

# Plant-Based Meats May Not Measure Up for the Developing World

*New research from the Tata-Cornell Institute finds that plant-based alternatives may not be suitable for countries where micronutrient deficiencies are common.*

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[/EINPresswire.com/](https://www.einpresswire.com/) -- Is your burger made of beef or pea protein isolate mixed with coconut oil? As efforts to stop climate change ramp up, increased attention is being given to swapping out meats and dairy items for plant-based alternatives designed to replicate the real thing. However, a [new study](#) from the Tata-Cornell Institute for Agriculture and Nutrition (TCI) casts some doubt on plant-based meat and dairy analogs' ability to meet the nutritional needs of people in the developing world.



Plant-based meat products are designed to closely mimic real meat products like hamburgers. (Photo by LikeMeat/Unsplash)

Published in the journal *World Development*, the study assesses the potential for plant-based meat and dairy products to become part of sustainable diets as meat consumption rises in low- and middle-income countries and falls in high-income countries. The researchers find that, while plant-based meat and dairy products are more environmentally friendly than the products they are meant to mimic, they do not always offer the same nutritional benefits.

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The expansion of plant-based meat and dairy products into developing countries could upend the livelihoods of smallholder farmers who rely on livestock production”

*Prabhu Pingali*

“The environmental advantages of modern-day plant-based meat and dairy products may make them suitable options in high-income countries where consumers are

looking to eat more sustainably, but in developing countries where micronutrient deficiencies

are common and dietary diversity is low, traditional meat and dairy products are the safer choice,” said [Prabhu Pingali](#), director of TCI and lead author of the study. “Ultimately, more research is needed to determine what role plant-based analogs can play in different contexts.”



# Tata-Cornell Institute

In a review of the existing research on the topic, TCI researchers found that both livestock and dairy milk production have higher environmental impacts than the production of plant-based analogs. Greenhouse gas emissions from beef are 13 times greater than those associated with plant-based meats. While the emissions from pork and poultry production are lower, they are still three and two times that of plant-based meat. Livestock production also involves more land and water use.

Nutritionally, the study demonstrates that while plant-based meats often have a similar protein content as traditional meat, plant-based milks frequently do not have as much protein as dairy milk. The researchers also found that plant-based meat and milk products may not always contain the complete amino acid profile needed by the human body.

Aside from protein, animal-sourced foods are an important source of micronutrients like iron, vitamin A, zinc, vitamin B12, calcium, and folate. These micronutrients are often insufficient in diets in developing countries. Plant-based analogs are typically fortified with these same micronutrients, but the researchers found insufficient evidence that they are as bioavailable as in meat and dairy foods. This means that while a plant-based burger may have the same amount of iron as its beefy counterpart, it may not be as easily absorbed by the human body.

The researchers also cautioned that technological limitations have thus far limited plant-based meats to three general forms: grounds, emulsions, and crumbles. This narrow range of products limits mass uptake of plant-based meats.

While plant-based meats and dairy products are not yet widely available in lower- and middle-income countries, the study's authors urged researchers to focus on the affordability and potential impact that the growth of plant-based analogs could have on smallholder farmers, many of whom depend on livestock farming for income.

“The expansion of plant-based meat and dairy products into developing countries could upend the livelihoods of smallholder farmers who rely on livestock production,” Pingali said.

The researchers also stressed the difference between modern plant-based foods like the Impossible Burger and minimally processed plant-based foods like tofu or seitan, with important implications for dietary recommendations.

“Plant-based analogs are plant-based foods but are quite different from whole and minimally processed plant foods,” said TCI Postdoctoral Associate [Jocelyn Boiteau](#), one of the study’s coauthors. “Diet recommendations based on evidence supporting the consumption of plant-based foods, which typically come from studies looking at the consumption of whole or minimally processed plant-based foods, might not be generalizable to these plant-based analogs.”

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