

FREQUENTLY ASKED QUESTIONS (FAQs)

1. What are the other sources of methane?

The methane we emit comes from three main sources: energy production, food waste/decomposition, and agriculture. And agricultural sector emits the most—largely due to the production of beef.^{1,2}

2. How do beef cows compare with dairy cows (eg, milk, cheese) in Greenhouse Gas (GHG) emissions?

While both dairy cows and cows raised strictly for beef production emit high levels of methane, their GHG impact on climate change varies greatly. Beef cows account for substantially more GHG emissions than dairy cows.^{3,4,5}

One reason that there are fewer emissions from dairy cows is simply that there are fewer dairy cows overall. And the dairy industry has shown to be more advanced than the beef industry in adopting more efficient climate-friendly technologies and farm practices (e.g., food type and supplements that reduce emissions, and increased milk productivity) that have resulted in lower emissions.³

Although dairy cows are raised primarily for supplying food products such as milk and cheese, they are also used as beef at the end of their useful life for dairy. The total GHG footprint of a dairy cow is therefore divided among beef and dairy foods produced. Less than half of the world's beef—and only about 20% of US beef supply—comes from the dairy sector. But it produces 60% lower emissions than that of dedicated beef herds because its footprint is shared with the dairy sector.⁴

3. Don't pigs, chickens, sheep, and goats produce methane as well?

Cows, as well as sheep and goats, are ruminants—hoofed animals with 4-chambered stomachs to digest food. It is in the digestive process of breaking down and regurgitating food (enteric fermentation) that methane is produced. The gas is mostly released through belching, although some is also expelled through flatulence. And, less than 25% produced is emitted from the cow's manure and manure management.⁶

Ruminants account for 93 percent of all emissions from livestock and are the largest source of human-caused methane emissions globally.⁷ Cows, by far, are the top contributors. A sheep, for example, produces about 30 liters of methane per day, compared to a dairy cow, which releases closer to 200 liters daily.⁸

Pigs and poultry have single-chamber stomachs to digest food, and their methane emissions are negligible in comparison to cows.⁹

4. How much more powerful is Methane (CH₄) than Carbon Dioxide (CO₂)?

Methane has a Global Warming Potential (GWP) **28** times more powerful than carbon dioxide. However, the GWP is based on a method devised decades ago that measures all greenhouse gases on a 100-year time scale, where CO₂ has a GWP of 1. If we look at a 20-year timeframe instead, for example, methane actually has a GWP over **80** times more powerful than CO₂ at trapping heat in the atmosphere.¹⁰

While CO₂ stays in the atmosphere for hundreds of years, methane only stays in the atmosphere for around a decade. However, because methane is a much more potent greenhouse gas, making decisions based only on the 100-year GWP of methane greatly understates the real dangers of short-term warming impacts.¹¹

Because methane traps so much more heat than CO₂, it causes the planet to grow hotter at a much faster rate. Cutting methane emissions can therefore buttress ongoing CO₂ approaches, which are lagging dangerously behind in reaching critical GHG reduction goals. In fact, at the UN Climate Change Conference in 2021, 100 countries, including the US pledged to reduce methane emissions by 30 % by 2030.¹²

Bottom Line: Cutting methane emissions is the fastest, most effective way to slow the rate of global warming.¹

5. Doesn't methane dissipate much faster than CO₂?

It's true that methane has a much shorter atmospheric lifetime (~10 years) than CO₂, which can last hundreds of years. However, as explained in Question 3, because methane is so much more powerful and short-lived it holds the potential for more rapid reductions in GHG emissions than controlling emissions of CO₂ alone. Therefore, methane offers an opportunity for targeted, rapid-reduction strategies with nearly 30 to over 80 times the impact on slowing global warming than CO₂.

Rising emissions in the next ten years could unleash tipping points--such as melting glaciers and thawing permafrost--that may well be irreversible.¹³ Truly, time is of the essence. And methane seems to represent a "silver bullet" to help avoid the devastating consequences of a global temperature rise exceeding 1.5 degrees Celsius.¹²

6. Could emphasizing methane reduction redirect efforts to reduce CO₂ emissions?

The ability to reduce methane emissions at any significant scale is limited mainly to two business sectors—Agriculture and the Natural Gas/Petroleum industries.

It's possible that certain beef and dairy companies may re-direct some funds for CO₂ reduction to more effective methane reduction projects. And if successful, it would be a definite bonus overall for reaching looming GHG targets.

However, GHG reduction efforts are still dependent on ongoing and even more aggressive efforts to target carbon dioxide, which account for about 75% of all GHG emissions. There are wide-scale opportunities to curb CO₂ across almost all sectors of the economy, including both the methane-heavy agriculture and fossil fuel industries. Transportation, residential and commercial buildings, manufacturing, plus light and heavy industry, all offer countless approaches to cut CO₂ that are broad-based and growing as new ideas and technologies emerge.

Another possibility is that our emphasis on reducing methane emissions by eating less meat will be used as an excuse by the fossil fuel sector to not take responsibility for their actions. For example, Exxon Mobil Corp. has used language to systematically shift blame for climate change from fossil fuel companies onto consumers, according to Harvard University researchers.¹⁴ Exxon sought to deflect responsibility for climate change away from the oil giant and onto individual consumers who heat their homes and fill their tanks with gas.

We need to address climate change from every angle to truly be successful; everybody from individuals to corporations need to take action to save the planet.

7. How could eating less beef help combat climate change?

Individual actions play a critical role in avoiding a pending climate disaster. Our choices drive markets and the economy: switching to more fuel-efficient vehicles; choosing energy-efficient appliances; insulating homes; installing solar panels. All of these personal decisions act to help reduce GHG emissions.

In the case of the more destructive methane emissions, people likewise have to make choices that impact the marketplace. Here, however, individual actions are very limited, and basically boil down to reducing beef consumption.¹ To “EAT LESS BEEF” would slow the current growth trend—and hopefully reverse it—through the principle of supply and demand. At the same time, the beef industry must be pressured to introduce and expand more climate-sensitive practices in land use; in raising, feeding, processing and distributing its products; and in manure management.

James Hamblin, an MD and former contributor to the Atlantic magazine, thinks that a relatively small change a person makes in terms of their diet can make a huge effect on their lifetime environmental impact. We don't need to rely on policy and politicians to make changes. It can be an empowering thing for consumers to see that they can make a significant impact by doing something as simple as eating less beef.¹⁵

The food system is responsible for 20–35% of human caused global greenhouse gas emissions, most of which originate from meat and dairy livestock.^{5,7}

8. How much protein do we really need?

Most adults need around 0.8g of protein per kilo of body weight per day (.013 oz per lb.). For the average woman, this is 46g (1.6 oz), or 56g (1.9 oz) for men.¹⁶ Anywhere from 10% to 35% of your calories should come from protein.¹⁷

Most American adults eat on average 100 grams of protein per day, or roughly twice the recommended amount. Even on a vegan diet people can easily get 60 to 80 grams of protein throughout the day from foods like beans, legumes, nuts, broccoli and whole grains.¹⁸

9. Hasn't deforestation in the Amazon diminished in recent years?

In 2020, deforestation had reached a 15-year high. The Amazon's losses for the year could nearly cover the state of Connecticut.¹⁹

A 2021 published scientific article found that deforestation for cattle production persists in the Brazilian Amazon despite ongoing efforts by the public and private sectors to combat it.²⁰

As stated in 2023 congressional testimony given by the Center for Strategic and International Studies, the Amazon continues to lose thousands of square kilometers every year.²¹

FOOTNOTES:

Q.1

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