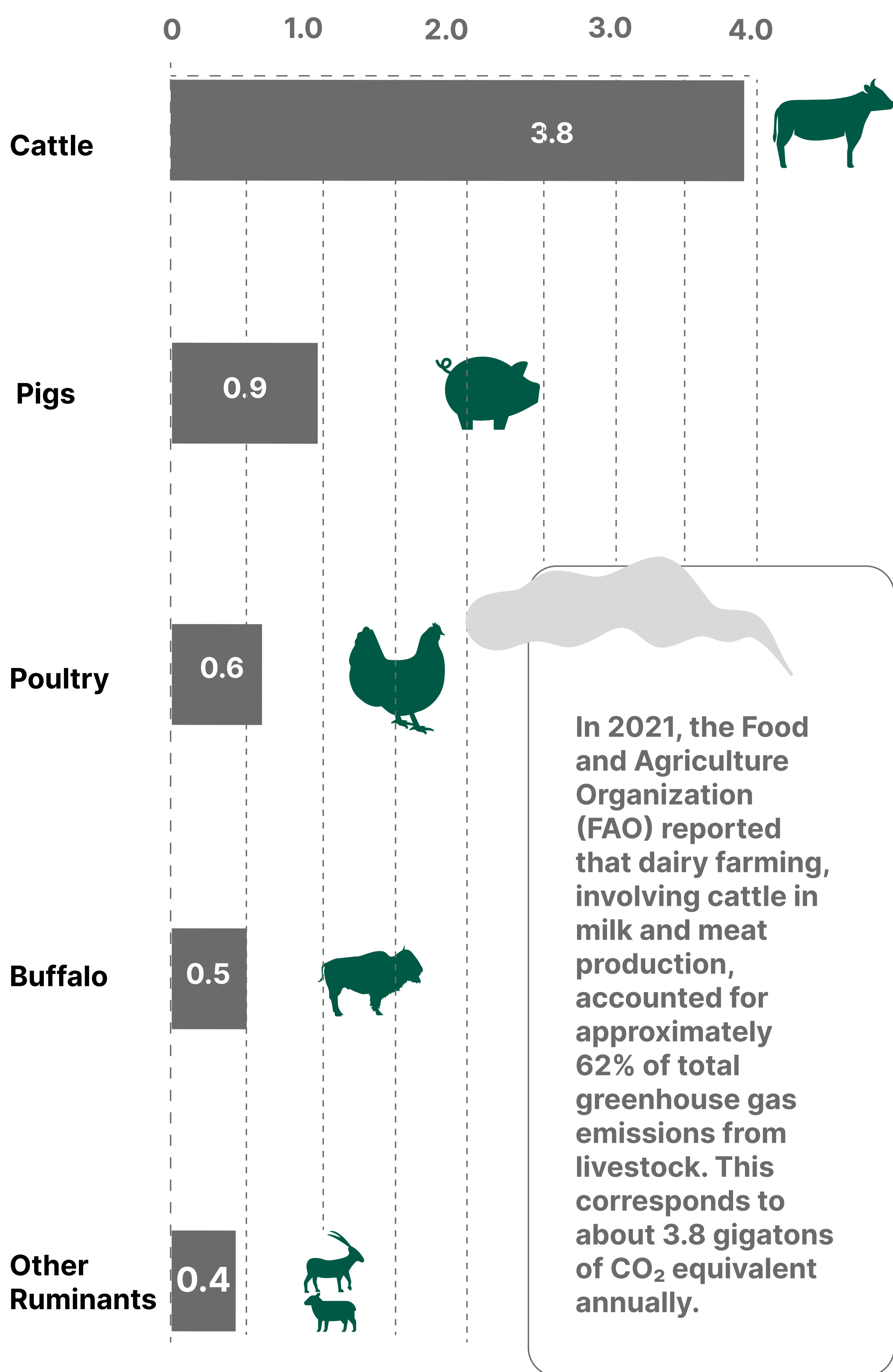


The dairy industry significantly contributes to greenhouse gas emissions, mainly through methane, nitrous oxide, and carbon dioxide. Livestock production, responsible for about 70% of total greenhouse gas output, plays a central role. Emissions arise from enteric fermentation, manure management, and utilization.

MAJOR CAUSES OF GREENHOUSE GAS EMISSION SPECIFIC TO DAIRY AND CATTLE

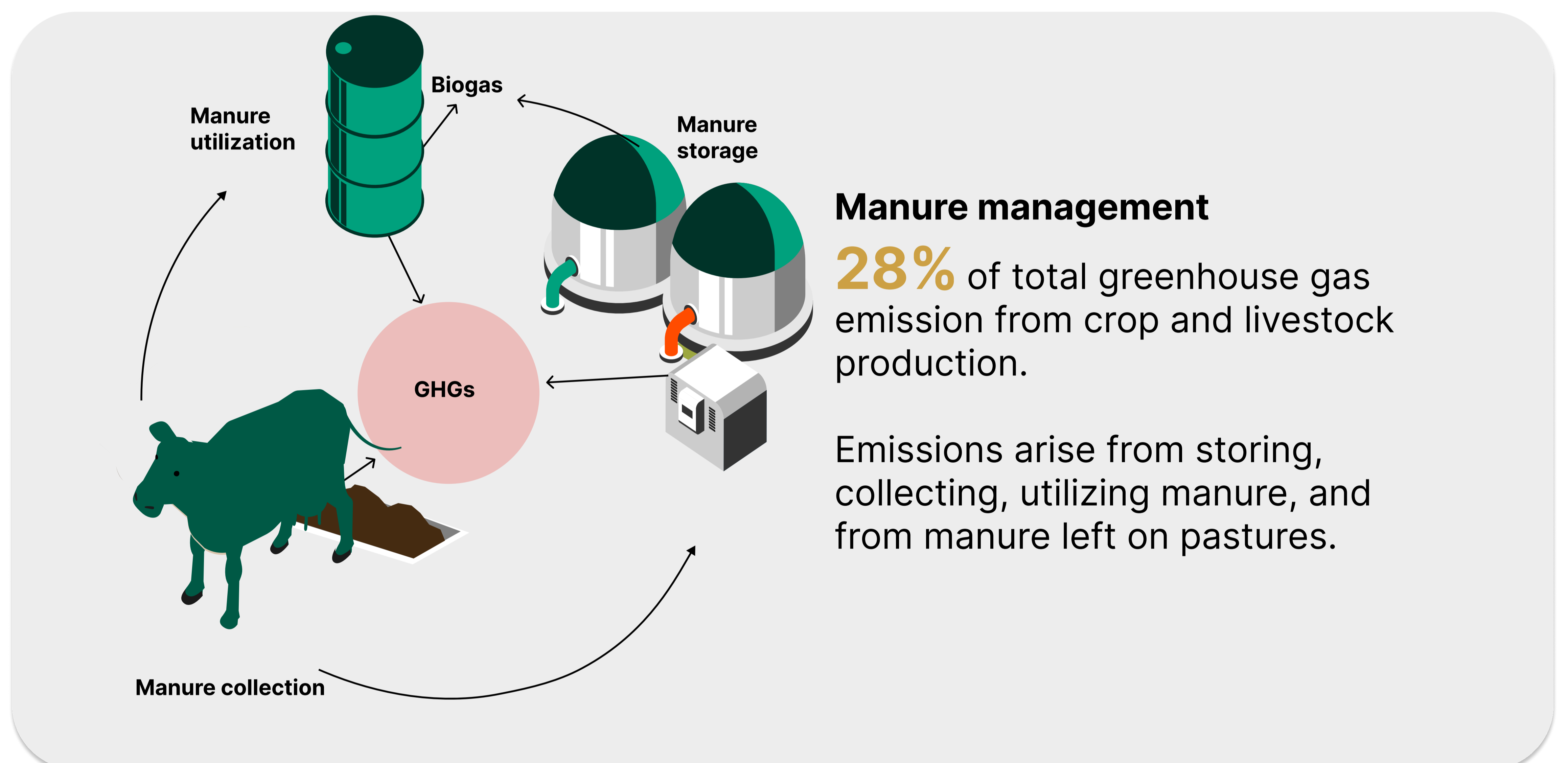
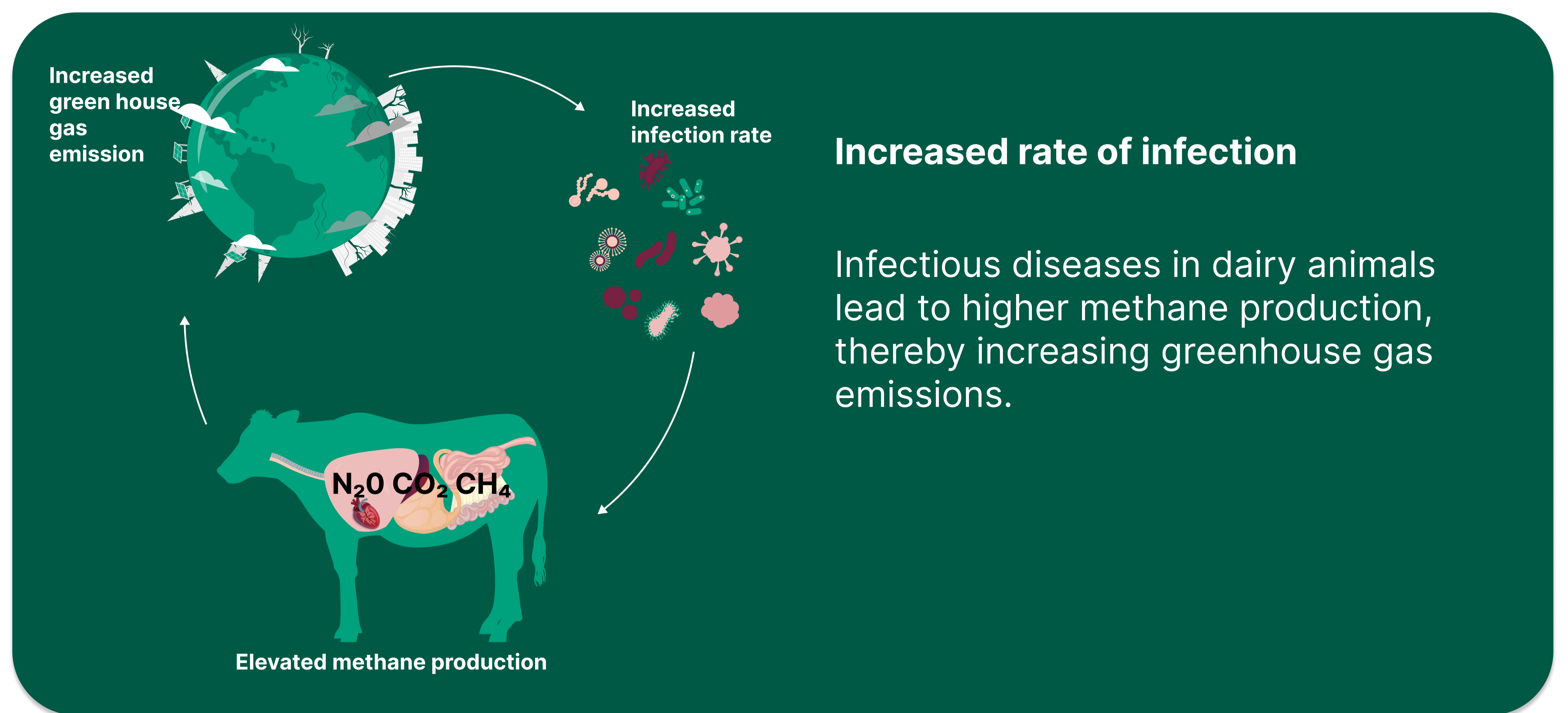
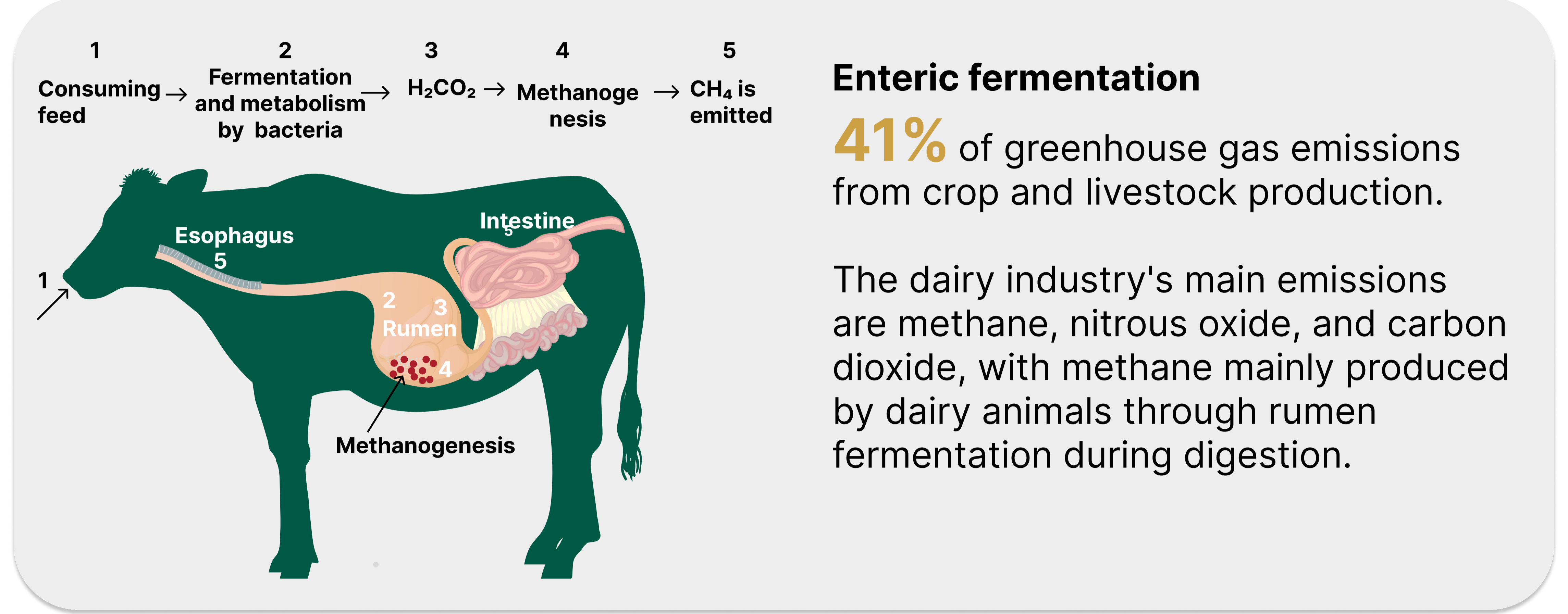
Contribution Of Livestock To Green House Gas Emission In Gigatons



In 2021, the Food and Agriculture Organization (FAO) reported that dairy farming, involving cattle in milk and meat production, accounted for approximately 62% of total greenhouse gas emissions from livestock. This corresponds to about 3.8 gigatons of CO₂ equivalent annually.

DATA SOURCE

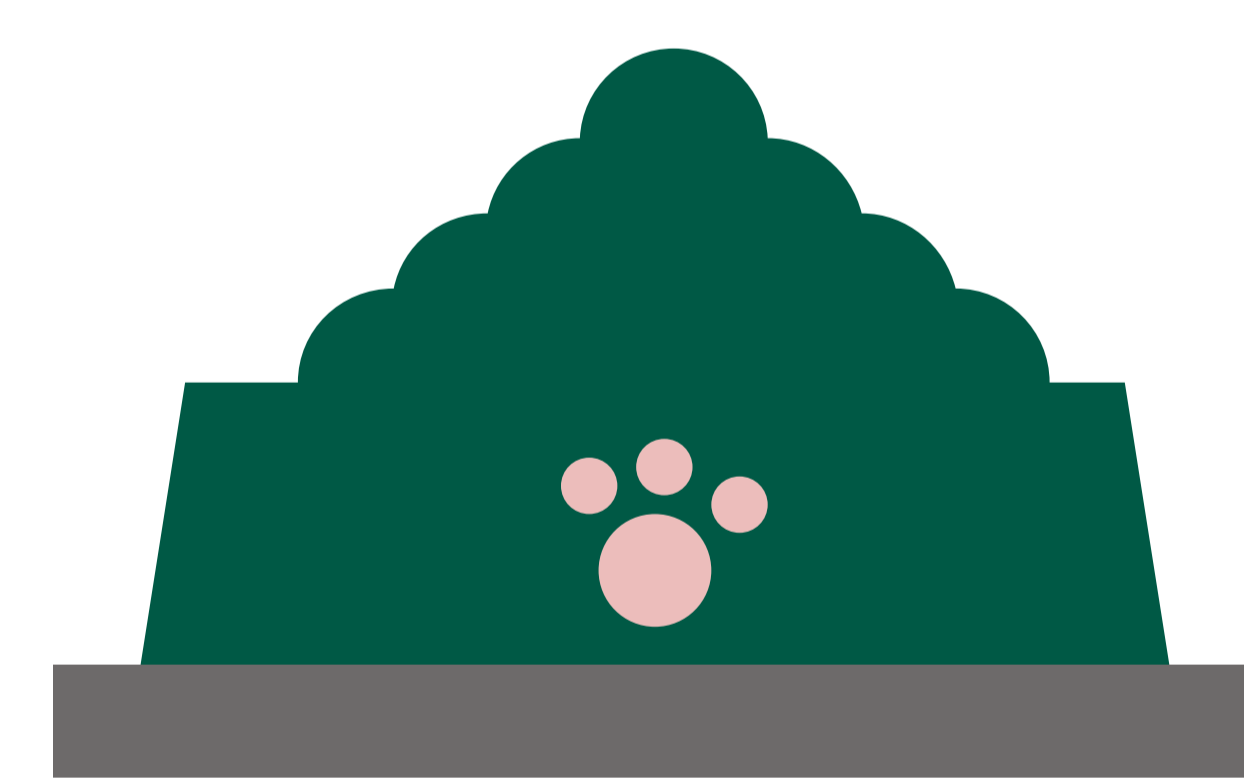
[FAO EMISSION DATASET](#)



OPPORTUNITIES FOR AGRICULTURAL EMISSIONS REDUCTIONS

Over 7 gigatons of emission can be reduced from livestock production.

Major efforts includes **feed and nutrition improvement, selective breeding, improving animal health, and increasing productivity.**



Feed and Nutrition Improvement

0.8 gigaton

reduction in GHG emissions from livestock by 2050.

Enteric fermentation, which releases methane, is influenced by the nutrient quality and diet of dairy cattle. Increased fiber intake raises rumen pH and slows food passage through the gastrointestinal tract, enhancing intestinal fermentation.

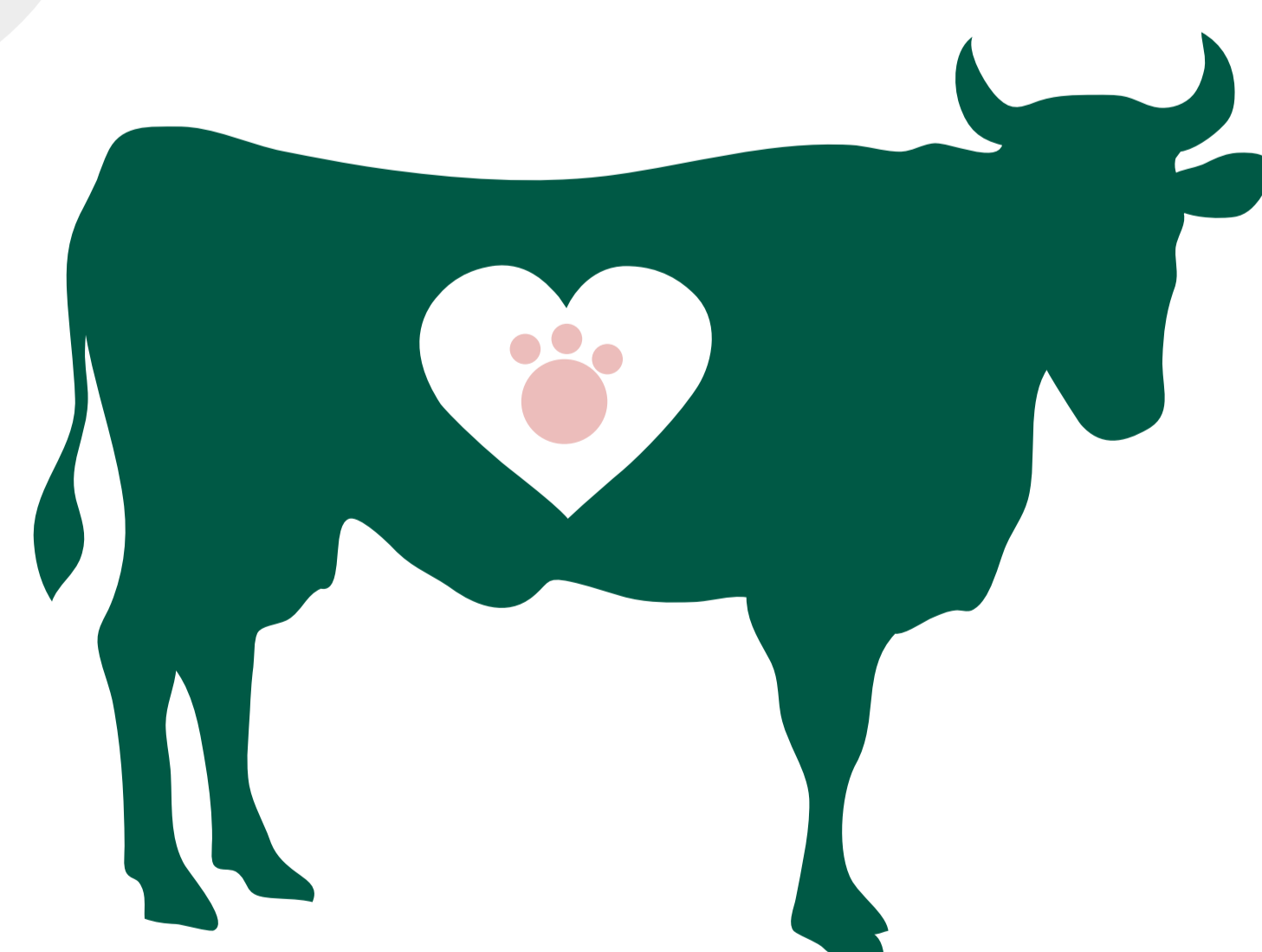


Selective Breeding

1.4 gigaton

reduction in GHG emissions from livestock by 2050.

Dairy and meat-producing cattle show moderate heritability in methane production traits. Selective breeding of animals with lower methane yields can potentially reduce emissions from enteric fermentation.

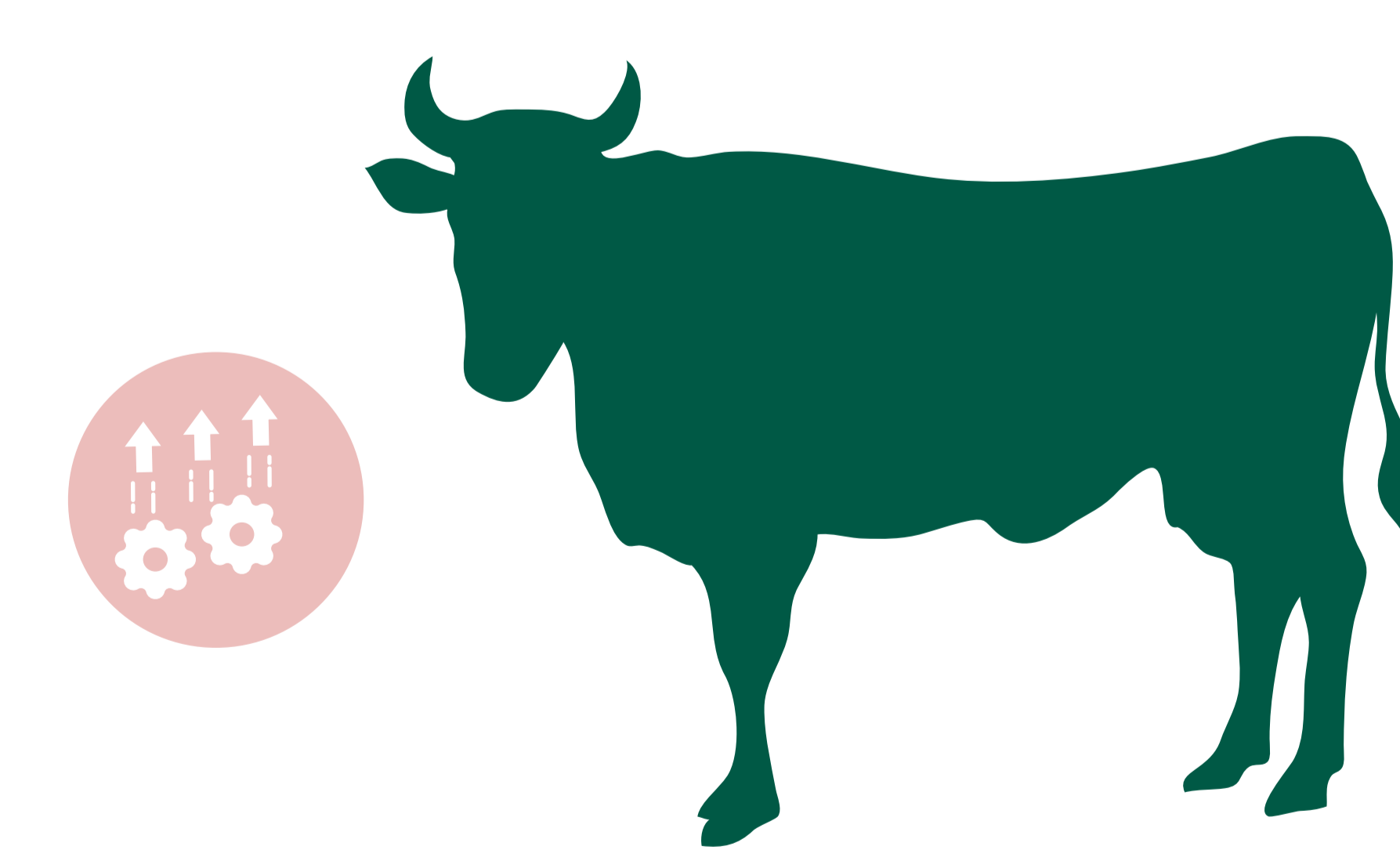


Improved Animal Health

0.9 gigaton

reduction in GHG emissions from livestock by 2050.

Improving animal welfare and reducing illness and death rates can enhance production efficiency. It also offers a chance to lower methane and nitrous oxide emissions from digestion and manure management.



Increased Productivity

1.8 gigaton

reduction in GHG emissions from livestock by 2050.

Although overall methane emissions may rise with increased milk or meat production, methane emissions per liter of milk or gram of meat actually decrease. This shows that increased productivity reduces emissions per unit of milk or meat.

DATA SOURCES

[FAO PATHWAY TO LOWER EMISSION](#)

[MCKINSEY.COM](#)