

Brazilian beef at a crossroads

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Historically linked to vast environmental devastation, Brazilian beef production now stands at a crossroads. The discussions about the EU-Mercosur Trade Agreement further increase the salience of crucial sustainability issues, but could also support transformations within the sector.

If there is one feature that has come to define the Brazilian countryside today, it is the widespread pastures that span across the country from the Pampa in the south to the Amazon in the north. Beef is an integral part of the Brazilian diet as in the popular Sunday barbecue, churrasco.

Meanwhile, the accelerating global climate crisis has also led attention towards the challenges of beef production. In 2021, enteric fermentation represented a staggering 383 million tons of the total of 601 million tons of GHG emissions (CO₂ equivalents) produced by Brazilian agriculture. Pasture expansion is also the main driver of deforestation, which that year accounted for 1,095 million tons of GHG emissions.

Deforestation caused by products exported has also become a central point on Brazil's international agenda. It has thereby become a thorny issue, which threatens to derail the EU-Mercosur Agreement. Yet, the 173 thousand tons of Brazilian beef imported by the EU in 2021, or even the 941 thousand tons imported by China that year pail in comparison to the 7,3 Million tons (75%) that is consumed domestically.

The EU-Mercosur agreement would create an additional special tariff rate quota of 99 thousand tons, shared between its four members. This is still a very minor share of total production, but European consumers will nonetheless have a legitimate interest in knowing that they do not contribute to environmental problems in Brazil.

The good news is that there also is a range of Brazilian solutions.

First of all, the emissions profile of Brazilian beef varies extremely, depending on the very different production systems that can be found in the country. Historically, pastures have often been amongst the first link when agriculture entered a new region, paving the way for soy and other crops. However, by themselves, pastures occupy around 20% of Brazilian territory, compared to only 8% dedicated to farming.

Pastures vary from extremely low productivity degraded areas to high-yielding managed pastures with knee-high grass. In recent years, efforts have been made in the recovery of degraded pastures, but nationally, these areas still amount to approximately 30 Million hectares when it came to very degraded areas, - close to the total area of Poland.

In terms of GHG emissions, degraded pastures are one of the worst possible types of land use: The exposed soil which often results from the clearing of native vegetation followed by overgrazing leads to substantial emissions. Cattle on these lands typically yields little meat, lives long, and provides low-quality beef. In Brazil, low-productivity pastures have therefore often been used as a means to lay claim to illegally grabbed lands, or as a way to hold "savings" in the form of cattle.

Because of the low yields from degraded pastures, producers have been investing in restoration practices. Compared to degraded pastures which typically can't even support one cow per hectare, managed pastures can hold up to 4 cows in the same area. Fertilized and irrigated areas can hold up to 12.

When integrated with crops, positive synergies make grass varieties thrive, while manure fertilizes the soil. Moreover, when integrated with forestry components, trees provide thermic comfort for the animals, supporting their growth.

From a climate perspective, these systems reduce the emissions per kg of beef produced and hold the potential to stock carbon in the soil. In combination with investments in genetics thereby help shorten the life-cycle for cattle.

From a socio-economic perspective, successfully integrated systems not only require a skilled workforce, thereby stimulating professional training and formal employment but also create many more jobs than extensive pastures or mechanized agriculture.

Most importantly, if done right, sustainable intensification within beef production can support the crucial task of alleviating deforestation pressures. Moving away from low-productivity pastures can hereby also both increase yields and free up areas that can be restored with native vegetation, especially if economic incentives can be created to support the planting of forests. Studies show that towards 2050, sustainable intensification of pastures could free up land to meet all needs for projected crop expansion, while still raising outputs by 49%, and even leaving 6.38 million hectares for reforestation.

What this means for the German consumer is that she/he will want to make sure that all beef imported from Brazil is disassociated from deforestation. The European Union Deforestation Regulation (EUDR) will help in that respect, as it demands that the entire chain of beef products exported to the EU is completely free of deforestation after 2020. Moreover, it is important to understand that increases in beef production in Brazil are not necessarily associated with higher deforestation. Rather, it is the regulatory framework that defines beef production's impact on land use.

To confront the current climate impacts on food production, it is necessary to address both production and consumption. In a region such as the European Union, where beef

production systems are relatively homogenous and climate consciousness is high, reducing consumption seems like an inevitable pathway to lower per-capita GHG footprints.

In Brazil, the elevated consumption of 35 kg per capita ideally makes it necessary to lower consumption for some population groups. However, it is unrealistic that a critical mass of the population will adopt the same consumption ideals as the affluent middle class in the EU. Moreover, any Brazilian politician who would dare to propose taxing the beloved picanha (top sirloin cap) would sign his own political death sentence. It is therefore unlikely that significant GHG emissions can be reached through lower beef consumption in the immediate future.

Differently from Europe, the greatest climate benefits within the Brazilian beef sector are thereby likely to come from changes in the mode of production. Innovative solutions that can reconcile production increases with environmental benefits can be leveraged to aid in this process. Accelerating the necessary process of pasture restoration is also key, as is the implementation of monitoring and traceability systems to ensure the sustainable origin of cattle.

Eventually, private initiative by itself will not be enough. The state also plays a key role in bringing about more sustainable beef production. It is therefore important that the generous amounts of public financing for agriculture in Brazil are directed towards spurring sustainable change within the livestock sector while excluding those who refuse to give up illegal deforestation and other socio-environmental transgressions.

But first and foremost, state enforcement of existing legislation becomes a *sine qua non* condition to decouple beef production from rampant deforestation, especially in the Amazon region where nearly all deforestation occurs outside the scope of the law.

The extensive areas of degraded pastures are both Brazil's Achilles heel, but also its great asset. Changes within beef production, freeing up space for agriculture and reforestation, while improving practices amongst producers can thereby help improve Brazil's credibility amongst international clients. Rather than boycotting Brazilian beef, European buyers can likely make a bigger difference by directing consumption towards supporting the necessary changes within the sector.

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