Estimation of greenhouse gas emissions
sustainability for livestock production

Armando Rivera - SpELL - ULB
GBADs & DECIDE - September 2023
Global greenhouse gas emissions by sector

This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO₂eq.

OurWorldInData.org – Research and data to make progress against the world’s largest problems.

Source: Climate Watch, the World Resources Institute (2020).

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Global Livestock Greenhouse Emissions
Life cycle assessment

11%
6.19 billion tonnes CO2 eq

FAO 2022
61%

3.8 billion tonnes CO₂ eq

Emissions - specie CATTLE

FAO 2022
Emissions - gas
METHANE

- Methane
  - Enteric fermentation
- Methane
  - Manure management
- N2O
  - Manure management
- CO2
  - Pasture expansion
- CO2
  - Other sources

FAO 2022
Milk yield  | Population  | Demand

20 liters milk/day  | 5x  | 100 liters milk/day

6 liters milk/day  | 16x
IPCC guidelines

Production system
Definition based on similar production characteristics

Data collection
herd parameters, manure management, population, live weight, dry matter intake, etc.

Data processing
Data quality

GHG estimations
Milk yield | Population | Demand | Efficiency
---|---|---|---
20 liters milk/day | 65 kg CO2 eq | 100 liters milk/day | 6.5 kg CO2 eq/1 of product
6 liters milk/day | 5x | 16x | 96 kg CO2 eq
13 kg CO2 eq | 6 kg CO2 eq | 9.6 kg CO2 eq/1 of product

FAO 2022
FAOSTAT 2023
CLIMATE-SMART LIVESTOCK PROJECT IN ECUADOR
96 Good Livestock Practices

Records Management
Paddock Irrigation
Soil Fertility

Manure Management
Rotational Grazing
Forage Conservation
Forage Mixtures
Silvopastures
Multinutrient Blocks
Fodder Banks

Sanitary Management
Herd Genetic Improvement
Proper Milking
Procedures

MAG, MAE & FAO (2020)
CLIMATE-SMART LIVESTOCK PROJECT IN ECUADOR

165 FARMS
emissions

% REDUCTION GREENHOUSE EMISSIONS

2018 2019
-30
-20
-10
0
10
20
30

productivity milk

2018 2019

5 000 tonnes CO2eq

MITIGATION

2017 2018 2019

4 YEARS DATA COLLECTION AND MONITORING

MAG, MAE & FAO (2020)
Global methane pledge
+100 countries
-30% emissions

MEASURE AND REPORT IS THE KEY

BE AWARE OF CLIMATE CHANGE

IMPROVE EFFICIENCY in animals

