Social impacts of sustainable livestock intensification in Brazil

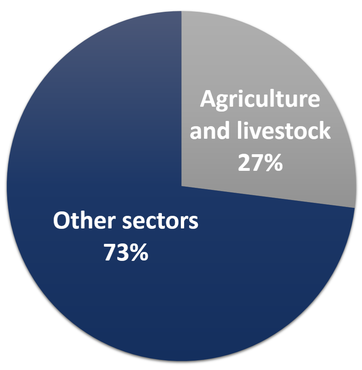
Jacqueline Tereza da Silva
Dominic Moran
Rafael de Oliveira Silva

THE UNIVERSITY of EDINBURGH
Global Academy of Agriculture and Food Security

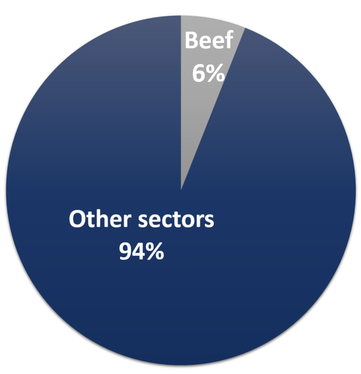
INTRODUCTION

Contribution of agriculture and livestock to Gross domestic product (GDP) in Brazil [1]

(A) Agriculture and livestock



(B) Beef



Demand for beef

Economic development

Poverty alleviation

Food security [2]

Social inequalities

Burden of diseases

Climate change [2]

Sustainable intensification (SI) of beef systems and demand for beef affect

- ✓ Productivity
- ✓ Profit
- ✓ Climate change [3]

It is unknown how demand and SI influence social indicators

AIMS AND HYPOTHESIS

Our aim is to investigate the social impacts of sustainable intensification (SI) of beef systems in Brazil and how they are affected by dietary transitions (demand).

Our hypotheses are: i. the demand for beef is the main driver of SI; ii. SI of beef systems improves the social wellbeing in Brazil.

METHODOLOGY

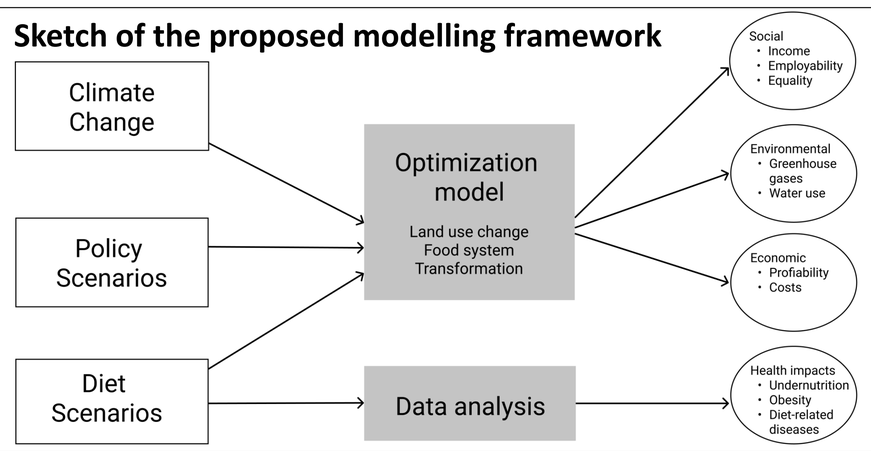
Literature review on social impact metrics and data availability in Brazil.

Description of the temporal trends of beef production and social impact metrics in representative regions in Brazil.

Integration of social impact metrics in a farm model [3] to inform policy on SI of beef systems in Brazil.

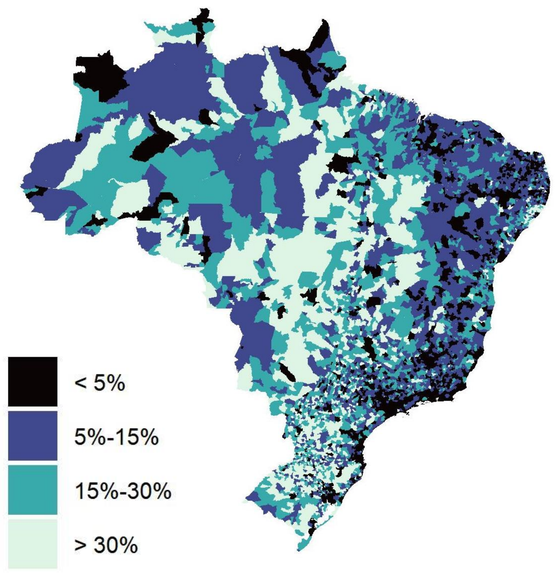
Production of cost-analysis of SI pathways subject to social and health constraints.

Sketch of the proposed modelling framework



PRELIMINARY RESULTS

Share (%) of agriculture and livestock to GDP in Brazilian municipalities [4]



Correlation between the share (%) of agriculture and livestock to GDP and social indicators in Brazilian municipalities.

Social indicators [5]	Municipalities				
	Livestock is the 1st activity (n= 163)	Livestock is the 2nd activity (n= 330)	Livestock is the 3rd activity (n= 895)	Livestock is not a top 3 activity (n= 4152)	All (n= 5564)
Human Development Index (HDI)	-0.0663	**0.2261***	**0.3985***	-0.125*	-0.0035*
% population vulnerable to poverty	0.0260	**-0.2649***	**-0.4639***	**0.345**	-0.0503*
% of population extremely poor	0.0658	**-0.2437***	**-0.3463***	0.0218	-0.0546*

The values presented are Pearson correlation coefficients (r). Bold indicates r > 0.20; * indicates p-value lower than 0.01.

Livestock is present in all Brazilian municipalities, and is a main economic activity in 25% of them.

In the cities where livestock is the 2nd or 3rd economic activity, GDP from food systems has a positive correlation with HDI, and a negative correlation with poverty.

REFERENCES

1. Cepea, PIB do Agronegócio. Available: https://www.cepea.esalq.usp.br/br/pib-do-agronegocio-brasileiro.aspx. Acessed: 21/03/2022. **2.** Fanzo et al, 2021. Viewpoint: Rigorous monitoring is necessary to guide food system transformation in the countdown to the 2030 global goals. Food Policy 104 (2021) 102163. **3.** de Oliveira Silva R et al. Increasing beef production could lower greenhouse gas emissions in Brazil if decoupled from deforestation. Nature Climate Change. 2016;6(5):493. **4**. Produto Interno Bruto dos Municípios. Avaliable in https://sidra.ibge.gov.br/pesquisa/pib-munic/tabelas. Acessed 03 March 2022; **5**. IpeaGEO. Avaliable in https://www.ipea.gov.br/ipeageo/bases.html. Acessed 03 March 2022.

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