

Concerns intensify over food producers' impact on environment

Risks lurk in sector that accounts for a quarter of all global emissions



The spotlight on agriculture and food industries' impact on the environment has intensified in recent years

Emiko Terazono JANUARY 2, 2019

The world's biggest purchaser of beef is watching the plant-based meat market.

“Plant-based protein is something we’re keeping an eye on as we start to think about the opportunities there and growth in that space,” Lucy Brady, McDonald’s senior vice-president of corporate strategy, told a [women’s conference](#) in California hosted by Fortune magazine in December.

It is hardly a surprise that the popularity of meat alternatives has caught the attention of the leading fast food company.

An increasing number of large food and agricultural companies have been investing in alternative protein groups — US meat group Tyson Foods has taken a stake in plant based meat company [Beyond Meat](#), leading agricultural trader Cargill has invested in cellular meat start-up Memphis Meats and [Unilever](#) bought a Dutch plant-based food company, Vegetarian Butcher.

The consumer trend described by food and marketing executives as a “paradigm shift” seems to be driven largely by concerns about health and weight loss, but it comes as worries increase over greenhouse gas emissions from agriculture and food production.

Over the past four to five years, the spotlight on agriculture and food industries' impact on the environment has intensified amid fears over the prospect of population growth and food

demand driving crop and livestock cultivation.

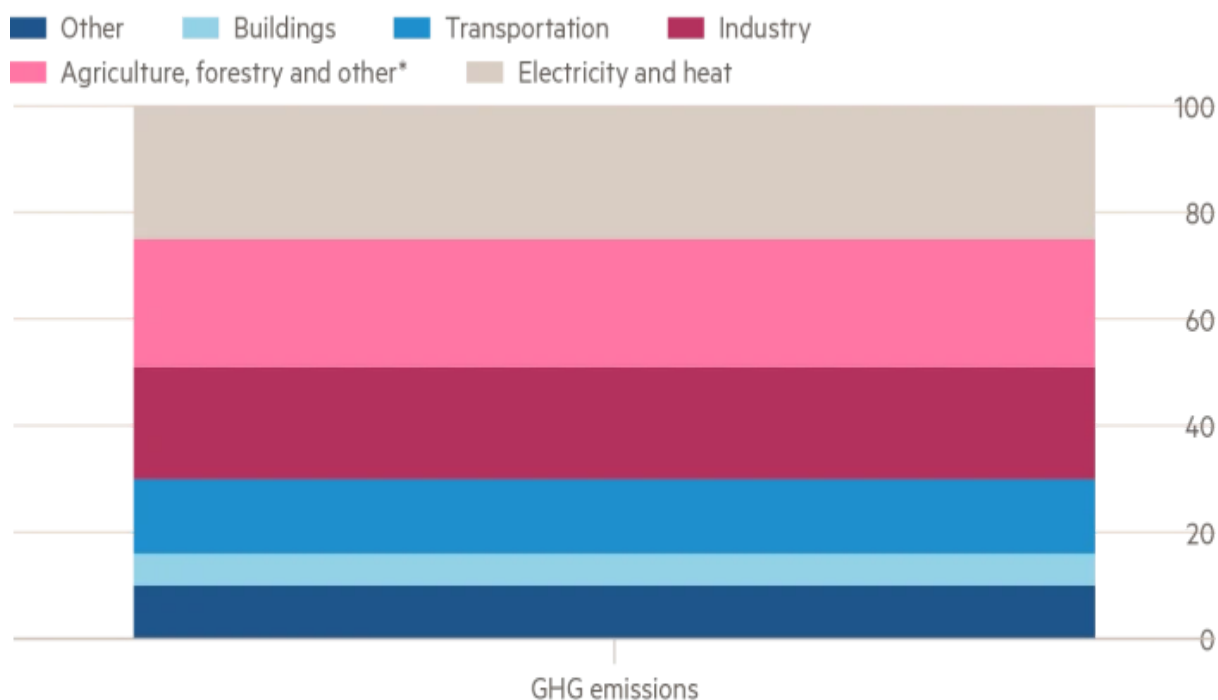
“You can see there is a path to greatly reduce emissions in energy and transport and all of a sudden agriculture emissions look big. Of the agricultural total, livestock is the big factor,” said Channing Arndt, director of environment at the International Food Policy Research Institute, a developmental think-tank.

Food and agricultural production accounts for about a quarter of all global emissions, with two-thirds of that coming from the livestock sector, according to data from the [UN Food and Agriculture Organization](#).

Amid that backdrop, leading institutional investors are raising their concerns about the risks of investing in the food and agricultural sectors.

Agriculture is one of the largest emitters of CO₂

Greenhouse gas emissions by sector (% of total)



*The estimate for agriculture does not include the CO₂ that ecosystems remove from the atmosphere by sequestering carbon in biomass, dead organic matter and soils

Source: IPCC

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Farm Animal Investment Risk and Return (FAIRR), an investor network that advocates sustainable animal farming backed by 180 fund managers with assets of \$10.5tn, said 70 per cent of the world's 60 largest publicly listed meat, dairy and aquaculture producers are failing to manage climate risk.

“Across the animal protein sector, reporting and management of greenhouse gas emissions is inadequate, unstandardised and unverified,” the network warned in [a report](#).

FAIRR, whose members include leading asset managers such as Aviva, Schroders and University of California's investment assets, also pointed out that most of the sector was putting long-term growth at risk by failing to invest in alternative protein businesses.

Only five out of the 60 groups have backed plant-based meat alternatives grown in laboratories as well as dairy alternatives. These include Tyson, Hormel Foods, Canada's Maple Leaf, China Mengniu Dairy and Vietnam Dairy.

The investor network in a separate report said that of the 16 global food companies — both manufacturers and retailers — only six — Marks and Spencer, Tesco, Walmart, General Mills, Nestlé and Unilever — have targets to reduce supply chain emissions from livestock agriculture.



Changes in feed, vaccines and selective breeding are potential ways to lower the livestock emissions of methane

Some companies are looking to technology to alleviate the livestock emissions problem. Changes in feed, vaccines and selective breeding are being tested as ways to lower the livestock emissions of methane, a potent greenhouse gas whose comparative impact is more than 25 times greater than carbon dioxide over a 100-year period.

Cargill, partnering with natural feed ingredient companies, is testing different feed mixes and their effects on methane gas production in a simulated cattle stomach. Start-ups such as Swiss company Mootral has created a natural feed supplement using garlic and citrus extracts while others are turning to [seaweed](#).

To combat other causes of agricultural emissions, large seeds and chemicals groups are also turning to innovation and R&D. Companies such as Bayer are launching insecticides that can tackle a range of pests and caterpillars, as well as seeds developed to increase yields and work with crop protection tools.

Microbes are among the cutting-edge technologies in agriculture, where companies hope to cut the use of synthetic chemicals such as pesticides and fertilisers to protect plants as well as increased yields. According to scientists, increased fertiliser use over the past 50 years is linked

to a dramatic rise in atmospheric nitrous oxide, a leading greenhouse gas contributing to global climate change.

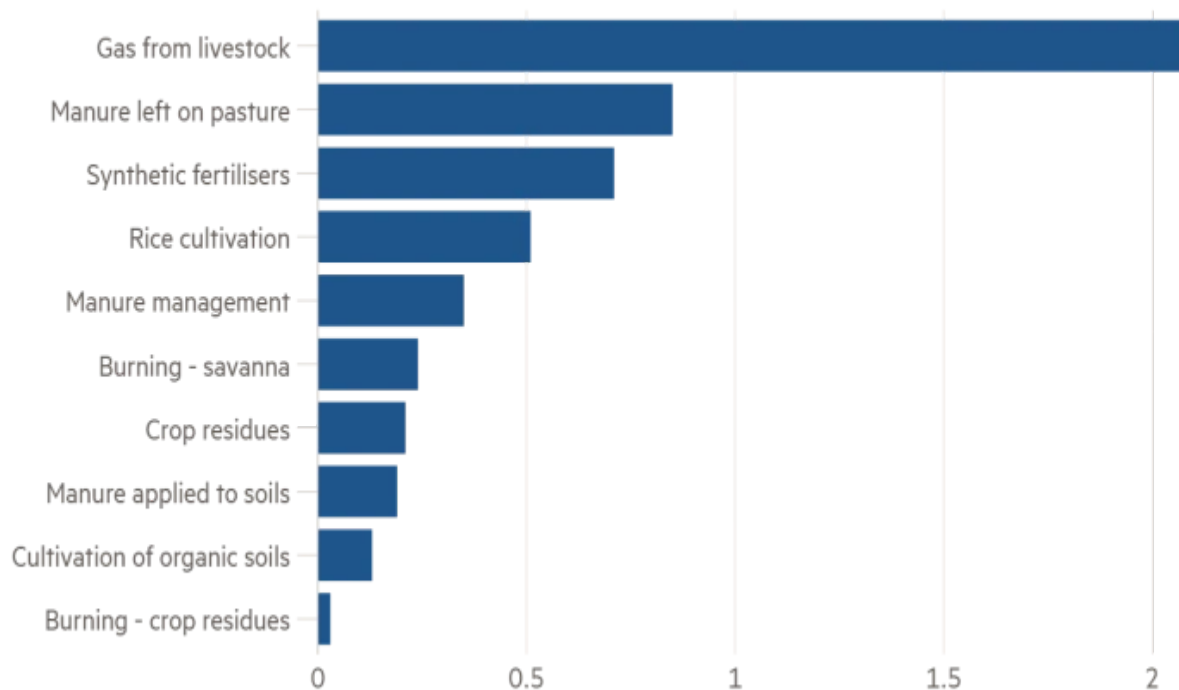
Industrial biotechnology group Novozymes and US agritech start-up Indigo are among those with products that coat seeds with microbiomes, while Pivot Bio has launched a microbial product that adheres to the root and delivers nitrogen to the plant.

However, analysts point out that many of the companies are reacting to the farmers' need to cut costs and use less inputs than being driven by a desire to be environmentally friendly.

"It's largely not sustainability that is driving [the new products]. Inadvertently you might end up with something with an environmental impact," said Jonas Oxgaard at Bernstein Research.

Key sources of agricultural emissions

Level of CO₂ emissions (tonnes, bn)



Source: FAO

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There are some agribusiness executives are trying to drive sustainability by putting forward the creation of broader platforms to promote sustainable production.

Among the leading grains produced globally, rice is an important staple for more than half the world's population. But it is also a leading contributor of methane.

Olam, the Singapore-based agricultural trader, is working with a German development agency and a growers' project in Thailand on climate smart practices.

At an industry gathering in October, the trader's chief executive Sunny Verghese called on the implementation of a sustainable rice platform, which promotes solutions to limit methane emissions from rice production through a network of stakeholders to support farmers' growing sustainable rice crops.

Mr Verghese urged agronomists to promote sustainable practices, banks and insurers to lower charges for farmers growing sustainable rice, and brand owners and retailers to support sustainable rice products.

While there are no overarching climate policy initiatives guiding agriculture and food companies, the sectors are likely to come under increasing pressure by consumers, investors and policymakers over the next few years, say analysts.

IFPRI's Mr Arndt said as calls for a policy framework for agricultural and food production increase, companies should be involved in the debate.

"There's a big challenge coming up over the next decade [for agricultural companies]. Corporations should be ready for that. They need to be at the table."

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