

EFFECT OF LIVESTOCK FARMING ON



Universitat Autònoma de Barcelona

CLIMATE CHANGE

Final degree project- June 2023

Laura Vilaseca Escobar



FACULTAT DE VETERINÀRIA

INTRODUCTION

Climate change is defined as a permanent change in climate due to the accumulation of greenhouse gases generated by anthropogenic actions (Gowrisankar *et al.* 2022). These greenhouse gases are carbon dioxide, methane, nitrous oxide, sulfur dioxide and chlorofluorocarbons. Livestock farming has long been considered a major contributor to climate change

OBJECTIVES

- Know the amount of emissions generated by livestock, compared to other sectors worldwide, the European Union and State
- Find out what is the predominant greenhouse gas in livestock, where it comes from and what is the most polluting animal product.
- Give visibility to nitrous oxide
- Research on mitigation measures and their implementation constraints.

GREENHOUSE GAS EMISSIONS



Fig 1: Emissions according to greenhouse gas. Our World in Data, 2020

Carbon dioxide is the most emitted greenhouse gas in the world. The second most emitted gas is methane, which comes from livestock.



Fig 2: Emissions by livestock species. GLEAM 3.0, FAO 2015

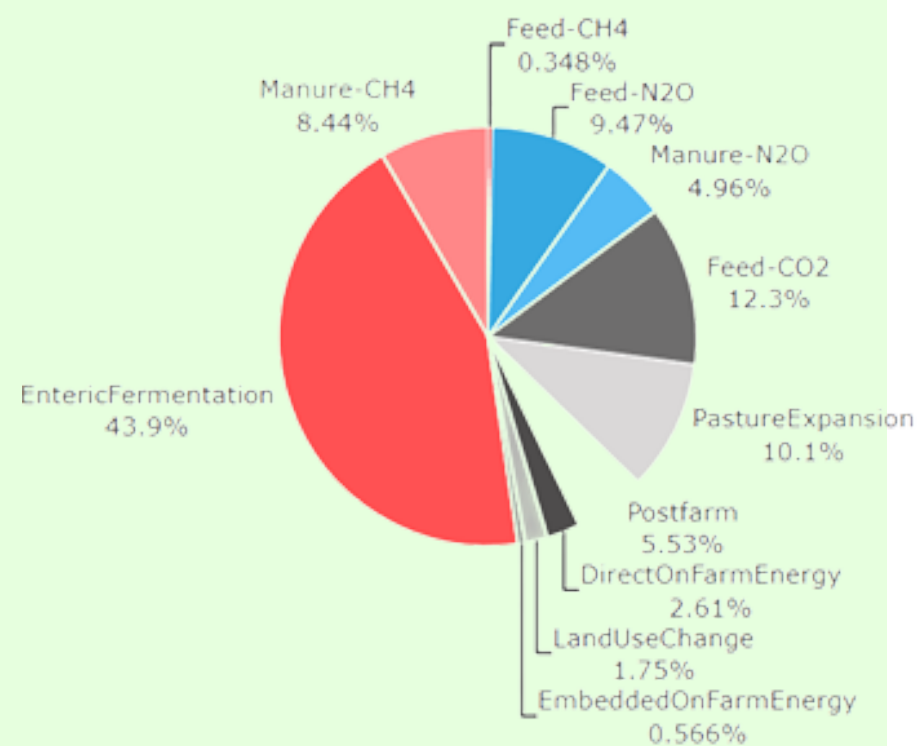


Fig 3: Emissions in livestock according to the source. GLEAM 3.0, FAO 2015

Cattle are the most emitting species in the livestock sector. The most emitted gas in livestock is methane that comes from enteric fermentation of ruminants.

MITIGATION MEASURES

Mitigation measures are necessary to reduce methane and nitrous oxide emissions. The implementation of these mitigation measures has several limiting factors. The main factor is the disinformation of the farmer and his economic status (Beauchemin *et al.* 2022). Although there are other limiting factors such as consumer acceptance in the use of chemical additives, the lack of economic compensation (Beauchemin *et al.* 2022).

CONCLUSIONS

Livestock is the second most polluting sector, although its importance is given by the higher warming potential of methane and not by the amount of emissions.

Methane is the greenhouse gas most emitted by livestock and comes from enteric fermentation of cattle.

The most important limiting factor is the disinformation of the farmer and his economic status.

REFERENCES

Beauchemin K, Ungerfeld E, Abdalla A, Alvarez C, Arndt C, Becquet P, Benohaar C, Berndt A, Mauricio R, McAllister T, Oyhantgabal W, Salami S, Shalloo L, Sun Y, Tricarico J, Uwizye A, De camillis C, Bernoux M, Robinson T, Kebreab E. 2022. Invited review: Current enteric methane mitigation options. *Journal of dairy Science*, 105(12), 9297-9326. <https://doi.org/10.3168/jds.2022-22091>

Gowrisankar A, Priyanka T, Saha A, Rondoni L, Kamrul H, Banerjee S. 2022. Greenhouse gas emissions: a rapid submerge of the world. *Chaos*, 32(6). <https://doi.org/10.1063/5.0091843>

Hannah Ritchie, Max Roser and Pablo Rosado. 2020. CO₂ and Greenhouse Gas Emissions. OurWorldInData.org. Extret de: <https://ourworldindata.org/co2-and-greenhouse-gas-emissions>

Modelo de Evaluación Ambiental de la Ganadería Mundial (GLEAM 3.0). Organización de las Naciones Unidas para la Alimentación y Agricultura (FAO). (s.f). <https://www.fao.org/gleam/in-practice/es/>