

The Enteric Fermentation Process

1 Consume the feed



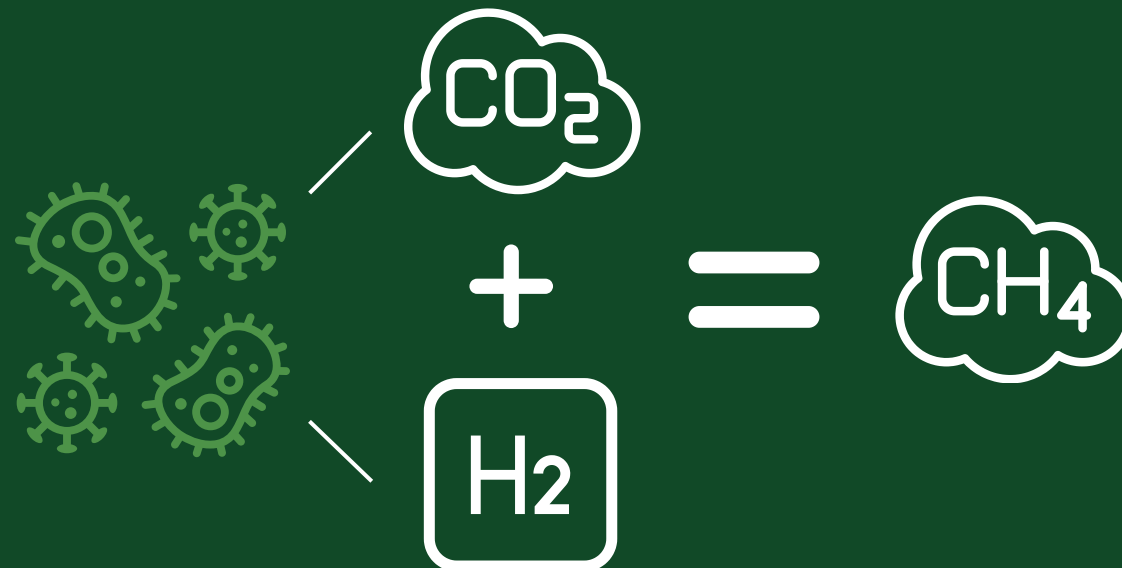
2 Ferment the feed



Byproducts

- Fatty acids
- Carbon dioxide
- Hydrogen gas

3 Methanogens convert CO_2 and H_2 into CH_4



4 Burp out methane

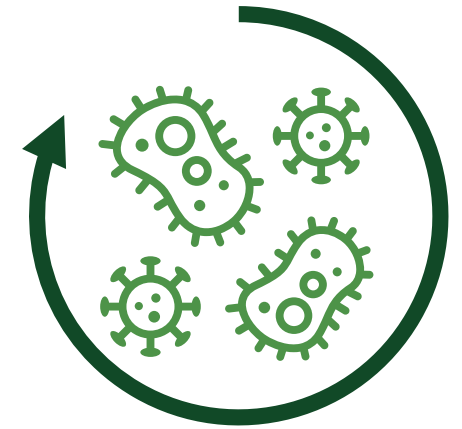


The Enteric Fermentation Process

1 Consume the feed



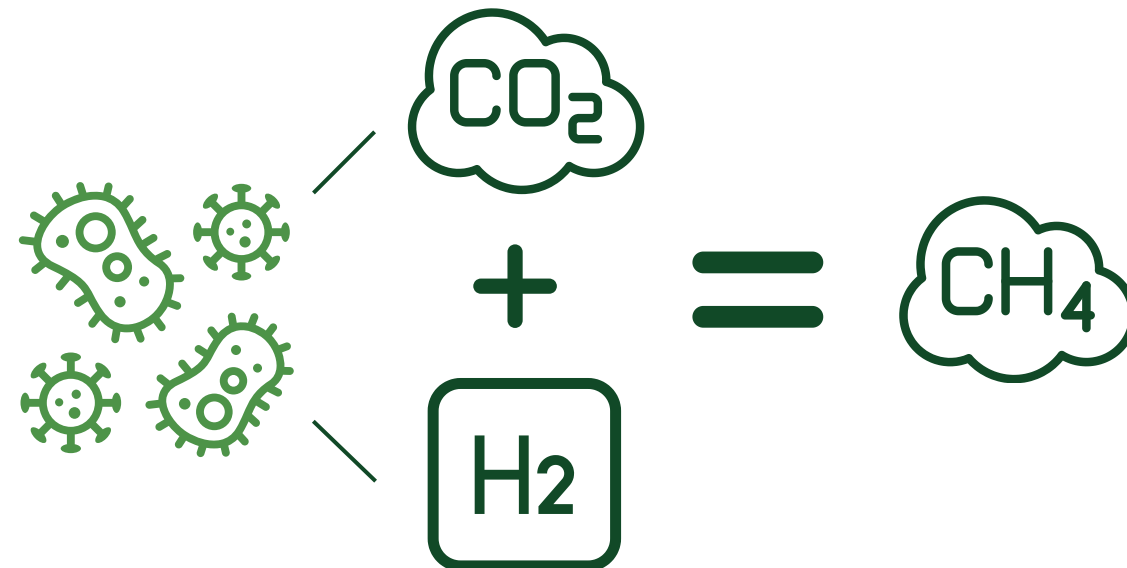
2 Ferment the feed



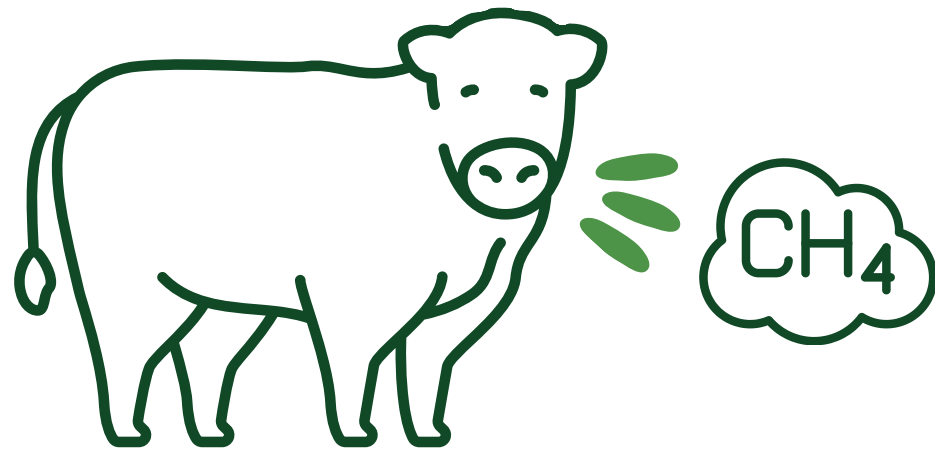
Byproducts

- Fatty acids
- Carbon dioxide
- Hydrogen gas

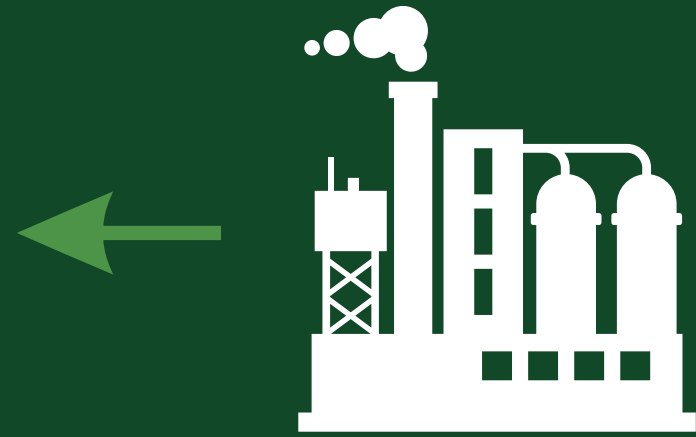
3 Methanogens convert CO_2 and H_2 into CH_4



4 Burp out methane



The Importance of Methane



Responsible for ~ 30% of warming since pre-industrial times



Higher heat-trapping potential than carbon dioxide



Short-lived ~ 12 years in the atmosphere, according to EPA and IPCC data*

How AgNext considers this in our enteric methane research:

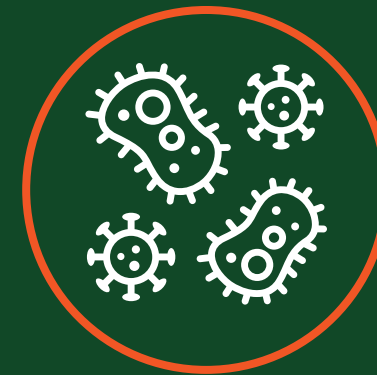


Develop baseline CH₄ emissions and reduce emissions from cattle

Methods used



Feed management



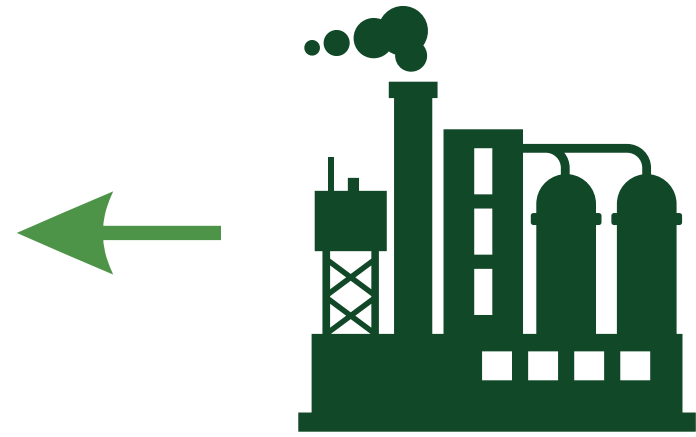
Microbes and changing rumen



Genetic selection

*EPA Source
*IPCC Source

The Importance of Methane



Responsible for ~ 30% of warming since pre-industrial times



Higher heat-trapping potential than carbon dioxide



Short-lived ~ 12 years in the atmosphere, according to EPA and IPCC data*

How AgNext considers this in our enteric methane research:

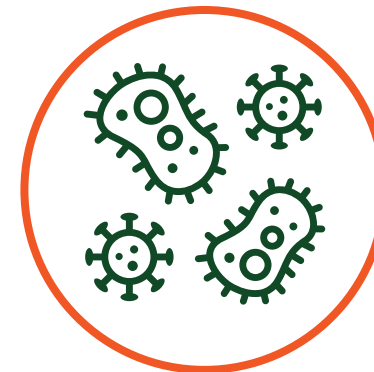


Develop baseline CH₄ emissions and reduce emissions from cattle

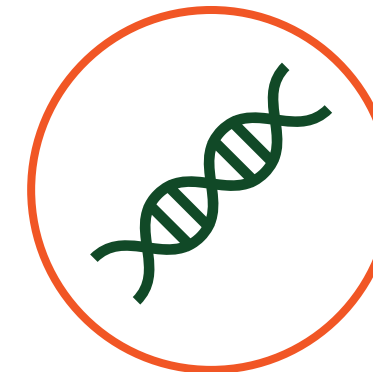
Methods used



Feed management



Microbes and changing rumen

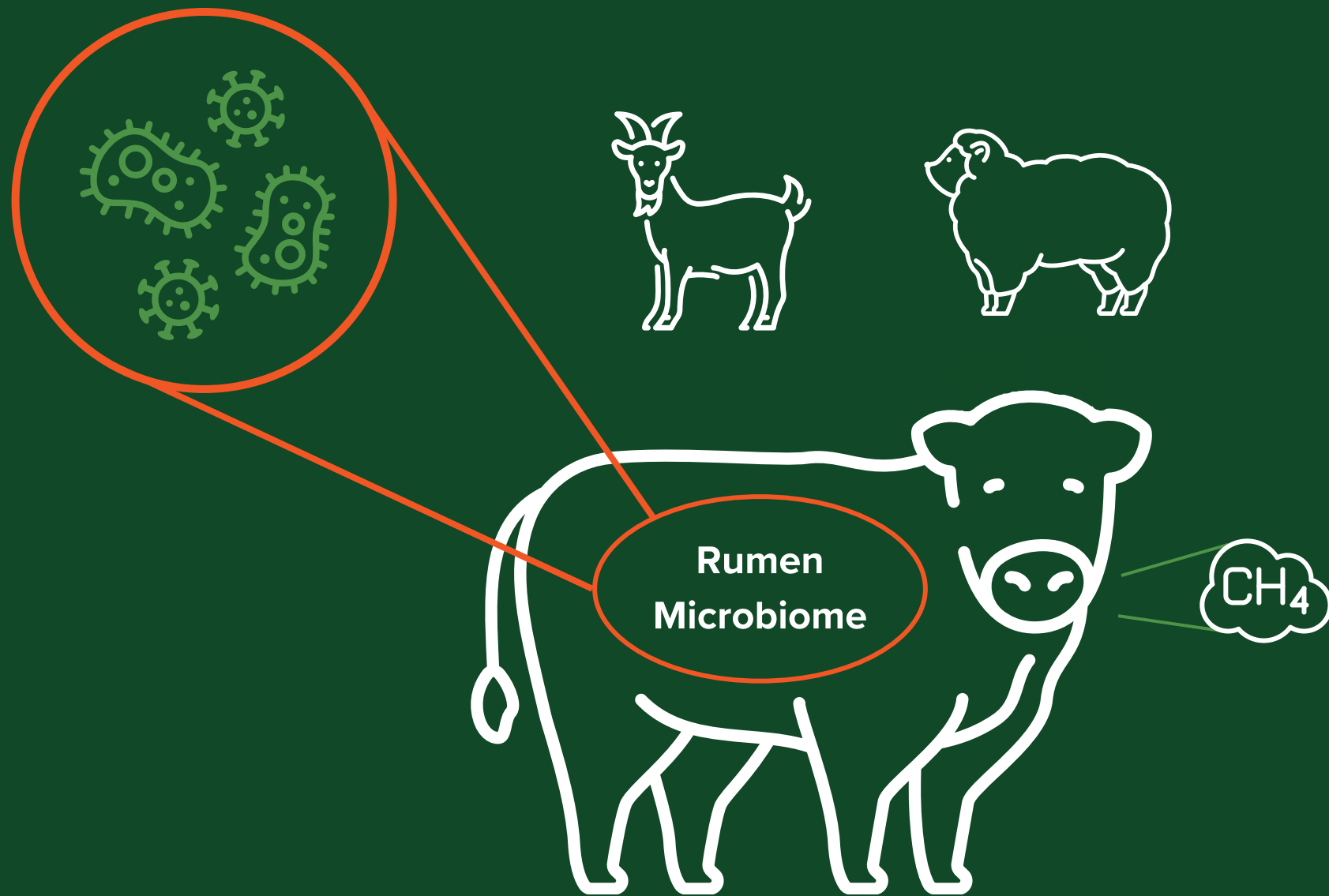


Genetic selection

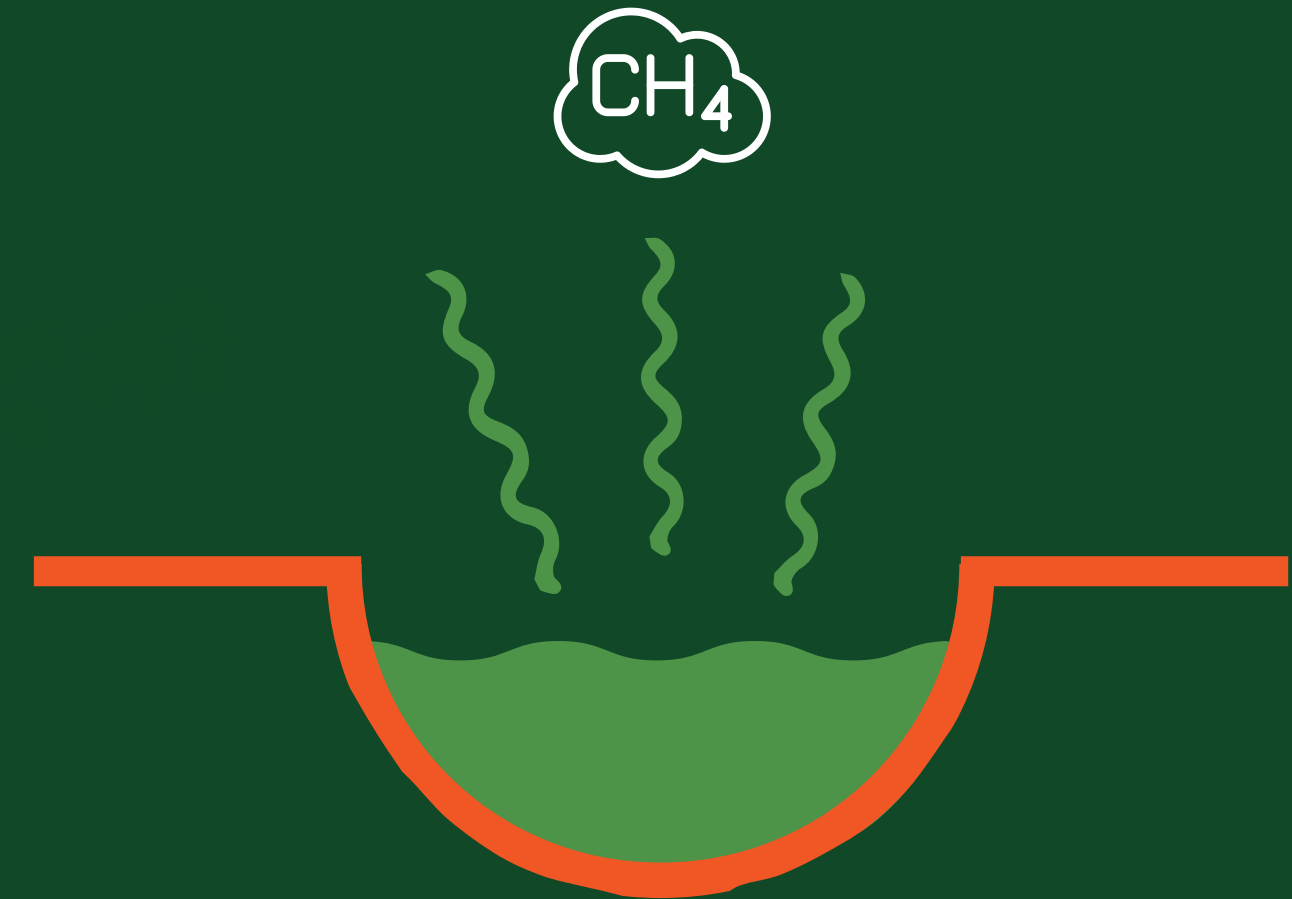
*EPA Source
 *IPCC Source

Methane in Animal Agriculture

Produced in ruminant microbiomes (Enteric Methane)



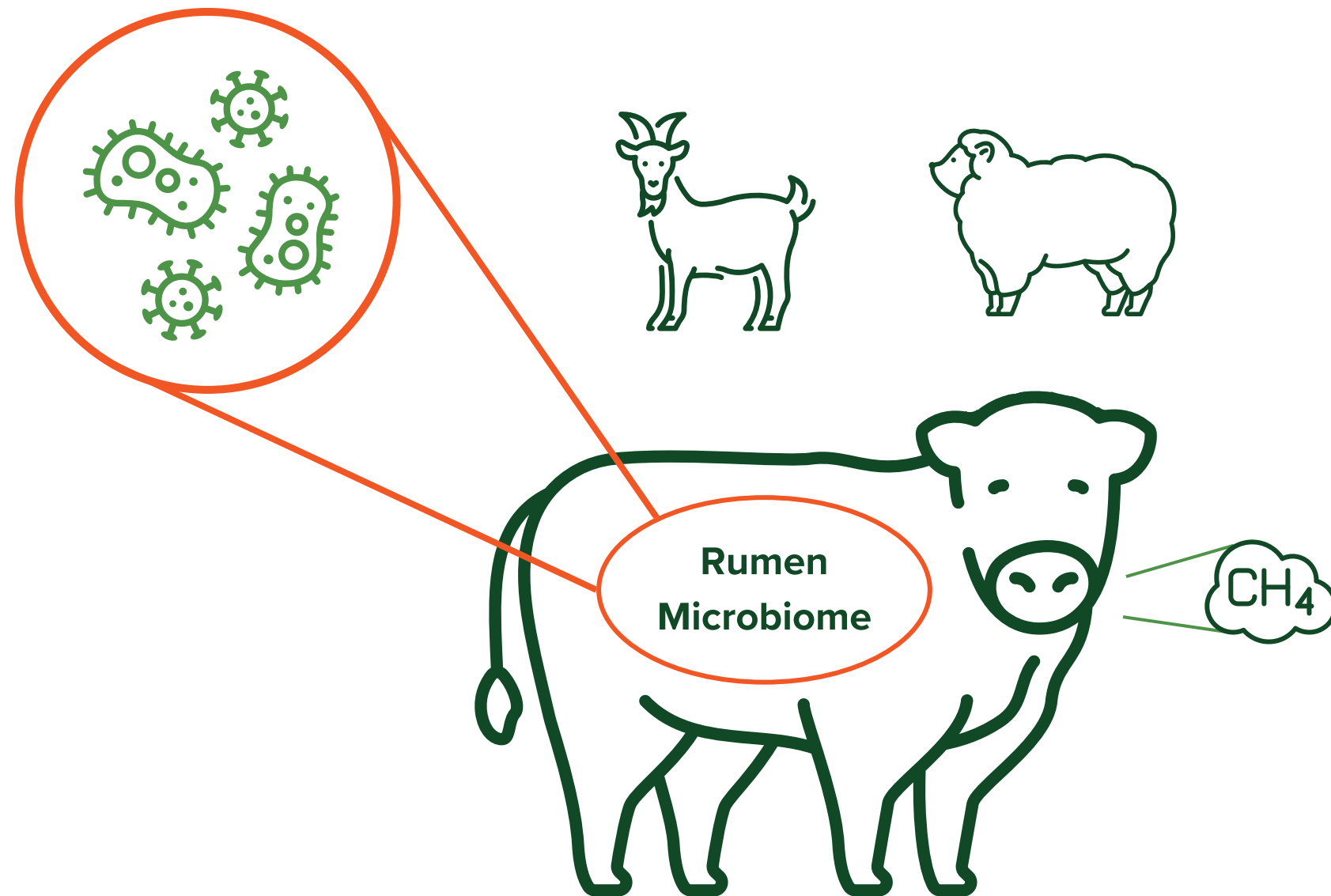
Anaerobic decomposition of manure



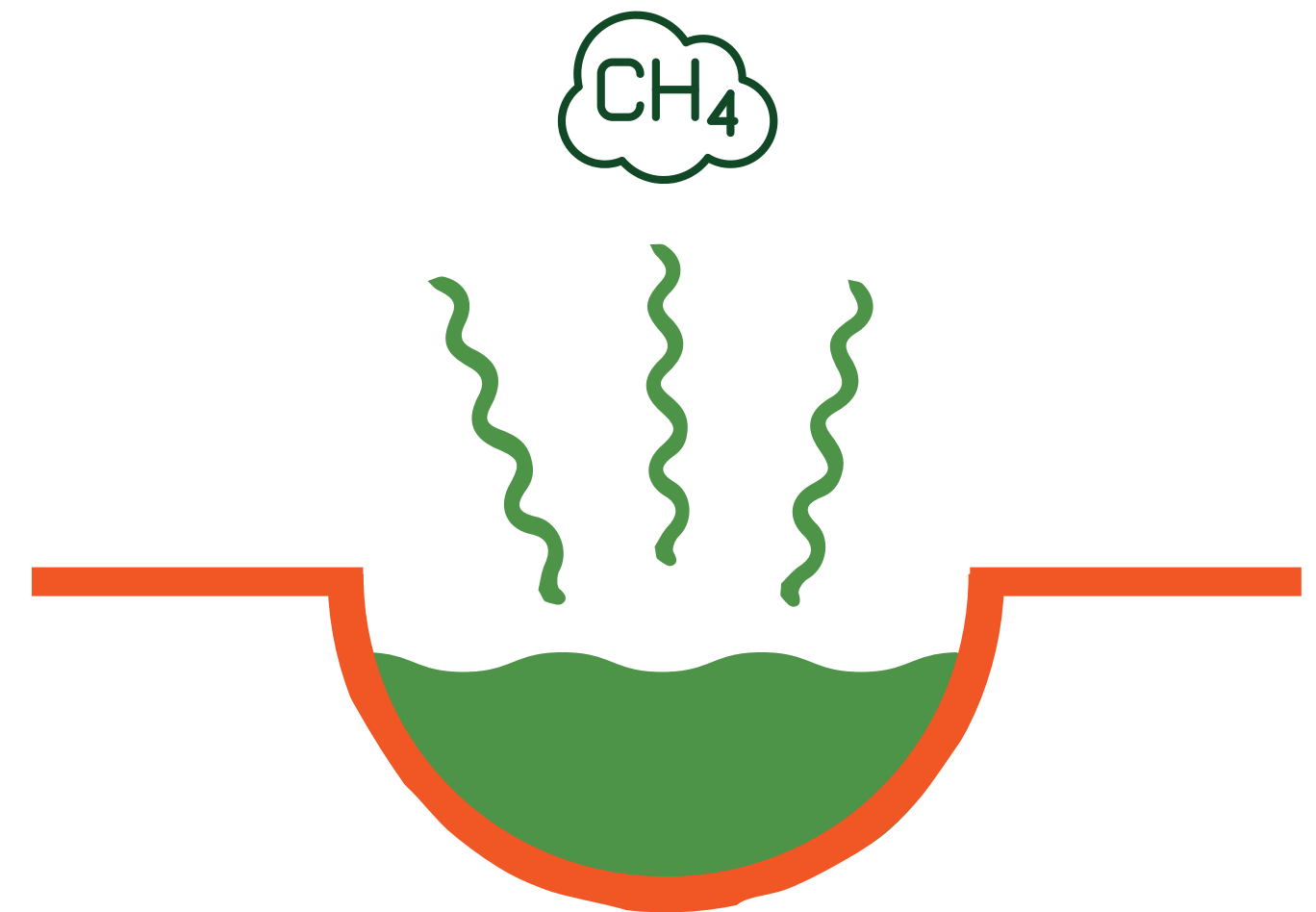
Anaerobic (oxygen free)
manure storage and
treatment facility

Methane in Animal Agriculture

Produced in ruminant microbiomes (Enteric Methane)



Anaerobic decomposition of manure



Anaerobic (oxygen free)
manure storage and
treatment facility

Ways to Reduce Methane Emissions

Feeding more fermentable carbohydrates to ruminants



Reduces hydrogen availability to methanogens



With less hydrogen for fuel, methanogens produce less Methane

Ways to Reduce Methane Emissions

Feeding more fermentable carbohydrates to ruminants



Reduces hydrogen availability to methanogens



With less hydrogen for fuel, methanogens produce less Methane

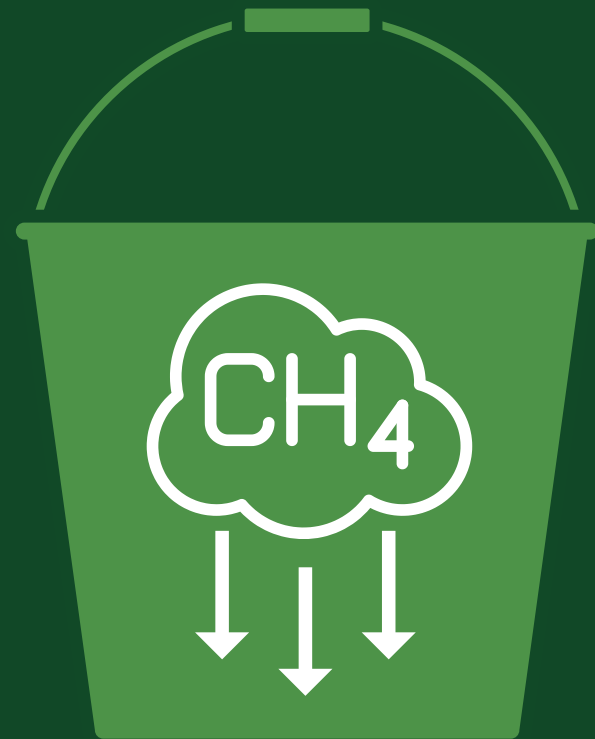


AgNext

COLORADO STATE UNIVERSITY

SUSTAINABLE SOLUTIONS
FOR ANIMAL AGRICULTURE

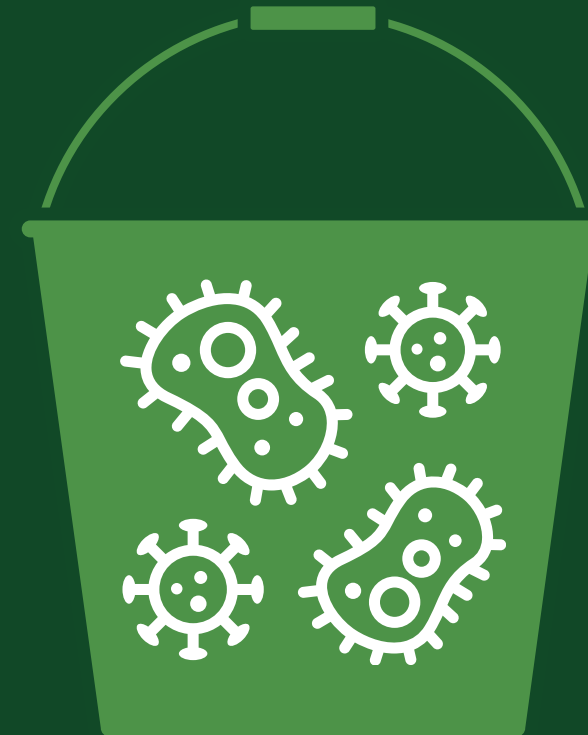
Enteric Methane Research at AgNext



**Baseline CH₄
emissions and
reducing emissions
from cattle**



**Feed
management**

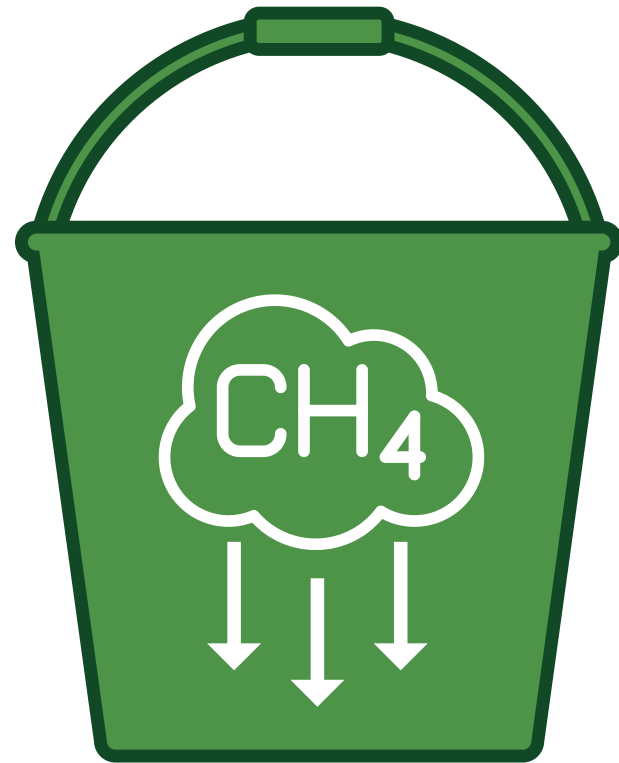


**Microbes and
changing rumen**

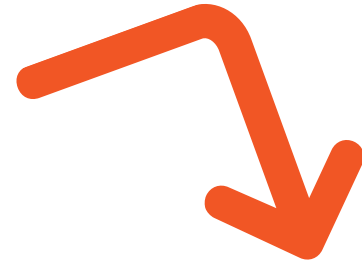


**Genetic
selection**

Enteric Methane Research at AgNext



Baseline CH₄ emissions and reducing emissions from cattle



Feed management



Microbes and changing rumen



Genetic selection