

Seaweed-Fed Cows Burp Less Planet-Warming Methane

Researchers report an 82 percent reduction in methane emissions in cows fed 1.5 to 3 ounces of seaweed a day for 21 weeks



This cow was fed a small amount of seaweed along with its feed to reduce methane emissions from its burps.
(Breanna Roque / UC Davis)

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Cow burps are full of the powerful planet-warming gas [methane](#), but new research finds that adding seaweed to beef cow diets can reduce their methane emissions by as much as 82 percent, reports Oliver Milman for the [Guardian](#).

If it proves effective at scale, reductions of this size could offer significant climate benefits. Livestock are responsible for roughly [14.5 percent](#) of humanity's annual greenhouse gas emissions, and [cows](#) are thought to account for about 65 percent of those emissions. In the United States, the methane cows release accounts for nearly [2 percent](#) of total greenhouse gas emissions annually.

The new results, published last week in the journal *PLoS One*, build on work published by other researchers suggesting that adding certain types of seaweed can reduce livestock methane emissions. In 2018, some of the same researchers behind the new paper recorded methane emissions reductions of more than 50 percent among dairy cows after the introduction of a red-colored seaweed called *Asparagopsis taxiformis* to their feed, reported Judith Lewis Mernit for *Yale e360* in 2018. In the 2018 paper, the catch was a reduction in milk production.

In the new results, the researchers say the methane reductions achieved by adding the seaweed came at no cost to the cow's ability to put on weight. In fact, writing in the *Conversation*, the researchers say their seaweed enhanced diet actually allowed the cows to convert feed to body weight 20 percent more efficiently. This would actually reduce the amount of feed required to bring an animal to market weight.

Per the *Conversation*, the new study also found that the efficacy of the seaweed-spiked feed didn't appear to diminish among 21 cows fed 1.5 to 3 ounces of seaweed daily for 21 weeks.

"We now have sound evidence that seaweed in cattle diet is effective at reducing greenhouse gases and that the efficacy does not diminish over time," Ermias Kebreab, an agricultural scientist at the University of California, Davis and senior author of the paper, tells the *Guardian*.

Th results may sound promising, but a big outstanding question is whether serving up ocean algae to a significant portion of the world's 1.5 billion cows is possible or feasible, write researchers Jan Dutkiewicz and Matthew Hayek in an opinion piece for *Wired*.

Even if it were possible, Dutkiewicz and Hayek bring up an even bigger hiccup in this plan to cut the methane in cow burps. Feeding cows seaweed is only practical in feedlots, where they rapidly put on weight before slaughter. But cows only spend the last few months of their 1.5- to 2-year lives in feedlots, which accounts for just 11 percent of their lifetime methane output, according to *Wired*. The remaining 89 percent of a beef cow's belching happens while grazing in pasture where it's much less practical to insert brick-colored marine algae into its diet.

In the end, giving cows seaweed in feedlots would only net an 8.8 percent total reduction in methane emissions, according to Dutkiewicz and Hayek's calculations.

Per *Wired*, there are also the issues of the myriad other greenhouse gas emissions associated with beef production, including manure and fertilizer used on feed crops. Then, there's the transportation emissions released when the animals are sent to slaughterhouses, and again when meat is transported to distributors. Creating pasture for livestock also drives deforestation in some of the most biodiverse parts of the planet, such as the [Amazon rainforest in Brazil](#), and releases the huge quantities of carbon stored in those ecosystems.

However, while these new findings may not mean we can all chow down on guilt-free burgers anytime soon, they could still play some role in a less carbon-intensive agriculture of the future.

In a [statement](#), Kebreab also says that phasing out livestock entirely may not be the way forward even in a world committed to reducing greenhouse gas emissions to an absolute minimum.

"Only a tiny fraction of the earth is fit for crop production," says Kebreab in the statement. "Much more land is suitable only for grazing, so livestock plays a vital role in feeding the 10 billion people who will soon inhabit the planet. Since much of livestock's methane emissions come from the animal itself, nutrition plays a big role in finding solutions."

Kebreab says he and his team are currently at work on a study attempting to solve the problem of how to get seaweed supplements into the mouths and guts of cows grazing in open pasture.

About Alex Fox



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