



## COMMENT

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This article is a comment on Chang et al. (2021), <https://doi.org/10.1029/2021AV000391>.

# Narratives Behind Livestock Methane Mitigation Studies Matter

Cyrille Rigolot<sup>1</sup> 

<sup>1</sup>INRAE, Saint-Genes Champanelle, France

### Key Points:

- Transformative narratives for climate change mitigation should highlight the synergies between production-side and demand-side efforts
- Highlighting the comparison between their mitigation potentials might indirectly contribute to counterproductive “climate delay discourses”
- Modelling studies for sustainability are never neutral, as narratives necessarily emphasize some hypothesis over others

### Supporting Information:

Supporting Information may be found in the online version of this article.

### Correspondence to:

C. Rigolot,  
[cyrille.rigolot@inrae.fr](mailto:cyrille.rigolot@inrae.fr)

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**Abstract** Recent study in AGU Advances highlights the key role of production efficiency changes in livestock methane emission mitigation, which outperforms demand-side efforts (Chang et al., 2021, <https://doi.org/10.1029/2021AV000391>). While acknowledging the high value of Chang et al.’s analysis, this commentary argues that the way its results are emphasized and discussed matters. As it is, the proposed narrative might even inadvertently (not intentionally) contribute to a “climate delay discourse,” that is, a discourse that fully accepts climate change but justifies inadequate efforts. From a climate emergency perspective, one important result of the study is that total emissions have increased substantially in the last two decades, at odds with climate change mitigation targets. A more transformative narrative would highlight the need to cultivate synergies between production and more ambitious demand-side efforts, rather than the differences between their respective mitigation potentials.

## 1. Background: The Key Role of Production Efficiency

Livestock production is currently the largest anthropogenic methane source. This represents about a third of the global anthropogenic emissions, but the uncertainties are huge and the estimations vary depending on the methodology used. In their study, Chang et al. (2021) propose a re-assessment based on a robust and sophisticated modeling framework. The authors calculate temporal changes of livestock methane emissions during about two decades (2000–2018), showing that global emissions increased on average by +10 to +18 Tg CH<sub>4</sub> yr<sup>-1</sup>. The authors also simulated future livestock methane emissions up to 2050, using three socio-economic scenarios (“Business As Usual,” “Stratified Societies,” and “Toward Sustainability”) and two emission intensity change pathways: “Constant emission intensity” per kg protein and “improving efficiency” with decreasing emission intensity per kg protein. They found that the differences in the projections among different socio-economic scenarios were small, compared to the continuation of the past decreases in emission intensity. In the discussion, importantly, the authors acknowledge that the emission intensity per kg of protein in developed countries might increase, at the opposite of their methodological assumption, as a result of a move toward more extensive livestock systems (grass-fed beef...). Also, they stress that the largest potential lies in developing countries where the current efficiency is low. The continuation of efficiency improvement in these countries could be achieved through the transition of livestock production systems from extensive rangeland systems to mixed crop-livestock systems, and better management of existing systems. To conclude, Chang et al. (2021) highlights: (a) that efforts on the demand-side to promote sustainable diets (as in the “Toward Sustainability” scenario), will not be sufficient for mitigation without parallel efforts from the production sides; (b) Such efforts to decrease emission intensity on the production-side should be prioritized in a few developing countries with the largest mitigation potential.

## 2. Counterpoint: Narratives Matters

It might be still a common idea that results in scientific study matter the most, and that discussion and interpretation are somehow secondary. However, growing social science literature indicates that narratives the way data are presented and discussed matters a lot (Vivero-Pol, 2017). Particularly, narrative and related metaphors somehow shape the way how human beings respond and adapt their behavior to current ecological crisis and sustainability challenges (Schill et al., 2019). In a recent paper, moreover, Lamb et al. (2020) shed light on a new kind of discourse pervading debates on climate action, and which might hinder ambitious mitigation efforts. These “discourses of climate delay” are defined as “discourses that accept the existence of climate change, but justify inaction or inadequate efforts.” To help scientists, climate advocates

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and policy-makers to recognize and counter these discourses of climate delay, Lamb et al. (2020) propose a typology with four distinct types: (a) *Redirect responsibility* (i.e., someone else should take action first); (b) *Push non-transformative solutions* (i.e., disruptive change is not necessary); (c) *Emphasize the downsides* (i.e., change will be disruptive); (d) *Surrender* (i.e., change is impossible) (Lamb et al., 2020).

As Vivero-Pol (2017) clearly demonstrates, scientists and scientific papers contribute to public narrative about food systems, by the language they use, or the ideas they are emphasizing. In the case of Chang et al. (2021) paper, the narrative chosen (already apparent in the paper's title) might contribute inadvertently (not intentionally) to discourses of climate delay (Lamb et al., 2020). As a matter of fact, anecdotally, I first learned about Chang et al. (2021)'s paper as I noticed on my "twitter feed" that it became quickly popular (loved and "retweeted") among some colleagues involved in the livestock sector and their extended network, often associated with charges against "lessons-givers" (notably proponents of vegetarian and vegan diets). These retweets emphasized the message given in the AGU press release: "*The efforts to reduce GHG emissions from livestock production are likely to have bigger impacts on climate mitigation than persuading people to eat less meat, eggs and dairy.*" Chang's et al. (2021) concluding messages -that production and demand-side efforts should be made in parallel, and that the production side potential concerns mostly developing countries had disappeared in the communication chain. Although the use of the paper is not a direct responsibility of the authors, Chang et al. (2021)'s narrative may inadvertently contribute to such discourses of climate delay in several of the ways highlighted by Lamb et al. (2020): First, it is an example of *technological optimism* ("Push non-transformative solutions" discourse type), highlighting that we should "*focus our efforts on current and future technologies, which will unlock great possibilities for addressing climate change*" (Lamb et al., 2020). Yet, as the authors acknowledge, emission intensity per kg of protein might in fact increase in developed countries. This is an important point of discussion but the fact is that many readers only read the title, key points, abstract and sometimes the figures of a paper. As regard the demand-side, Chang et al.'s narrative may contribute to a "change is impossible" discourse ("Surrender" type in Lamb et al. [2020]'s typology). Indeed, by considering the FAO "Toward Sustainability" scenario as a bottom-line, without further discussion, the authors might implicitly (not intentionally) support the idea that more ambitious scenarios "*would run against current ways of life or human nature and are thus impossible to implement in a democratic society*" (Lamb et al., 2020). From a climate emergency perspective, one important result of Chang et al.'s analysis which should be stressed as a premise is that total emissions have increased substantially in the last two decades, at odds with climate change mitigation targets. In literature, such emission increase from the livestock sector can be justified either by "redirecting responsibility" (i.e., someone else should take action first), or by "emphasizing the downsides" (i.e., such as the detrimental effects that a degrowth of livestock farming production would have on rural communities): These are the two other types of discourses of climate delay (Lamb et al., 2020).

As a conclusion, Chang et al. (2021) have developed a very valuable, robust and sophisticated methodology. However, the way the results are presented and discussed might be counterproductive, inadvertently contributing to the "climate delay discourse" prevalent in the livestock sector. This is somehow understandable as this also balances opposite narratives, highlighting the importance of reducing animal product consumption to a minimum, without respect to the mitigation potential from the production-side. However, in my opinion and in our common quest for sustainability, what should be emphasized (in the paper's title, key points and discussion) is the need to cultivate synergies between production and more ambitious demand-side efforts, rather than the differences between their respective mitigation potentials.

## Conflict of Interest

The authors declare no conflicts of interest relevant to this study.

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