INSTITUTE FOR DEVELOPMENT IMPACT

CONTRIBUTION OF AGRICULTURE TO GREENHOUSE GAS EMISSION

Climate change poses a significant threat to life on Earth, emphasizing the need to distinguish between global warming and climate change. Global warming, fueled by human activities releasing greenhouse gases like carbon dioxide, methane, and nitrous oxide, gradually increases average global temperatures, leading to broader shifts in weather patterns, sea levels, ecosystems, and the frequency of extreme weather events worldwide.

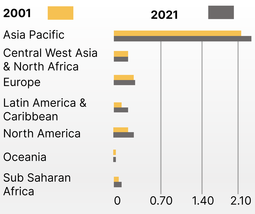
While fossil fuel combustion is acknowledged as the primary driver of climate change, the agriculture sector ranks as the second-largest contributor to global greenhouse gas emissions. This infographic examines agriculture's greenhouse gas emissions, highlighting key areas where emission reductions are essential.

AGRICULTURE'S CONTRIBUTION TO GLOBAL GHG EMISSIONS

Emissions From Food and Crop Production

3.75 Gigatons of emission(Co2eq) in 2021. ↗ **16%** from 2001

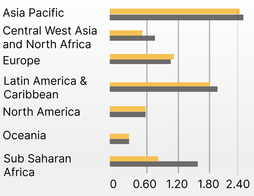
Asia Pacific region had the greatest amount of emission.



Emissions From Livestock Production

8.20 Gigatons of emission(Co2eq) in 2021. ↗ **15%** from 2001

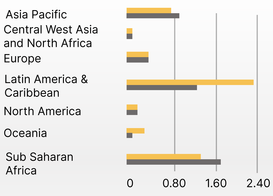
In Sub Saharan Africa, there was a pronounced **50%** increase from 2001.



Emissions From Land Use and Land Use Change

4.61 Gigatons of emission(Co2eq) in 2021. ↘ **17%** from 2001

In Latin America & Caribbean, there was about **47%** decrease from 2001.



DATA SOURCE FAO EMISSION DATASET

AGRICULTURAL DRIVERS OF GLOBAL GHG EMISSIONS IN 2021

Agriculture is a major source of greenhouse gas emissions due to crop and livestock production and land use practices. Crop cultivation along with livestock farming's enteric fermentation and manure handling, release significant emissions. These activities not only affect emission levels but also drive changes in land use, including deforestation for expanding crops or pasture. This underscores the environmental impact of agricultural practices and land management decisions.

Total GHG Emissions (2021)
16.70 Gigatons

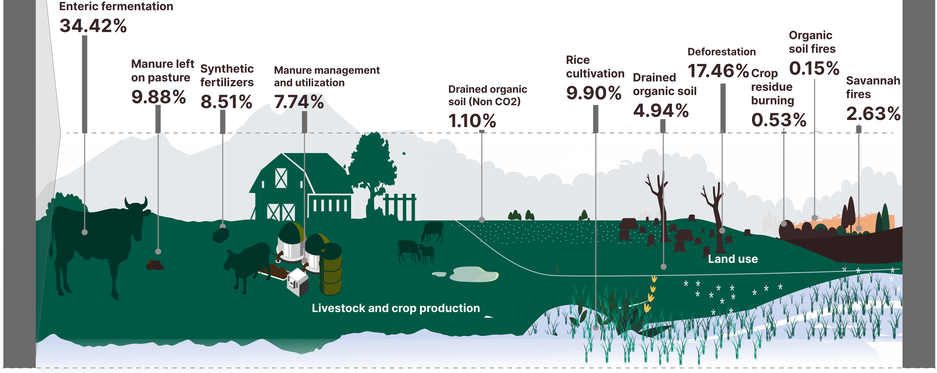
By 2050 (Business as Usual)
20.30 Gigatons

GHG Emissions from Crop and Livestock Production

In 2021, the primary sources of greenhouse gas emissions in crop and livestock production were **enteric fermentation (41%)**, which is the process where livestock like cows produce methane during digestion, and **livestock manure (28%)**, whether it was left on pasture or managed and utilized.

GHG Emissions from Land Use

In land use and land use change, **deforestation (74%)** releases stored carbon, significantly contributing to greenhouse gas emissions.

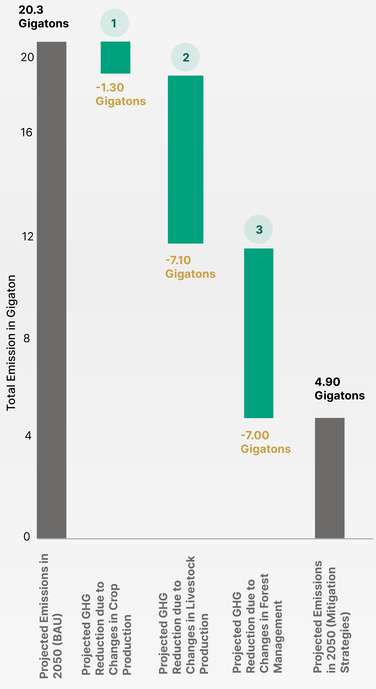


DATA SOURCES: FAO EMISSION DATASET FAO: EMISSION DUE TO AGRICULTURE

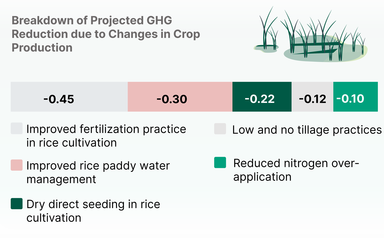
OPPORTUNITIES FOR AGRICULTURAL EMISSIONS REDUCTIONS

In 2021, agriculture contributed approximately **17.00 gigatons** of CO_2 equivalent to global emissions. Projections suggest an additional **3.50 gigatons by 2050 under business-as-usual (BAU)** conditions, resulting in a total of approximately **20.3 gigatons** annually. Addressing these emissions sustainably is crucial.

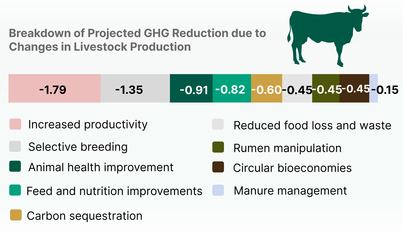
The FAO emphasizes strategic interventions to reduce greenhouse gas emissions. These strategies include optimizing crop practices, enhancing livestock management, and implementing effective forest conservation methods. By collaborating on these initiatives, we can aim for approximately **5.0 gigatons** of annual emissions by **2050**.



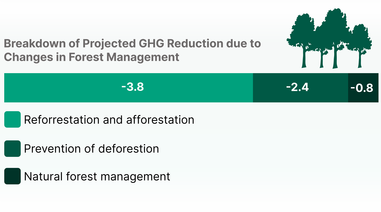
1 **Breakdown of Projected GHG Reduction due to Changes in Crop Production**



2 **Breakdown of Projected GHG Reduction due to Changes in Livestock Production**



3 **Breakdown of Projected GHG Reduction due to Changes in Forest Management**



DATA SOURCE FAO PATHWAY TO LOWER EMISSION MCKINSEY.COM

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