

HOARD'S DAIRYMAN

WEBINARS

Hoard's Dairyman Webinar by Frank Mitloehner, University of California, Davis
June 13, 2022

HOARD'S DAIRYMAN
WEBINARS

Dairy's path to climate neutrality

Presented by Frank Mitloehner
University of California, Davis

June 13, 2022

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Rethinking Methane: Dairy's path to climate neutrality

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CLEAR Center: Two Cores

The UC Davis CLEAR Center has two equal cores, so that our world-class research reaches audiences that it will resonate with

Research

Outreach

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Communications

- Teaching the public about food and the environment
- Create content for policy makers and thought leaders
- Collaborate with companies, organizations and farmers to increase reach and further impact

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Research

Recent projects

- Rethinking methane: The path to climate neutrality
- LCA comparison: Beef vs. plant-based meat alternative
- Biomethane
- Feed additives to reduce pollutants
- GHG quantification on dairies

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We have wide impact, working with those on the farm, as well as those influencing global policy.

A small sample of the organizations we work with.

7

1984 2014

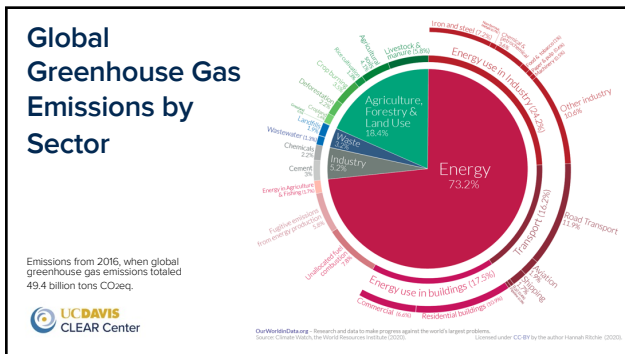
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This is the current narrative around animal agriculture.

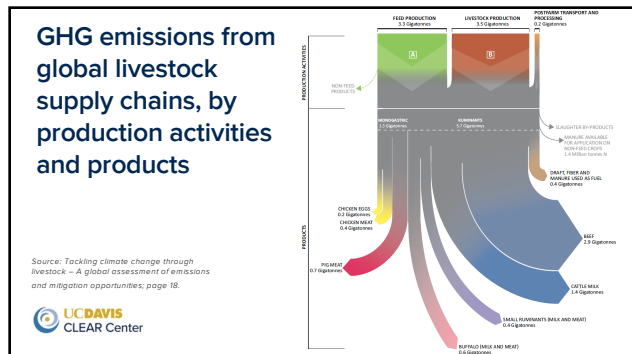
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Farmers are changing the narrative.

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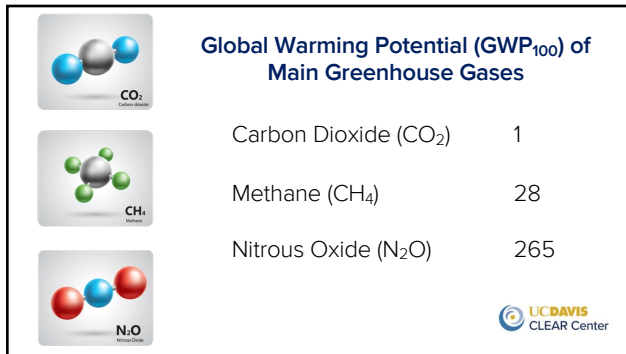


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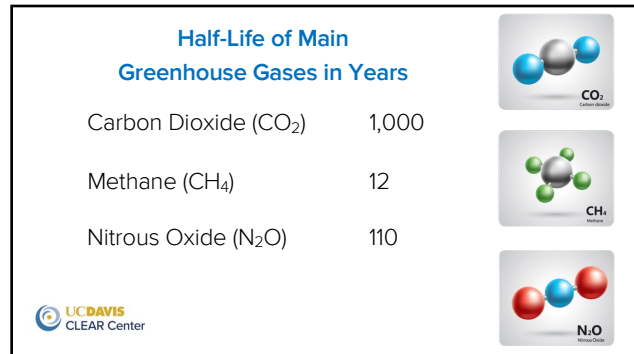


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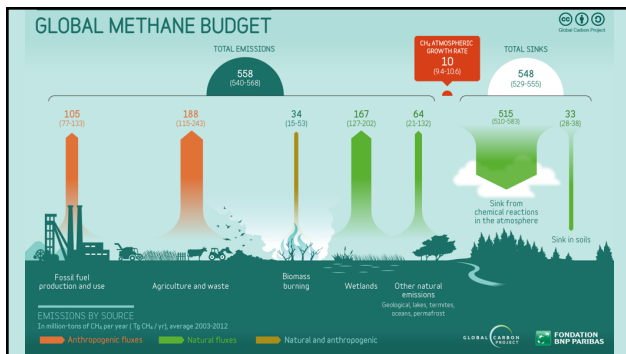
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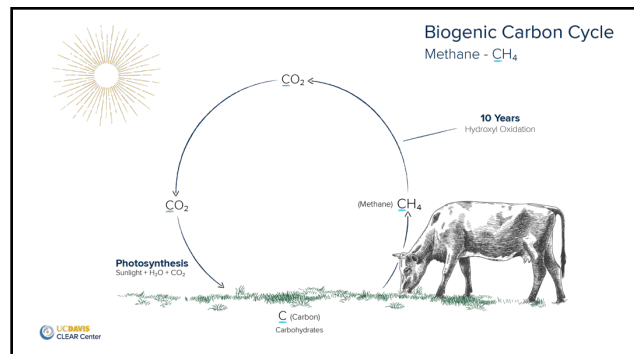
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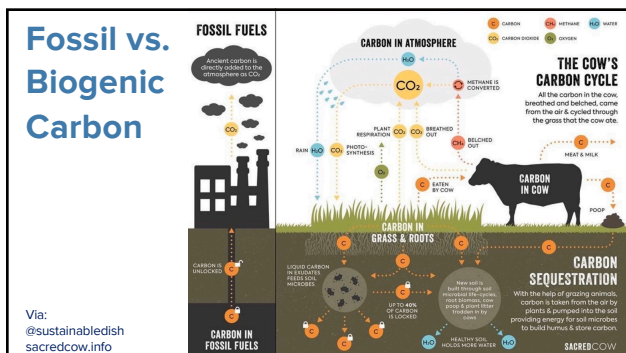
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15




16



17

GW^{*} - A new way to characterize short-lived greenhouse gases

- GW^{*}100 overestimates methane's warming impact of constant herds by a factor of 4, and overlooks its ability to induce cooling when CH₄ emissions are reduced.
- GW^{*} is a new metric out of the University of Oxford that assesses how an emission of a short-lived greenhouse gas affects temperature.
- GW^{*} accounts for methane's short lifespan, including its atmospheric removal.



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Read the page here: bit.ly/ipcc_ch7

19

Stock Gas Carbon dioxide (CO₂) Atmospheric Concentration

Flow Gas Methane (CH₄) Atmospheric Concentration

Stock gases will accumulate over time, because they stay in the environment.

Flow gases will stay stagnant, as they are destroyed at the same rate of emission.

20

	Annual Methane Emissions	CO ₂ equivalent emissions Using GWP ₁₀₀	CO ₂ equivalent emissions Using GWP*
WARMING	1 tCH ₄ /y Rise by 35%	987 tCO ₂ -e +33 tCO ₂ -e for 30y	982 tCO ₂ -e +33 tCO ₂ -e for 30y
STABLE	Fall by 10%	798 tCO ₂ -e	-10 tCO ₂ -e
COOLING	Fall by 35%	693 tCO ₂ -e	-862 tCO ₂ -e

Can, M., Allen, M. & Lynch, L. Oxford Martin Programme on Climate, *Pollutants* (2022). Read more at: <https://www.oxfordmartin.ox.ac.uk/publications/pollutants>

21

Annual methane emissions (kt; Tier 1 estimates) from global non-dairy cattle & buffaloes, 1961 - 2019

Percent change 1961 – 2019: +71% or +1.22%/year

Source: UN FAOSTAT

- Manure management methane buffaloes, kilotonnes
- Enteric methane buffaloes, kilotonnes
- Manure management methane non-dairy cattle, kilotonnes
- Enteric methane non-dairy cattle, kilotonnes

From 1961 to 2017, global cattle and buffalo meat production grew by 144% (UN FAOSTAT, 2022), and methane emissions from both manure and enteric sources grew 71% from 1961 to 2019.

22

U.S. cattle sectors can be climate neutral by 2044 with 18% to 32% in methane reductions

- Business-as-usual won't cut it and will require development and adoption of new innovations.
- Reducing enteric emissions is critical. Innovations such as feed additives and developing low-methane emitting breeding strategies are being researched.
- Dairy digesters have reduced 30% of California's methane reduction goals.

Read the white paper at: bit.ly/clearpaper

23

US Dairy Trends

- In 1950, there were 25 million dairy cows in the U.S. Today there are 9 million.
- With 16 million fewer cows (1950 vs 2018), milk production nationally has increased 60 percent.
- The carbon footprint of a glass of milk is 2/3 smaller today than it was 70 years ago.

24

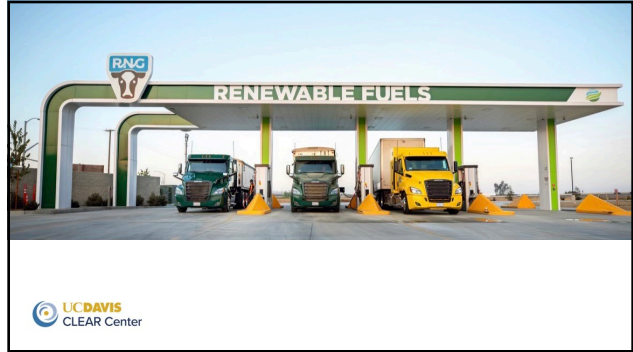
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Since 2015 California dairies have reduced greenhouse gases by 2 million metric tons – a **30% reduction.**



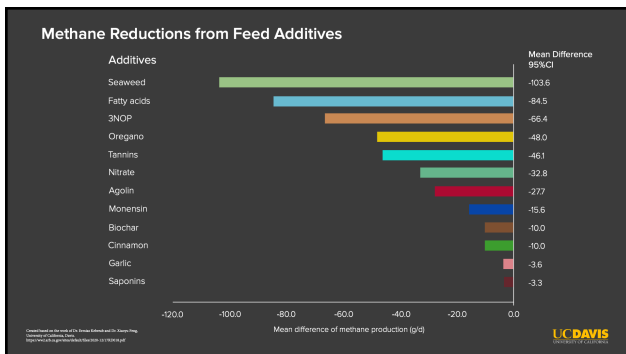
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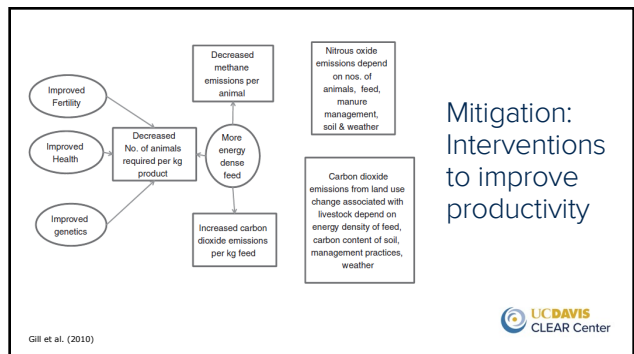


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27



28

Can we eat our way out of climate change?

- Omnivore to vegan (per yr) = 0.8 tons CO₂e (Wynes & Nicholas, 2017)
- One trans-Atlantic flight (per passenger) = 1.6 tons CO₂e (Wynes & Nicholas, 2017)
- Meatless Monday (US) = 0.3% GHG reduction (Hall & White, 2017)
- Vegan US = 2.6% (Hall & White, 2017)



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Global Waste:

1 out of 3 calories

40% of food in the U.S. is wasted



PHOTOGRAPH BY ROBERT CLARK, NATIONAL GEOGRAPHIC

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Pathway to Climate Neutrality for U.S. Beef and Dairy Cattle Production

White Paper with the Chief Sustainability Officer of Elanco Animal Health - bit.ly/clearpaper

Rethinking Methane video - bit.ly/RethinkingMethaneVideo

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34

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UPCOMING WEBINARS

July 11, 2022
Housing options for calves
Presented by Whitney Knauer, University of Minnesota

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The Calf Housing Specialist

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August 8, 2022
Strategies for silage harvesting success
Presented by John Goesser, Rock River Laboratory

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35

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Thank you for joining today's webinar

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