

Brazilian beef -- greater impact on the environment than we realize

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Increased export of Brazilian beef indirectly leads to deforestation in the Amazon. New research from Chalmers and SIK that was recently published in *Environmental Science & Technology* shows that impact on the climate is much greater than current estimates indicate. The researchers are now demanding that indirect effect on land be included when determining a product's carbon footprint.

"If this aspect is not taken into consideration, there is a risk of the wrong signals being sent to policy makers and consumers, and we become guilty of underestimating the impact Brazilian beef has on the climate," says Sverker Molander, Professor Environmental Systems Analysis and one of the researchers responsible for the article.

In Brazil, beef production is the major cause of deforestation in the Amazon. The consequence is not only that valuable rainforest disappears – deforestation also adds to the greenhouse effect. When the carbon-rich forest is burned down to clear land for farming, large amounts of [carbon dioxide](#) are released. An estimated 60-70 per cent of the deforested land is used for cattle ranching.

Brazil has emerged as the largest beef exporter in the world over the course of the 2000s. However, very little of the exported beef comes from the deforested parts of the Amazon. In the international surveys performed to estimate a product's impact on the environment – known as carbon footprint standards – this beef is calculated as causing zero emissions from deforestation, while causing regular emissions from the

cattle's digestion and feed production. Beef from deforested areas also only constitutes a small portion of total production, about six per cent.

"The snag is that this six per cent of beef production causes about 25 times more carbon dioxide emissions than beef produced in the rest of Brazil. This means that the average for carbon dioxide emissions caused by beef production in Brazil is twice as high as that in Europe," says Sverker Molander.

The article in [Environmental Science & Technology](#) shows that growing export is a major driver behind increased production of beef in Brazil, which means it has indirectly contributed to an expansion of pasture in the [Amazon](#). As it stands today, only land whose use is directly changed is included when estimating a product's [carbon footprint](#), which is misleading.

"We have calculated in many different ways in the article, and no matter how we do it, we arrive at the conclusion that Brazilian beef is a heavy producer of carbon dioxide."

Carbon dioxide emissions in conjunction with deforestation are currently responsible for ten per cent of all emissions globally. Increasing demand for more feed, biofuel and food, primarily meat, creates a need for more farming land, which leads to deforestation and even greater emissions.

"The basic problem is that we are eating an increasing amount of meat. For every new kilogram we eat, the risk of deforestation increases," says Christel Cederberg, one of the article's co-authors and a researcher at both Chalmers and SIK.

The Brazilian Ministry of Agriculture has set a goal to double the country's [beef](#) export over the next decade. At the same time, global demand for biodiesel and ethanol, which are produced from soy and

sugar cane in the southern part of the country, is increasing. This has resulted in rising land prices. Many cattle ranchers sell their valuable grazing land to soy and sugar cane farmers, and then buy big land areas in the less expensive northern regions.

"By 2050, global meat consumption is expected to have increased by almost 80 per cent, which will require more grazing land and increased soy cultivation. Added to this is increased demand for land to produce bioenergy. Yields cannot just continue to increase. No matter from which angle you look at the forecasts, changed and increased land use is the result," says Christel Cederberg.

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