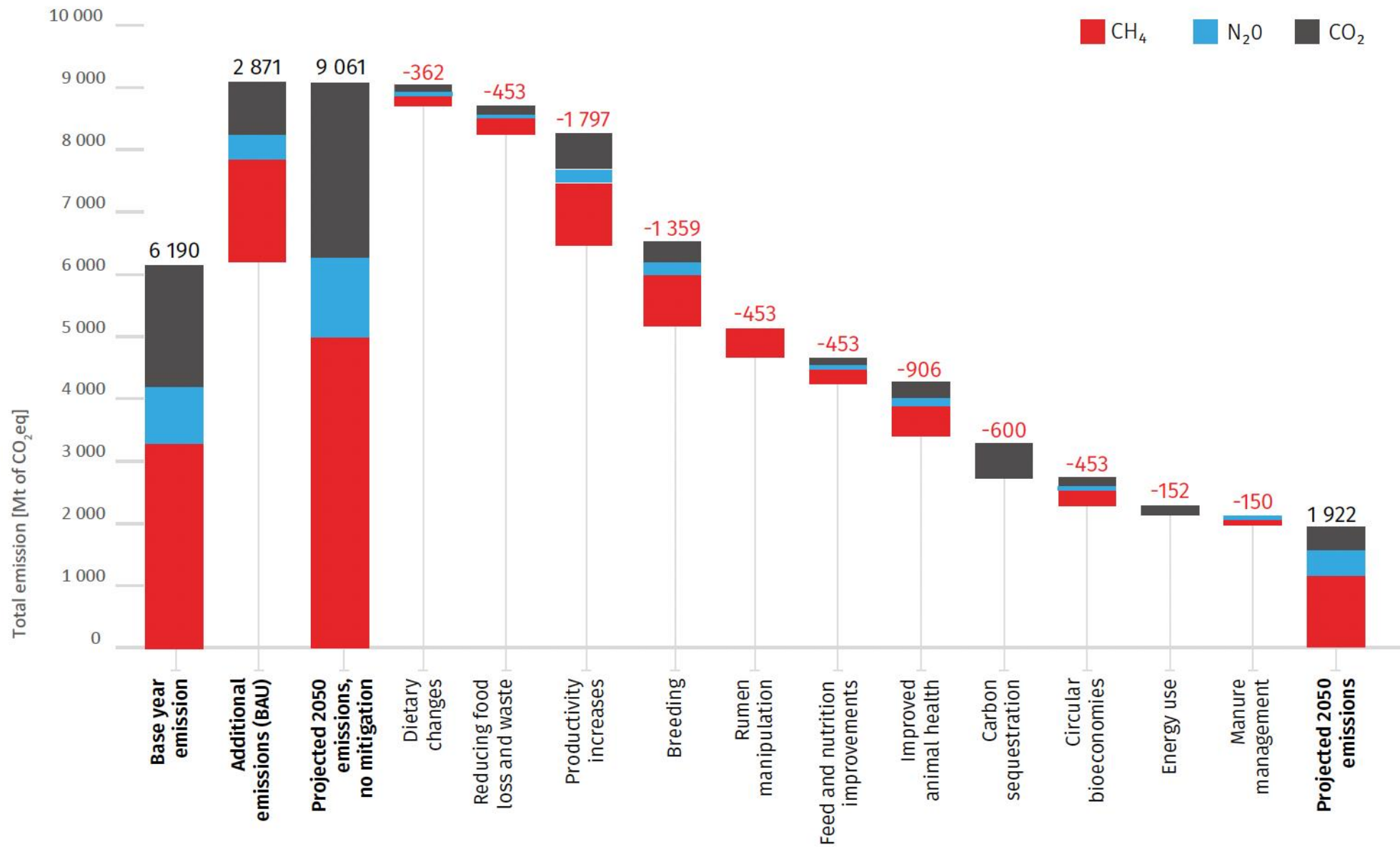


LIVESTOCK CLIMATE SOLUTIONS

WHY WE NEED A
TOOLKIT OF
SOLUTIONS TO
REDUCE GHGS FROM
THE FOOD SYSTEM

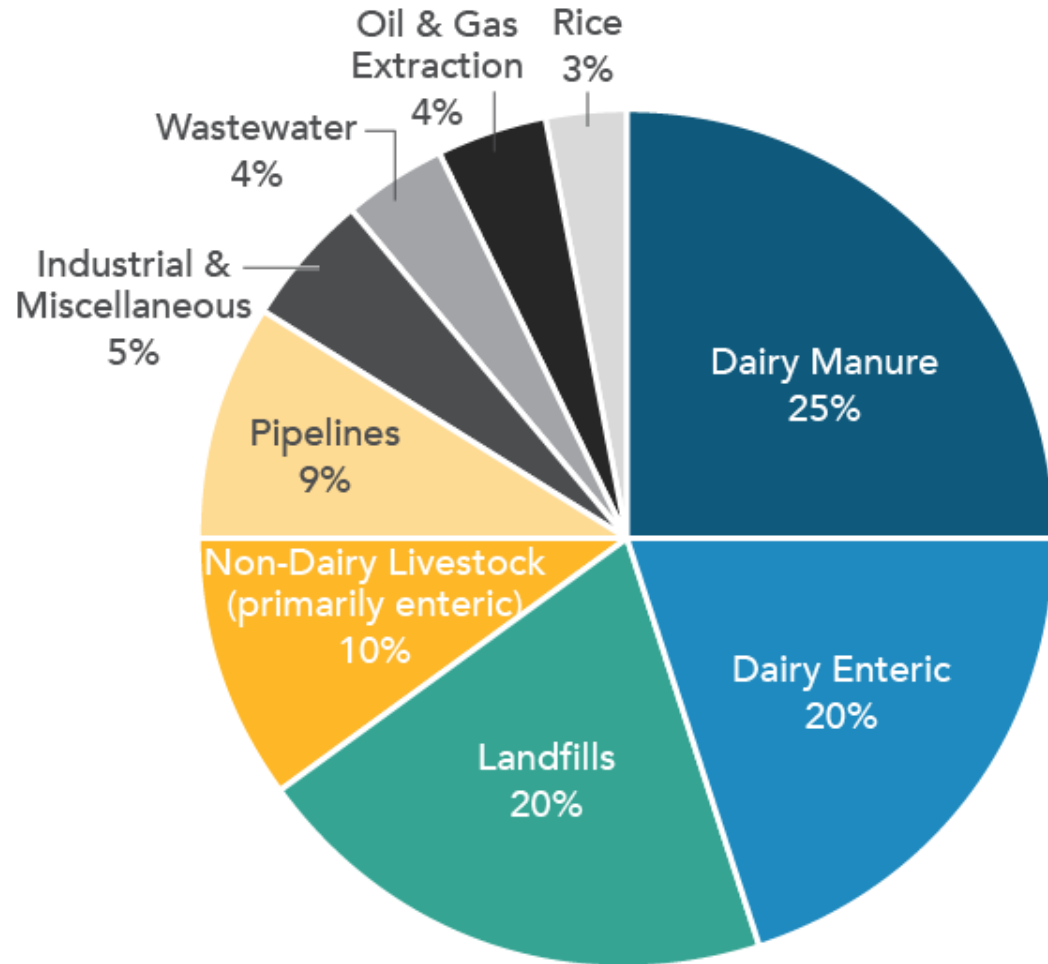
Frank Mitloehner, Professor, Air Quality Specialist, Director
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Base year and projected emissions from livestock systems shown as a waterfall chart with a range of mitigation measures applied to 2050 with their technical potential. From: [Pathways towards lower emissions – A global assessment of the greenhouse gas emissions and mitigation options from livestock agrifood systems.](#)

Ambitious Goals in California

2013 Methane: 118 MMTCO₂e (20-yr GWP)





- California had set aggressive targets for reducing methane 40% below 2013 levels by 2030
- Dairy to reduce 7.2 MMTCO₂e
- 1.8 MMTCO₂e reductions coming from mostly beef cattle.

California dairy should meet the full 40 percent reduction by 2030: 7.61 – 10.59 MMT

- Attrition - 2.6 to 3.3 MMTCO₂e/yr
- Alternative manure management - 0.6 and 1.1 MMTCO₂e/yr
- Dairy Digesters - 4 MMTCO₂e/yr
- Feed additives - 250,000 MTCO₂e - 2 MMTCO₂e/yr

Review

Invited review: Current enteric methane mitigation options

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Camillo De Camillis¹⁵, Martial Bernoux¹⁶, Timothy Robinson¹⁵,
Ermias Kebreab¹⁷

Show more 

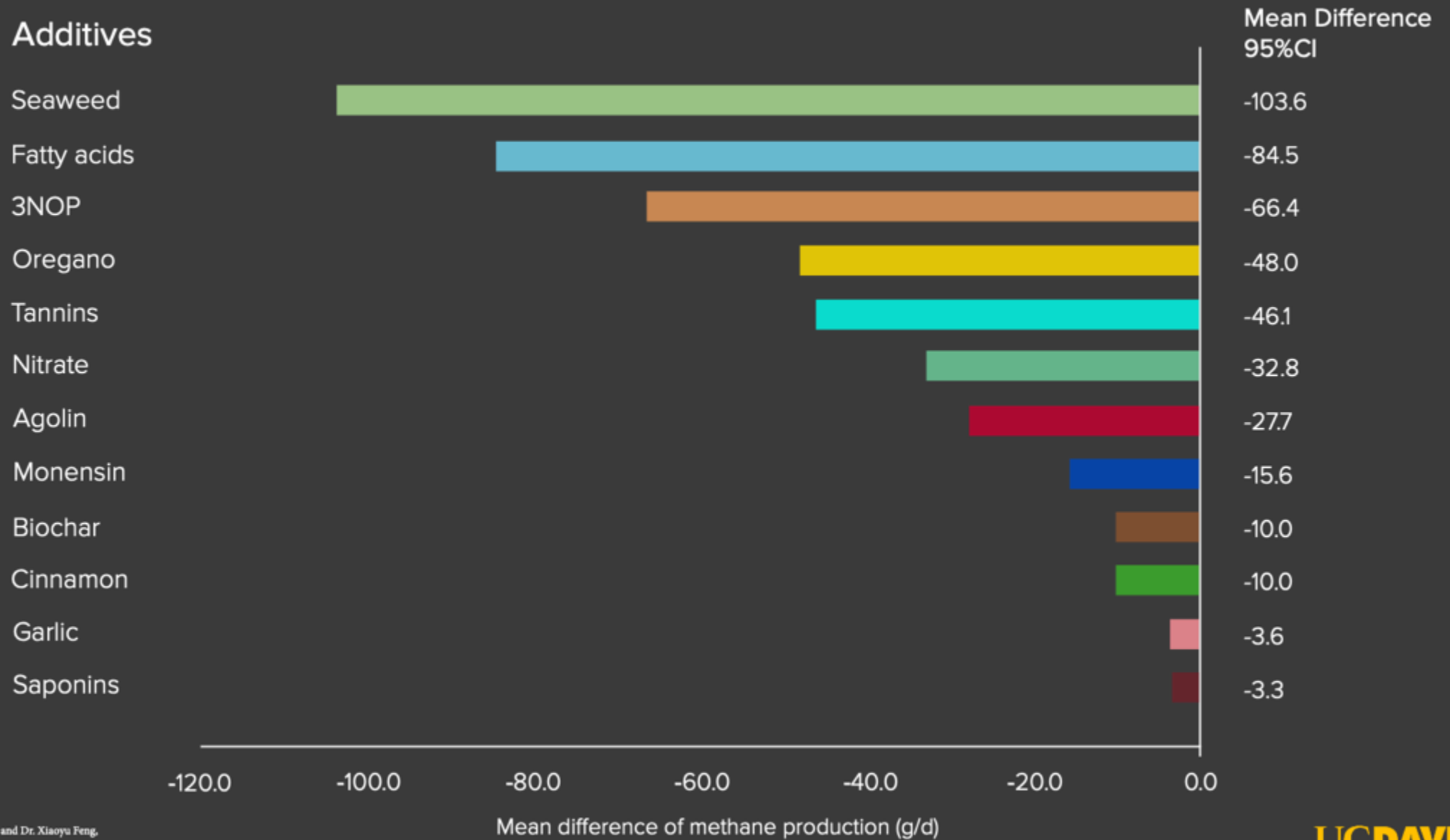
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<https://doi.org/10.3168/jds.2022-22091> 

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- Increased Animal Productivity
- Selection of Low-Methane Animals
- Diet Reformulation
- Forages
- Action on Rumen Fermentation
- Early State Mitigation Strategies

Methane Reductions from Feed Additives



Public Spending on Agricultural Research and Development Fell by One-Third Since 2002



Notes: Spending on public agriculture R&D includes federal, state, and non-government funds used for food, agriculture, and forestry research by the USDA, land-grant universities, and other cooperating institutions. Spending is in 2019 dollars adjusted for inflation using the National Institutes of Health Biomedical Research and Development Price Index. The spike in R&D spending in 1976 is due to an adjustment in the federal fiscal year in which 1979 included five quarters of spending.

GROWING GREEN

BREAKTHROUGH
INSTITUTE

UC DAVIS
CLEAR Center

- 
- **Consumption is expected to increase in developing regions and stay near stable in developed regions**
 - **To reduce emissions, we need a toolbox of solutions**
 - **We need to increase public and private research funding for livestock climate solutions**



Thank you
clear.ucdavis.edu

