Why Enteric Methane?

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Methane mitigation is our best option in combating climate change

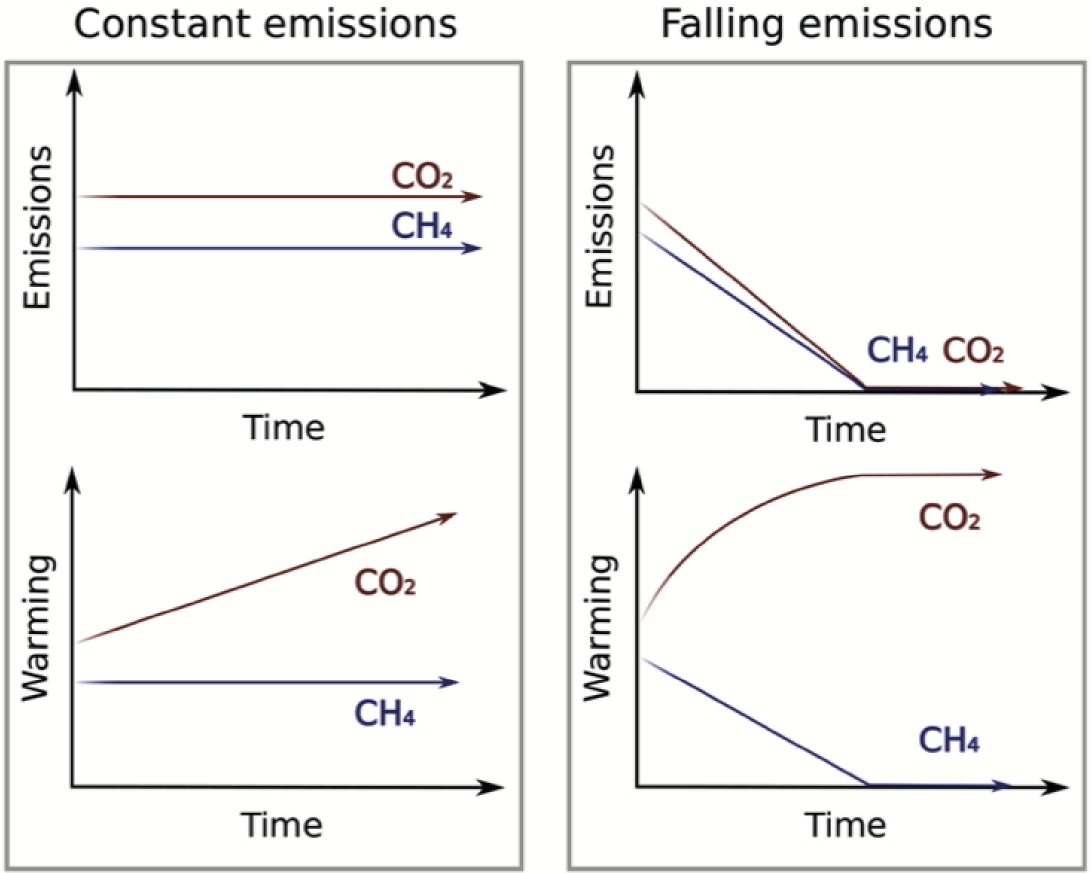
Extremely Potent

85X Stronger than C02 over 20 Years

Short Lived

Breaks down in ~12 years vs 100s/1000s of years compared to CO2

Reducing CH4 Emissions leads to reduced warming



Allen et al.,2017

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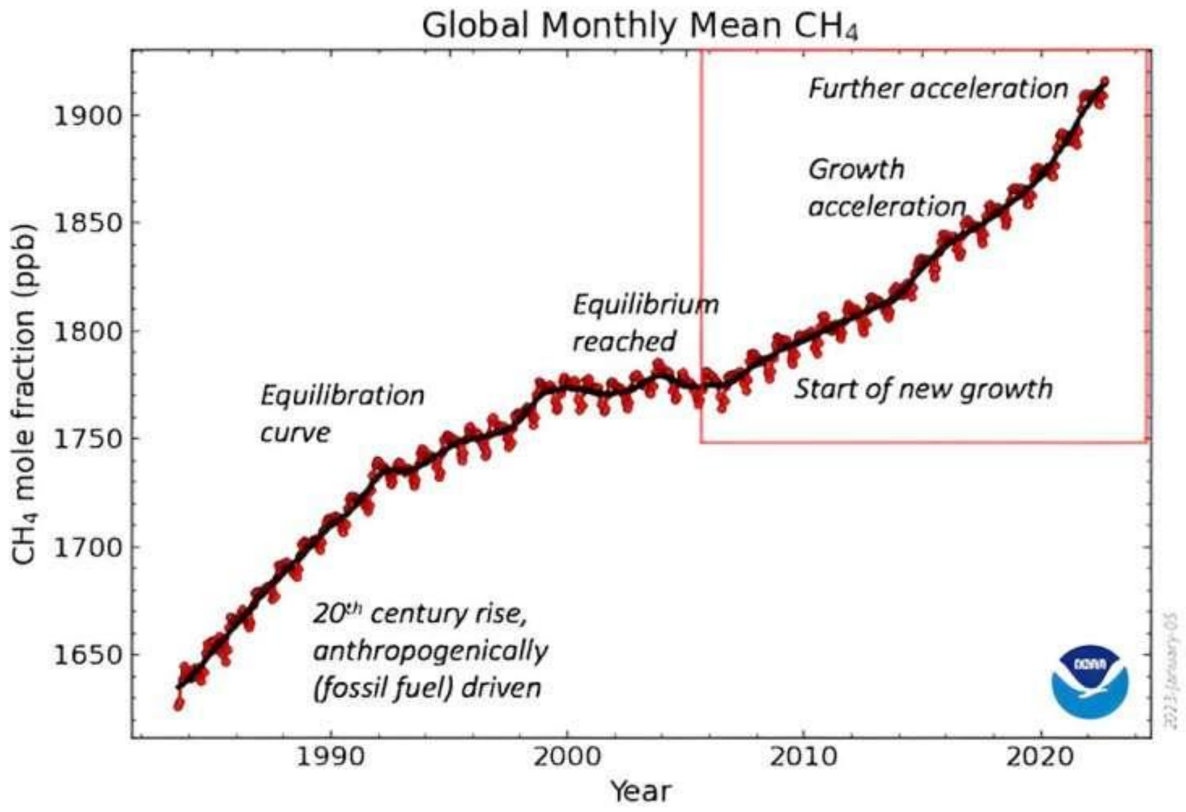
Atmospheric Methane Concentration is Increasing at an Accelerated Rate

0.5°C

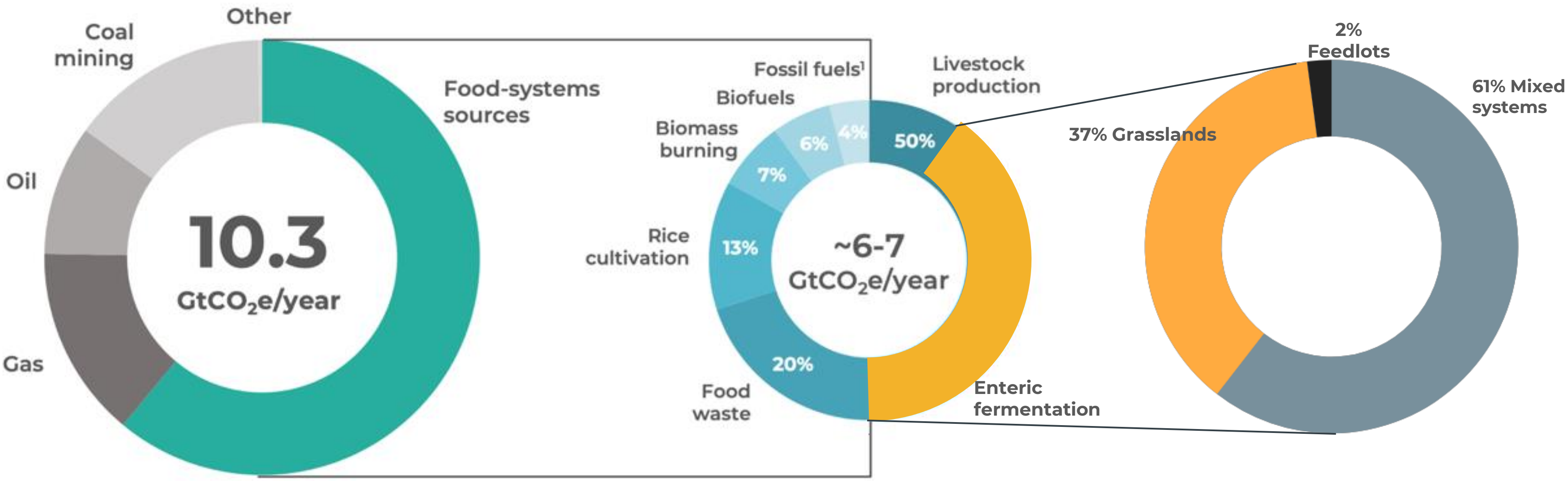
of current temperature increase is from methane

47%

of additional warming in the next few decades likely to be from methane



Global Anthropogenic and Food Systems Methane



Global anthropogenic methane emissions (2017)[1]

Food system methane emissions

Proportions of enteric methane emissions

[1]Saunois et. al 2020: Total anthropogenic emissions are based on estimates of a full anthropogenic inventory and not on the sum of the "agriculture and waste", "fossil fuels", and "biofuel and biomass burning" categories due to methodology of adding different inventories. IPCC AR6 WGIII (2022). Available at: https://www.ipcc.ch/report/ar6/

[2]Hegarty RS, Cortez Passetti RA, Dittmer KM, Wang Y, Shelton S, Emmet-Booth J, Wollenberg E, McAllister T, Leahy S, Beauchemin K, Gurwick N. 2021. An evaluation of emerging feed additives to reduce methane emissions from livestock. Edition 1. A report coordinated by Climate Change, Agriculture and Food Security (CCAFS) and the New Zealand Agricultural Greenhouse Gas Research Centre (NZAGRC) initiative of the Global Research Alliance (GRA).

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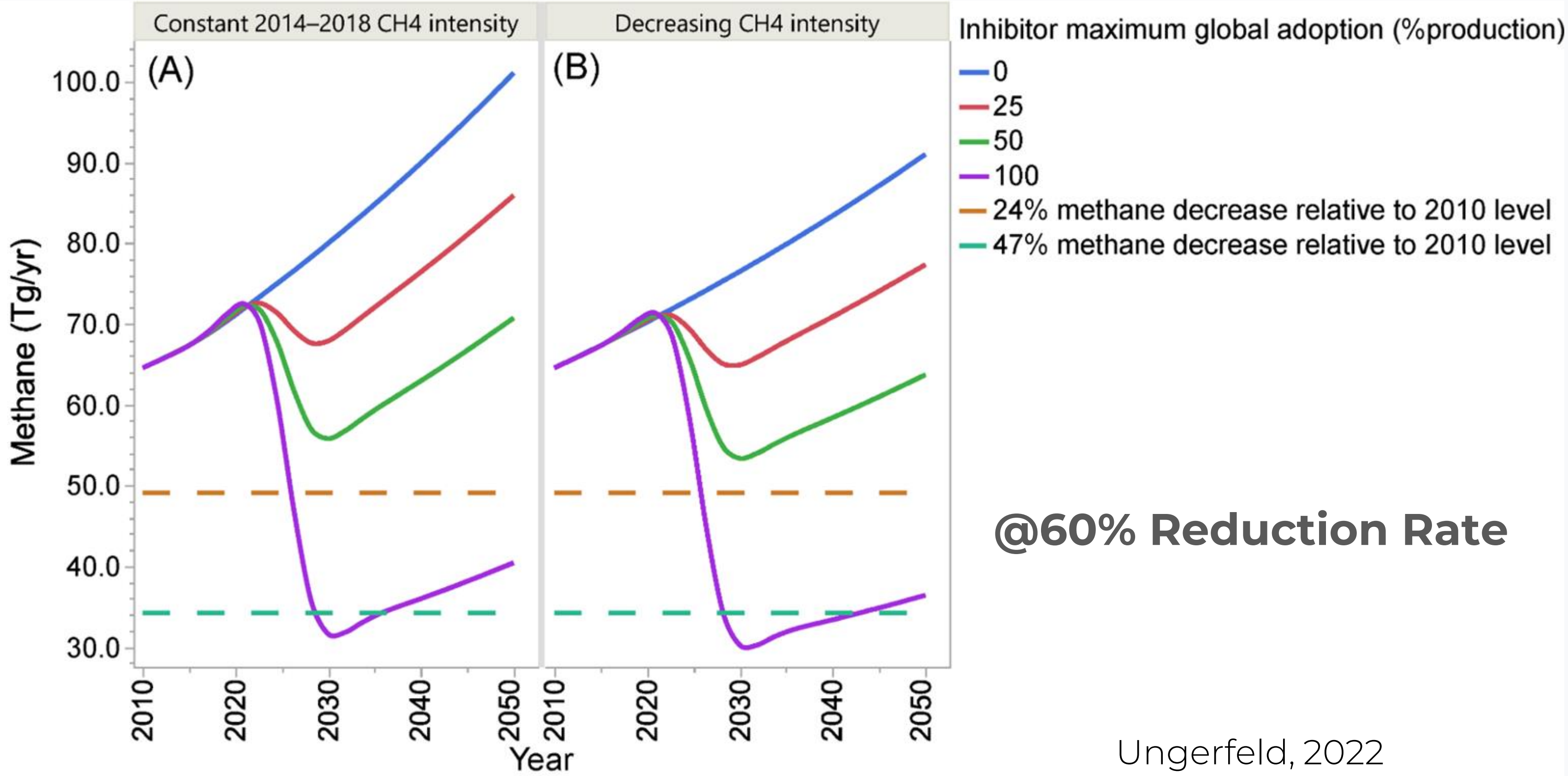
Projected Emissions Reduction Scenarios (Global)



@60% Reduction Rate

Ungerfeld, 2022

Outlook on Enteric Methane Mitigation in California

Goal = 40 % of 22.57 MMtCO2e total = 9MMTCO2e

Projected Dairy Sector Methane Reductions	
Reduction Type	Expected Dairy Emission Reductions Through 2030 (MMTCO2e)
Herd Reduction	2.61 – 3.3
Anaerobic Digestion	4.15
Alternative Manure Management Practices	0.6 - 1.1
Enteric Emission Reduction Strategies	0.25 – 2.04
Total	7.61 – 10.59

Best Case Scenario Projected Deficit Without Enteric Reductions ~0.45 MMTCO2e.

California needs 500,000 head (Dairy) using a product that reduces Enteric Methane by 30%.

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@3MTCO2e/Cow*annum

Kebreab, Mitloehner, Sumner, 2022

What do we need?

- To achieve State goals, we need strong early adoption of emerging solutions
- To achieve Global goals , we need solutions that can be applied to extensive systems (Grazing, Cow/Calf)
- To achieve Global goals, we will need a combination of methane mitigation strategies
- In all cases, we need an attractive, durable, and reliable value chain to facilitate the adoption of these strategies.