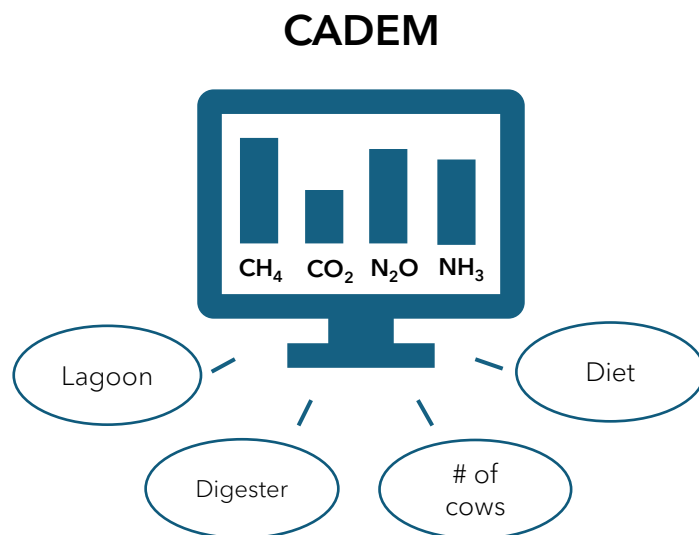


Streamlining CADEM for a Web-Based Emissions Calculator

Background

The California Dairy Emissions Model (CADEM) is a process-based tool designed to estimate emissions of greenhouse gases, such as methane (CH_4), carbon dioxide (CO_2), and nitrous oxide (N_2O), as well as ammonia (NH_3) from dairy and livestock operations. While CADEM can produce reliable modeled results, it requires extensive and detailed input data, making it difficult to use and challenging to adapt into a more user-friendly calculator.



Main Question: How can we make CADEM easier to use?

Key Research Plans

Under this contract, researchers will identify common dietary and manure management practices used on California dairies. They will use this information to create default input values that make CADEM easier to use, especially when farm-specific data is not

available. The team will also conduct sensitivity analyses to examine how key factors, such as feed composition and manure handling, affect emissions. In addition, the project will evaluate how well CADEM estimates emissions from beef cattle and lay the groundwork for adding new feed additive mechanisms to the model.

Expected Impacts

The outcomes of this project will bring CADEM closer to becoming a more user-friendly calculator that can let producers, policymakers, and researchers estimate emissions from individual dairy and livestock facilities. It can also support the evaluation of different emission mitigation strategies and help identify approaches that are both practical for producers and aligned with the methane emission reduction goal set under Senate Bill 1383.

More Information

This project is led by Dr. Ermias Kebreab from the University of California, Davis. Contract [23RD031](#). Visit our [website](#) or contact us by [e-mail](#).

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