not just how the data is measured but also the source of livestock emissions, he adds.



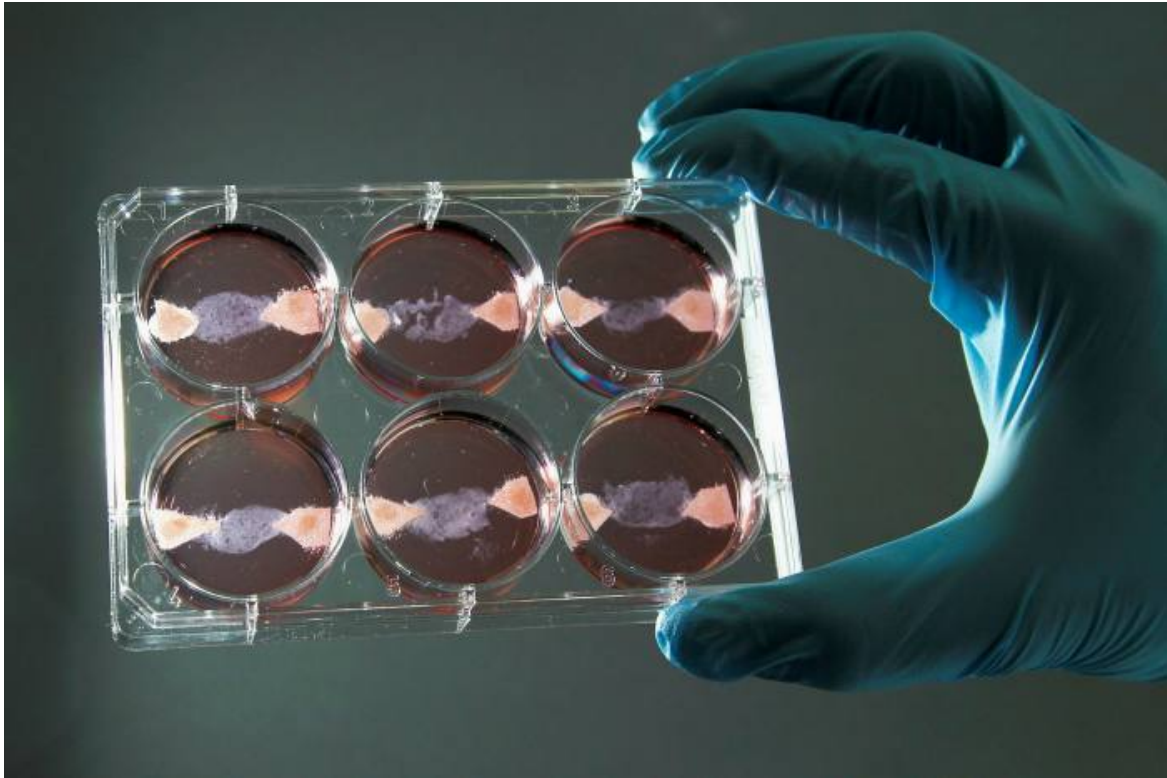
Para state, Brazil. JBS, the world's largest meat producer, is among the Brazilian companies under scrutiny over accusations about their links to deforestation of the Amazon © Joao Laet/AFP via Getty Images

Developed countries account for less than a third of global GHG emissions from cattle and sheep. According to [a 2019 report](#) by another UN body, the Intergovernmental Panel on Climate Change, low and middle income countries contribute 70 per cent of emissions from “ruminants” like cows, and 53 per cent from other animals such as pigs and chickens.

The case against meat has continued with research published in the [Eat-Lancet report](#), commissioned by the medical journal Lancet and non-governmental organisation Eat Forum, recommending a diet high in plant-based food and low on animal protein as a way to help the environment and human health, a view backed by the IPCC.

At a time when many governments are committing to net-zero emissions by 2050 and the US is set to [rejoin the Paris climate agreement](#), the pressure is only going to increase, environmental experts say.

“We’re not going to get rid of meat from our diets,” says Carole Ferguson from CDP, a non-profit group that tracks corporate climate disclosure. “But there has to be a certain acceptance that we have to cut back on the amount that consumers eat.”



It is seven years since the world's first lab-grown burger was introduced but many countries are yet to receive regulatory approval to market it from national authorities © Francois Lenoir/Reuters

‘Stranded assets’

Institutional investors are also taking notice. As with the oil and gas sector, the debate is turning to risks caused by climate change with livestock rearing and processing assets becoming less viable as the earth warms up.

Teni Ekundare at the Fairr Initiative, an investor advisory and research network focused on sustainable protein production whose members manage \$27tn worth of assets, says more investors are now concerned about the [risks for food production linked to climate change](#). “Unless things are done, there is a risk that [the meat industry] becomes the next oil and gas with stranded assets,” she says.

Many of the world’s biggest meat companies have been slow to respond. According to Fairr’s annual survey of the 60 largest listed protein companies, including meat and fish groups, three out of four have not declared or put in place reduction targets set according to scientific guidelines for emissions. Indeed, in the year to November 2020, more than a third reported a rise in emissions.

Now in its third year, the survey shows signs that a few of the large meat companies such as Canada's Maple Leaf and Tyson Foods, the largest meat company in the US, are addressing climate risks. The number of companies committing to tougher “science-based” targets on emission reduction has increased from two a year ago, to seven, while a quarter are disclosing “scope 3” emissions that cover their supply chain, as well as direct ones.

For [investors focused on sustainability](#), the risks around the meat sector mean lower internal valuations. “The sector’s valuation gets marked down due to meat as a source of environmental damage as well as being heavily impacted by climate change,” says Peter van der Werf, at asset manager Robeco. “Deforestation puts a discount on their fair value which we incorporate in our assessment.”

Mr van der Werf says he has noticed a change in attitudes among companies, some of whom had initially denied any link between environmental issues and the industry’s performance. “They have faced outside pressure from consumers and they are having to create an answer for the negative impacts that meat has,” he says.

JBS, the world's largest meat producer, is among the Brazilian companies under particular scrutiny over accusations about their links to the [deforestation of the Amazon](#) to make way for grazing and feed crops. As a result, some investors have placed meat alongside fossil fuels on their investment exclusion list. But companies have started to respond, says Mr van der Werf.

“I think in general there is a realisation that [climate change] could be a real threat to the industry,” says Timothy Griffin, associate professor in nutrition, agriculture and sustainable food systems at Tufts University in the US. “That’s not the same as having a plan. But you can’t get to a plan unless people say this is real.”

‘Oil industry got it wrong’

John R Tyson is an exemplar of the shift in the industry. The 30-year-old Harvard- and Stanford- educated, billionaire scion — who like Mrs Angus is a [fourth-generation member of the meat industry](#) — in 2019 became the sustainability officer for Tyson Foods.

“The nature of sustainability investments is that they have a longer time horizon than the one to three, [or] five-year periods we might look at in our typical budgeting and capital planning processes,” he says.

The company is a frontrunner in the meat sector for setting science-based environmental targets and working with NGOs on deforestation.



Ido Savir, founded Israeli start-up SuperMeat five years ago to produce and sell ‘cell-based’ chicken as an alternative to animal protein © Ilia Yechimovich/dpa/Alamy

“This is how we run our business: thinking about the long term, decades in the future, because there’s a great balance to be struck between investing in ‘what is right’ and what is profitable today,” he adds. “And from an investor lens, preserving long-term enterprise value by setting ourselves up for the future.”

Robbie Miles, a fund manager overseeing sustainable food investments at Allianz, says: “The oil industry got it wrong, obfuscating the science,” and “not embracing change that needed to happen”.

In the near term, the meat industry does not face an existential threat, but it will need to spend more money to become environmentally and socially sustainable, he adds. Meat companies, not known for their openness, also need to communicate their efforts “to avoid becoming pariahs”, he says.

“We’re clearly in the centre of public attention and Covid has accelerated that,” says Brian Sikes, chief risk officer at Cargill, the food commodities group and meat producer. “The more transparent we become, the more we tell our story, the more we let people in and do what we do.”

Facial recognition for pigs

In the town of Ness Ziona, 20 minutes drive from Tel Aviv, Ido Savir is waiting for Israel’s lockdown to end so he can serve his lab-grown chicken burgers at his eatery The Chicken. The former software engineer co-founded [SuperMeat, a “cell-based” chicken start-up](#), five years ago, working with biological engineers to create meat from cells in bioreactors which look like brewing vats.

“The animal meat industry is not very efficient. It’s a burden on the environment and is more segmented than other types of food systems,” says Mr Savir.

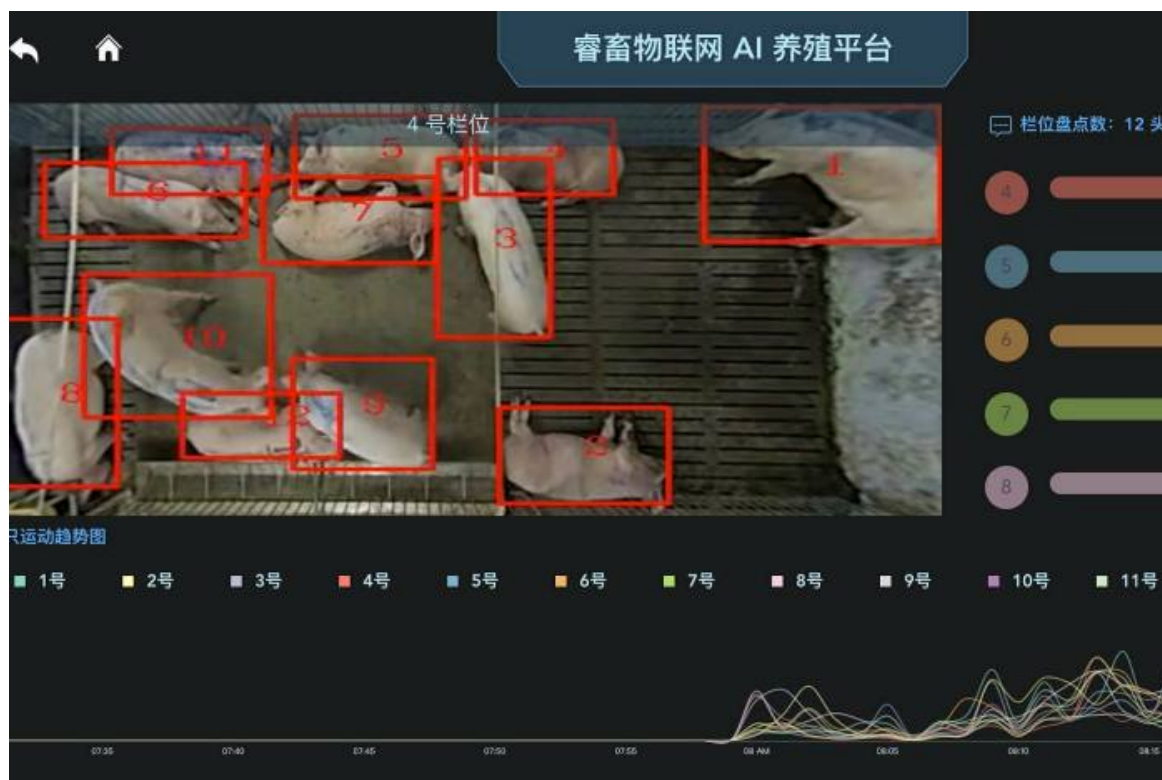


Some estimate the ‘lifecycle’ emissions that go into a burger are broadly equivalent to taking a flight © Adam Berry/Getty Images

It is seven years since the world's first lab-grown burger was introduced. Yet Singaporean food authorities in December became [the first in the world to give regulatory approval](#) to so-called “cultured” chicken. In Israel those trying SuperMeat's vat-to-plate chicken will need to sign a waiver of any risks as the product has yet to receive regulatory approval from the country's authorities.

Cultured meat is the next iteration of the “alternative protein” sector, an arena where meat substitutes made from soyabean, pea and other plant proteins are forging the way. According to Fairr, the number of companies in its annual survey which have invested or have targets to grow alternative proteins has jumped more than fourfold since 2018 to 22.

Cargill is among those investing in the sector, including cultured meat and a pea protein start-up, which supplies plant-based foodmakers. “We think about it as the centre of the plate . . . we think we should be able to provide [protein] to consumers, whether that's plant-based, cell-based, insect-based or traditional animal agriculture-based,” says Mr Sikes.



Technology is changing the way people rear meat. Some Chinese pig growers are using facial recognition to monitor the health of their animals © SmartAHC

From more robots on the processing lines, to sensors and artificial intelligence in the animal rearing process, as well as feed additives to reduce emissions, technology will play a bigger role in the meat industry in other ways too, say experts. The [supply chain](#), especially for industrial-scale livestock farming, will look different in the future, they say.

In China, for example, some technology focused pig growers are using [facial recognition](#) to monitor each pig and its well being, while Brazil's JBS, has pledged to [use blockchain](#) technology to ensure traceability of its cattle and meat after facing accusations of "cattle laundering" — where animals from illegally deforested land are brought to legitimate cattle ranches that supply meat companies.

While technology is not the panacea to all the industry's ills, it can help restore consumer confidence, says Peer Ederer, director of the Global Food and Agribusiness Network, a research and consulting organisation which advises food companies, including meat and alternative protein groups.

Having an industrialised approach to animal rearing is not contradictory to having ecological and ethical operations, says Mr Ederer. Technology will be able to show consumers that, "the animal has had a positive impact on the biosphere, [been] treated well, and slaughtered humanely in such a way that they didn't suffer, and [was] processed right", he adds.

Farming the future

[Patrick Brown](#), founder and chief executive of [plant-based meat start-up Impossible Foods](#), has said he wants to see animals eliminated from the food supply chain within 15 years. Other alternative protein entrepreneurs see a more diverse future.

With the global population forecast to increase by a quarter to almost 10bn people by 2050, pushing up demand for protein, the world is going to need various sources, ranging from animals to cultured meat made in bioreactors to plant-based substitutes, says Alan Hahn, chief executive of MycoTechnology, a Colorado start-up making flavour enhancers for plant-based meats. "I can't see a scenario where it's one or the other. The needs of [10bn people] are huge."

Mr Savir agrees and sees the livestock industry and alternative proteins existing side by side. While it could take decades for the cultured meat industry to scale up, the sector will probably serve the mass market with real animal meat eaten at the luxury end, he predicts. “[Eventually] the conventional meat industry will be a local high-end, grass-fed type of industry offering quality meat.”

Kent farmer Mr Roberts sees an opportunity for [UK livestock farming](#) at the quality end of the spectrum and for farming to be part of the solution.

“We have started discussing how we can do it differently,” he says. “How we can stand apart from global meat production with sustainable grass based farming. We can be part of the solution to climate change and that is the farming industry of the future.”

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