

Animal Agriculture's Impact on Climate Change

“Animal agriculture contributes 14.5% of global greenhouse gas emissions—more than the emissions from ALL the planes, trains, cars & trucks in the world.”¹ ([source](#))

Animal agriculture is a leading contributor to climate change.

***“The amount of meat we’re eating is one of the leading causes of climate change.”
—Michael Pollan² ([source](#))***

Livestock make up as much as 80% of agricultural greenhouse gas (GHG) emissions (All agricultural emissions make up 30-35% of total global GHG emissions)^{3, 4} ([source](#)) ([source](#))

The main sources of livestock emissions are: digestive processes by the animals (39%), manure-related (25%), production of animal feed (13%), land use change (10%), and post-farm emissions from processing and transport to retail (2.9%).⁵ ([source](#))

Beef generates 20 times more greenhouse gas emissions than beans, per gram of protein.⁶ ([source](#))

In fact, if the world’s cattle formed a nation, it would be the 3rd largest greenhouse gas emitter after China and the U.S.⁷ ([source](#))

On average, a year’s worth of manure from three dairy cows produces more emissions than the total electricity used to power two American homes for one year.^{8, 9} ([source](#)) ([source](#))

Meeting Climate Change Targets?

“The urgency of extensive and rapid reductions (in GHG emissions) means every available approach must be maximized.” —Johns Hopkins Center for Livable Future¹⁰ ([source](#))

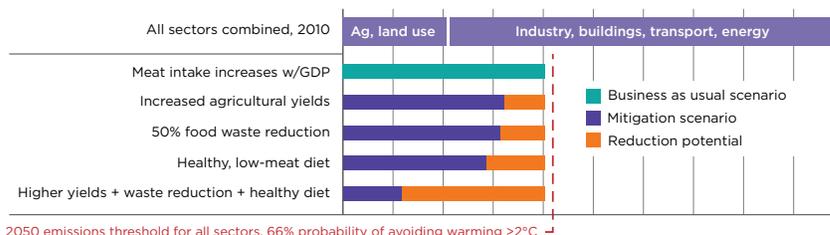
If meat consumption continues to increase as trends show now, the entire 2-degree threshold defined by the historic Paris Climate agreement as necessary for avoiding catastrophic effects from climate change will be taken up by emissions from agriculture alone (the majority of which come from animal agriculture).

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That means efforts around efficient transportation, solar panels, clean energy, etc. will be for naught if we don't also shift diets to less meat and dairy.¹⁰

([source](#))

2050 agriculture-related emissions scenarios



Methane Matters

“Tackling methane offers a ‘quick win’ that effectively buys us time to do the very difficult job of decarbonising the global economy.” — Food Climate Research Network¹¹ ([source](#))

Through enteric fermentation (aka livestock burping and farting) and the emissions from huge manure storage pits, livestock are responsible for a significant amount of methane emissions.

Ruminants (cows, sheep, etc.) produce a third of global methane emissions (all methane accounts for 16% of the total warming effect).⁵ ([source](#))

Methane has a global warming potential 28 to 36 times that of CO₂.¹² In other words, emitting one kilogram of methane is equivalent to emitting 24 kilograms of CO₂ in terms of the effects on climate change. Additionally, methane stays in the atmosphere for approximately 12 years, whereas CO₂ is absorbed by various land and ocean carbon sinks ranging from several years up to thousands of years.¹³ ([source](#)) That means, altering methane emissions will have a more immediate impact on the concentration of atmospheric GHGs than altering CO₂.

Grass-fed is not a silver-bullet solution

“In other words, grazing livestock—even in a best-case scenario—are net contributors to the climate problem, as are all livestock. Good grazing management cannot offset its own emissions, let alone those arising from other systems of animal production.”

—Tara Garnett¹⁴ ([source](#))

While pasture-based systems have some limited environmental benefits over confined-feeding operations, research has shown there is no net benefit to carbon sequestration from grass-fed operations.¹¹ ([source](#))

The only way to truly address the climate impacts of modern diets is to reduce meat and dairy consumption.¹¹ ([source](#))



Plant-based solutions to address climate change.

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Appendix

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- ⁹ Leytem, April B.; Dungan, Robert S.; Bjorneberg, David L.; Koehn AC. Emissions of Ammonia, Methane, Carbon Dioxide, and Nitrous Oxide from Dairy Cattle Housing and Manure Management SystemsNo Title. J Environ Qual. 2010;Volume 39(X-X 2010).
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- ¹¹ Garnett T, Godde C, Muller A, Rööß E, Smith P, De Boer I, et al. Grazed and Confused? [cited 2017 Oct 6]; Available from: http://www.fcrn.org.uk/sites/default/files/project-files/fcrn_gnc_report.pdf
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