

Special Report **Sustainable Food and Agriculture****Agricultural production****Brazil's beef industry starts to tackle methane emissions**

New farming practices could help the country achieve one of its COP26 promises



Cattle on a farm in Brazil. The South American country is the world's largest exporter of beef © Dado Galdieri/Bloomberg

Michael Pooler and **Carolina Ingizza** MARCH 1 2022

On his ranch in the state of Mato Grosso, deep in Brazil's agricultural belt, Raul Almeida Moraes Neto has spent the past six years breaking new ground in cattle farming.

In the name of sustainable husbandry, the trained agronomist has been undertaking a series of measures to lessen his environmental impact.

A small portion of his property near the municipality of Torixoréu has been dedicated to "intensification", with 15 animals per hectare, instead of fewer than one. Slaughter takes place at 18 months, rather than at 30. Breeding happens at a younger age, too.

"It takes less time to produce the same amount of meat, but it emits less methane," explains the 52-year-old, who has been in the business since 2000.

As the world's biggest exporter of beef, Brazil's multibillion dollar meat industry is often criticised by campaigners for its links to deforestation in the Amazon, which contributes significantly to climate change. But another element of its ecological footprint is the methane produced by cattle, which is more potent than carbon dioxide as a greenhouse gas.

The issue was given extra impetus after Latin America's most populous nation — the fifth-largest methane emitter in the world according to 2018 World Bank data — signed a [collective commitment](#) at the COP26 climate change summit in Glasgow last year to lower emissions by 30 per cent.

Large-scale initiatives for doing so in Brazil's cattle sector are still at an early stage, according to scientists, and there are limits to what is achievable. But, while Eduardo Assad, a professor at research and teaching institution the Getúlio Vargas Foundation (FGV), says getting to zero methane is not possible, he does believe that “with the right practices, you could achieve a reduction of just over 30 per cent”.



Carbon hoofprint: Brazil is the fifth largest methane emitter in the world, owing in part to its beef industry © Dado Galdieri/Bloomberg

At the country's state-run agricultural research institute, Embrapa, researcher Alexandre Berndt describes the different ways in which this may be achieved.

“The first pillar is direct manipulation of the process of fermentation,” he says. This happens in the stomachs of ruminants, where the micro-organisms that enable cattle to digest plant fibre also produce methane. Dietary supplements such as corn, soyabeans and cottonseed can diminish the fermentation so as to lower the gas output, Berndt says.

The world's biggest meatpacker, Brazil-based JBS, is now running a trial with 30,000 cattle which will each receive a quarter-teaspoon a day of a feed additive, developed by Dutch nutrition group DSM, that inhibits the enzyme that triggers production of the gas.

JBS, which has faced criticism from activists over its environmental record, says the additive has the potential to reduce up to 90 per cent of enteric methane emissions, based on a study in Australia.

Another technique, Berndt says, is to shorten the lifespan of cattle. Making genetic alterations to the animal, using feed supplements and ensuring the quality of pastures can enable the same body mass to be reached in less time.

90%

Potential reduction in methane emissions from cattle with use of feed additives

One challenge is to promote “complete cycle” farms where a calf is born, grows up and spends its entire lifetime before going to the abattoir. But they are rare at present, according to Isabel Garcia Drigo of Imaflora, a non-profit that promotes conservation.

“Cattle that pass through three or up to five farms are generally not well-managed and over their lifetime have a lot of emissions,” she observes.

However, all of this involves money. Feed, pasture care and soil conservation add about 35 per cent to overheads for Raul Almeida Moraes Neto in Mato Grosso but, because he farms a premium breed, he is able to pass this along to buyers. For many mass-market producers, that will not be feasible.

The same goes for the land productivity improvements that, experts say, are an important part of many emissions reduction projects. Greater grass coverage offsets CO₂ and traps it in roots, while providing more food for cattle — making it possible to reduce methane emissions indirectly through faster animal weight gain. But remediating degraded pastures can cost anywhere between R\$2,000 and R\$5,000 (\$390 to \$970) per hectare, estimates Lygia Pimentel at Agrifatto, an agricultural consultancy.



A herd of cattle in Brazil's Pantanal region. Restoring pasture can help cut carbon emissions © Jonne Roriz/Bloomberg

Substantially more investment is required in the semi-arid area of the country's poorer north-east than in the Cerrado savannah region, Pimentel points out. "It's a huge amount of money, and it costs a lot to recover an area with an average level of degradation."

Beyond the difficulties of getting a typically conservative industry to embrace change, experts say it will also be vital to get funding, knowledge and new technologies into the hands of small and medium-scale ranchers. They make up about 80 per cent of all producers, according to Agrifatto — but the challenge is to reach them in their often remote locations, across such a large country.

For this reason, many advocates of change argue that greater public finance and technical support is needed.

Last year, the government launched an updated version of its low-carbon agriculture programme, called the ABC Plan, which provides low-interest loans to farmers looking to implement sustainable practices.

When you count the emissions from deforestation, it cancels out reduction efforts

Eduardo Assad, Getúlio Vargas Foundation

But Caio Penido, president of the Mato Grosso Institute of Meat, says: “We need to expand financing under the ABC plan, and to help the producers obtain a regularised

legal status in order to access credit. Many cannot because there’s a lot of bureaucracy.”

None of this will matter, however, if Brazil does not tackle deforestation, campaigners warn. Forest clearance has surged under the presidency of Jair Bolsonaro and the right-winger’s administration stands accused of reducing environmental protection and enforcement action against illegal logging in the Amazon.

Days after Brazil was praised for agreeing to cut its greenhouse gas emissions in half by 2030 at COP26 — a commitment made in parallel to its methane pledge — satellite data showed that destruction of the rainforest surged by 22 per cent in the 12 months to July. It was the fastest rate recorded in 15 years.

“When you count the emissions from deforestation, it cancels out reduction efforts,” says Assad at FGV.

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