

PASTRES

Pastoralism, Uncertainty, Resilience

Livestock, methane and climate justice

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University of Sussex, UK

Some starting points..... and some questions

- Methane is an important climate forcing gas
- Anthropogenic methane emissions come from agriculture, fossil fuel production and waste.
- Ruminant livestock produce methane, which results in global heating
- BUT.....
- Which livestock, where?
- Where should global policy efforts focus?





GLOBAL WARMING IN AN UNEQUAL WORLD

a case of environmental colonialism



ANIL AGARWAL
SUNITA NARAIN

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Details



WIREs Climate Change
Volume 14, Issue 1
Jan 2023

ARTICLE

Livestock, methane, and climate change:
The politics of global assessments

[View article page](#)

Received: 5 January 2022 | Revised: 7 April 2022 | Accepted: 26 April 2022
DOI: 10.1002/wcc.790

PERSPECTIVE

WIREs
CLIMATE CHANGE
WILEY

Livestock, methane, and climate change: The politics of global assessments

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Funding information
H2020 European Research Council,
Grant/Award Number: 740342

Edited by: Lars Otto Naess, Domain
Editor, and Mike Hulme, Editor-in-Chief

Abstract

The relationship between livestock production and climate change is the subject of hot debate, with arguments for major shifts in diets and a reduction in livestock production. This Perspective examines how global assessments of livestock-derived methane emissions are framed, identifying assumptions and data gaps that influence standard life-cycle analysis approaches. These include inadequate data due to a focus on industrial not extensive systems; errors arising due to inappropriate emission factors being applied; questions of how global warming potentials are derived for different greenhouse gases and debates about what baselines are appropriate. The article argues for a holistic systems approach that takes account of diverse livestock systems—both intensive and extensive—including both positive and negative impacts. In particular, the potential benefits of extensive livestock systems are highlighted, including supporting livelihoods, providing high-quality nutrition, enhancing biodiversity, protecting landscapes, and sequestering carbon.

IDS Bulletin
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Livestock and Climate Justice: Challenging Mainstream Policy Narratives

Fernando García-Dory⁺, Ella Houzer⁺, Ian Scoones⁺

Volume 53 Number 4
Published: December 7, 2022
<https://doi.org/10.19088/1968-2022.138>

In discussions around food systems and the climate, livestock is often painted as the

Research Excellence

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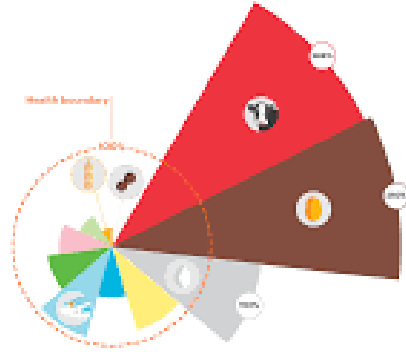
Climate justice

A scenic landscape featuring a blue lake in a valley, surrounded by snow-dusted mountains and a herd of black yaks grazing on a grassy slope.

- Epistemic – whose knowledge counts?
- Distributional – who wins and who loses?
- Procedural – who gets included and excluded in decision-making processes?

Current Diets vs Planetary Health Diet

Global



LIVESTOCK
CONTRIBUTES AS MUCH TO
CLIMATE CHANGE **14%**
AS ALL CARS, TRUCKS,
PLANES, TRAINS AND SHIPS
ON EARTH COMBINED
GREENPEACE

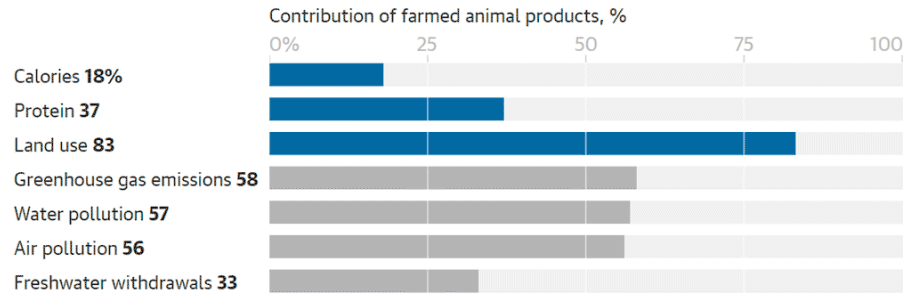


IF WE DON'T DO SOMETHING,
52% OF CLIMATE EMISSIONS
WILL BE FROM **AGRICULTURE** BY 2050
AND **70% OF THAT WILL BE**
FROM **LIVESTOCK**
GREENPEACE



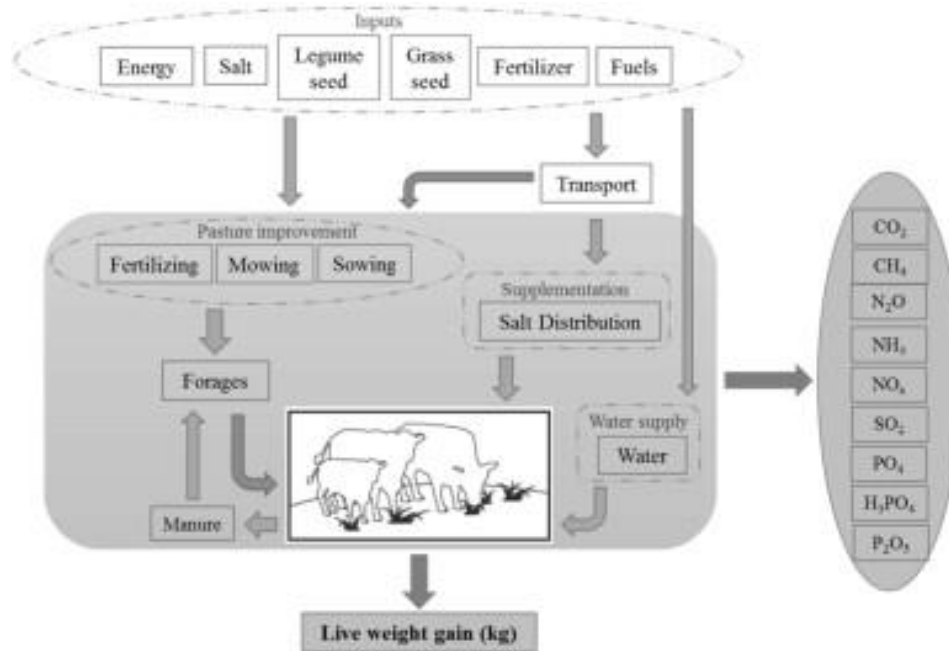
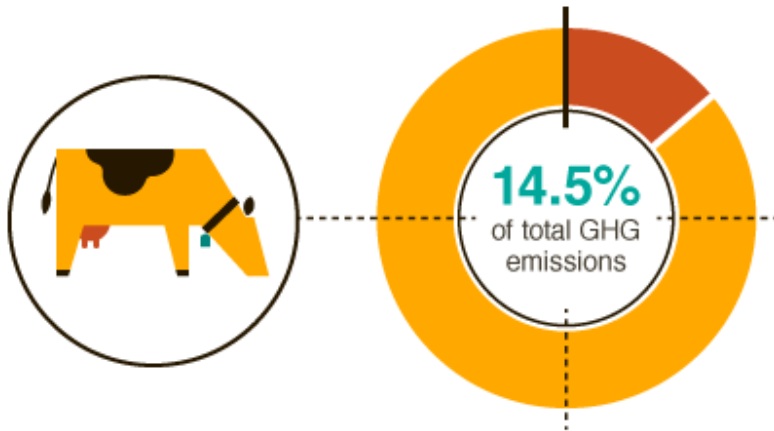
The Guardian Culture
Environment Climate change Wildlife Energy Pollution
Farming Avoiding meat and dairy is 'single biggest way' to reduce your impact on Earth
Biggest analysis to date reveals huge footprint of livestock: provides just 18% of calories but takes up 83% of farmland

More than 80% of farmland is used for livestock but it produces just 18% of food calories and 37% of protein

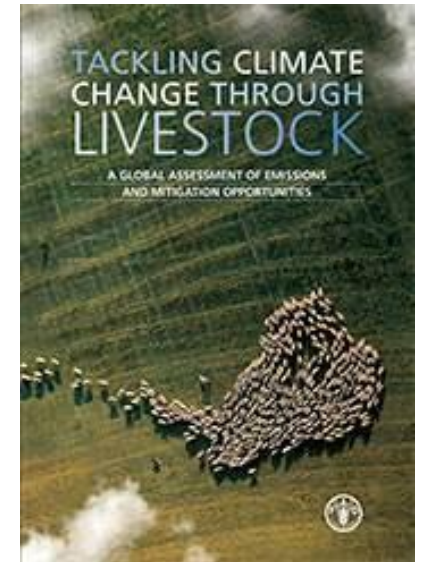


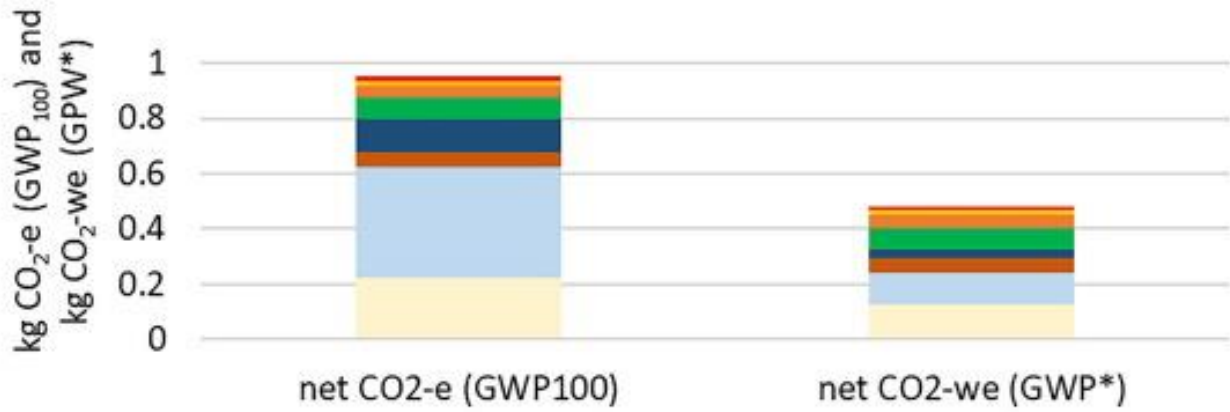
Guardian Graphic | Source: Poore and Nemecek, Science

Livestock contributes **7,100 MtCO₂e/year** or **14.5%** of total global GHG emissions.



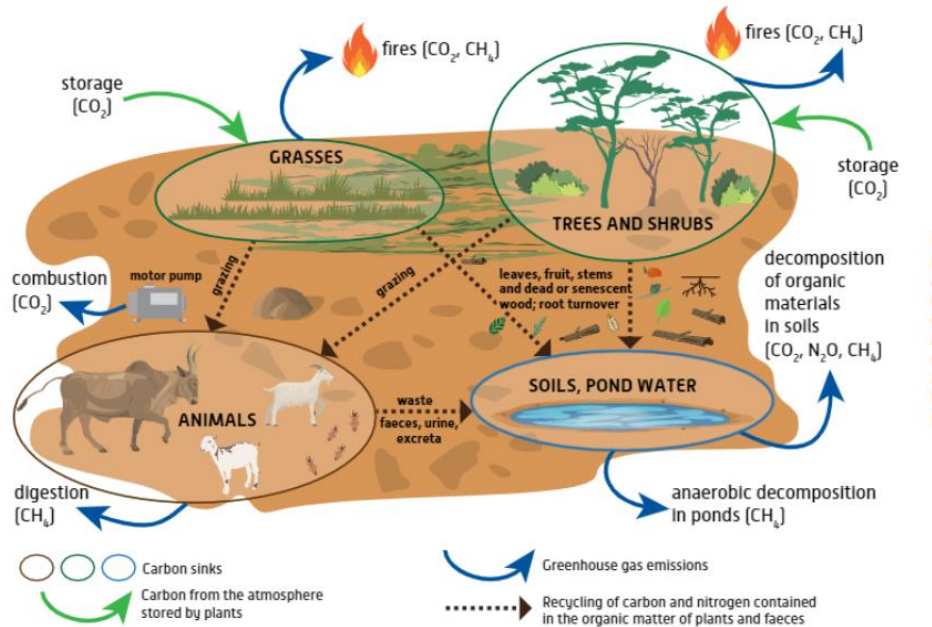
livestock's long shadow
environmental issues and options





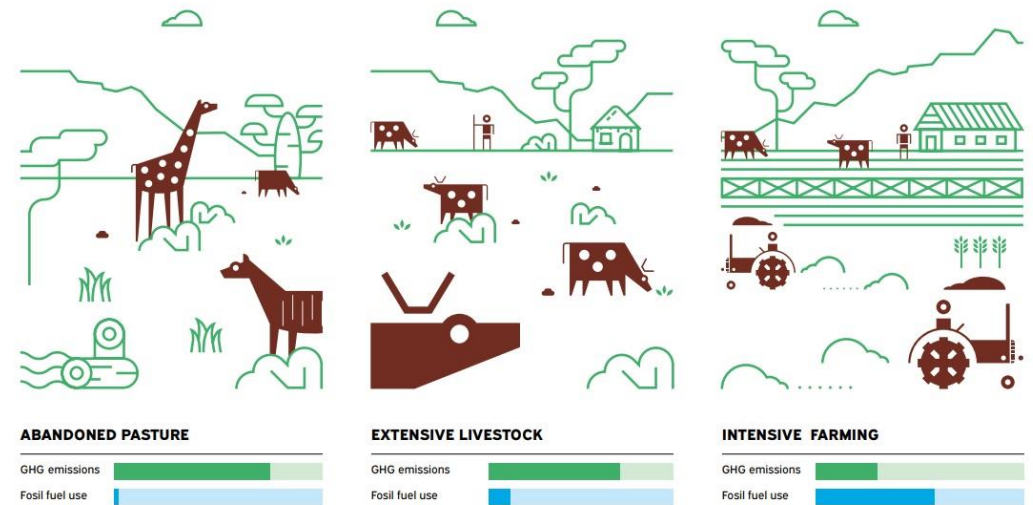
- Rearing phase
- MMS CH4
- Electric energy
- Enteric CH4
- Roughage
- Soil organic carbon
- MMS N2O
- Concentrate feed
- Land use change

is based on this model.



Comparing GHG emissions and fossil fuel use between extensive livestock production, abandoning livestock and industrial agriculture

Source: Manzano and White 2019







Global Methane Pledge



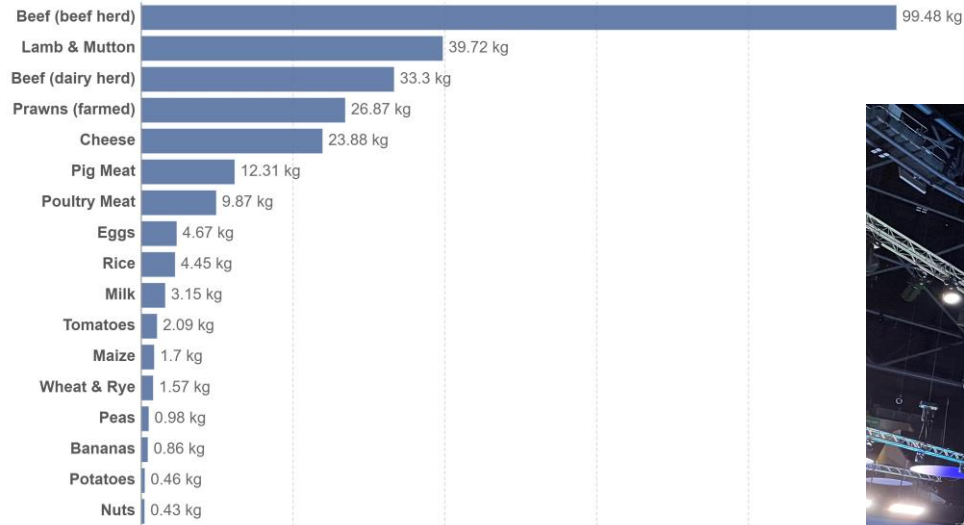
The Global Methane Pledge and 1.5°C

November, 2021

Greenhouse gas emissions per kilogram of food product

Emissions are measured in carbon dioxide-equivalents¹. This means non-CO2 gases are weighted by the amount of warming they cause over a 100-year timescale.

Our World in Data



Source: Joseph Poore and Thomas Nemecek (2018).

OurWorldInData.org/environmental-impacts-

1. Carbon dioxide-equivalents (CO₂eq): Carbon dioxide is the most important greenhouse gas, but not the only one. To capture all greenhouse emissions, researchers express them in 'carbon dioxide-equivalents' (CO₂eq). This takes all greenhouse gases into account, not just CO₂. greenhouse gases in carbon dioxide-equivalents (CO₂eq), each one is weighted by its global warming potential (GWP) value. GWP measures the warming a gas creates compared to CO₂. CO₂ is given a GWP value of one. If a gas had a GWP of 10 then one kilogram of that gas would be ten times the warming effect as one kilogram of CO₂. Carbon dioxide-equivalents are calculated for each gas by multiplying the mass of each specific greenhouse gas by its GWP factor. This warming can be stated over different timescales. To calculate CO₂eq over 100 years, we'd use the gas's GWP over a 100-year timescale (GWP100). Total greenhouse gas emissions – measured in CO₂eq – are then calculated by summing each gas's CO₂eq value.



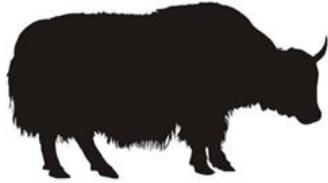
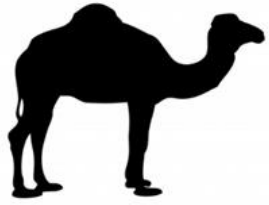
THE HUMAN POPULATION WILL INCREASE TO **9.7 BILLION** BY 2050. UNLESS SOMETHING CHANGES ABOUT HOW WE USE LAND AND WATER WE WILL STRUGGLE TO SUPPLY GROWING FOOD DEMANDS

THE ANIMAL AGRICULTURAL SECTOR REPRESENTS **14.5%** OF ALL HUMAN CAUSED GREENHOUSE GAS EMISSIONS, TOTALING 7.1 GIGATONS OF CO2 EQUIVALENT EVERY YEAR

RAISING A COW UNTIL IT IS READY FOR SLAUGHTER, REQUIRES AROUND **41,000 LITRES** OF WATER PER COW, PER YEAR

SOURCE: HERRERA AND MATHIAS OF AGRICULTURAL AND ANIMAL RESOURCES





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www.pastres.org/livestock-report

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