



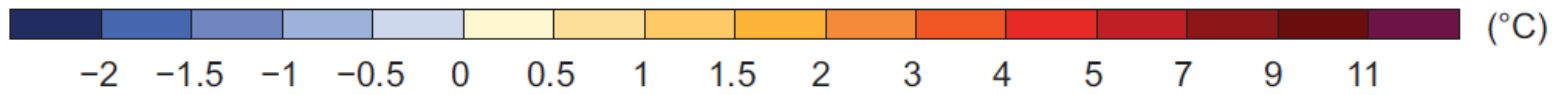
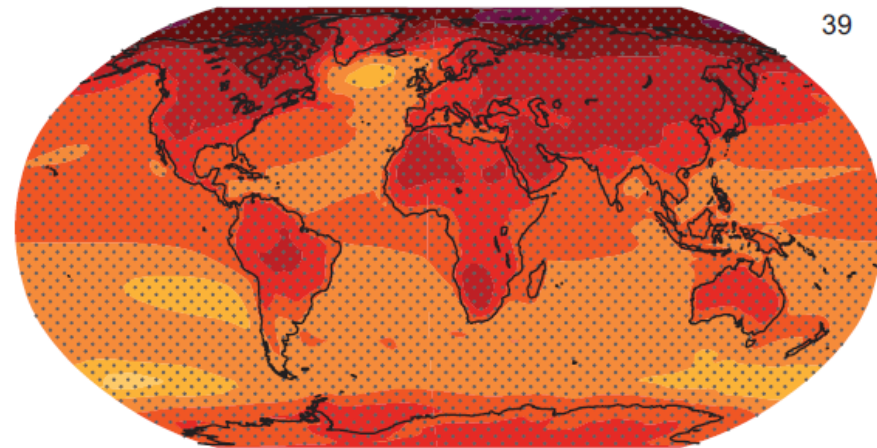
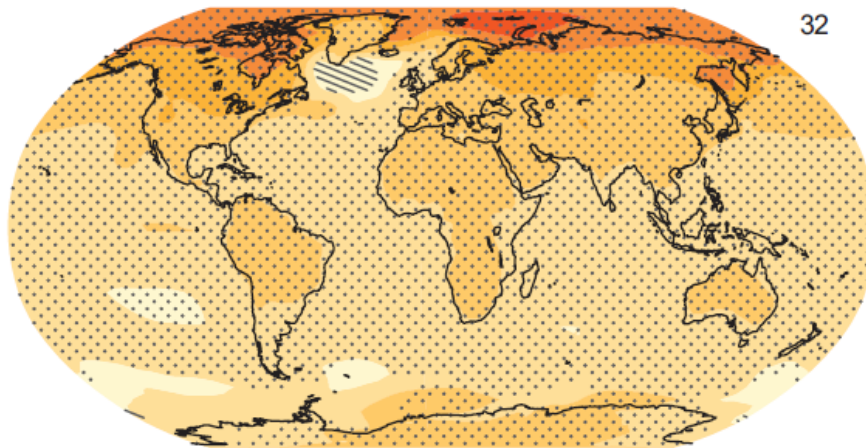
Carbon footprint of a typical grass-based beef production system in Chile

Álvaro Hänsch and Rafael Larraín

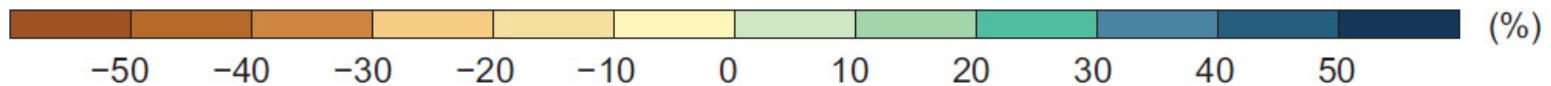
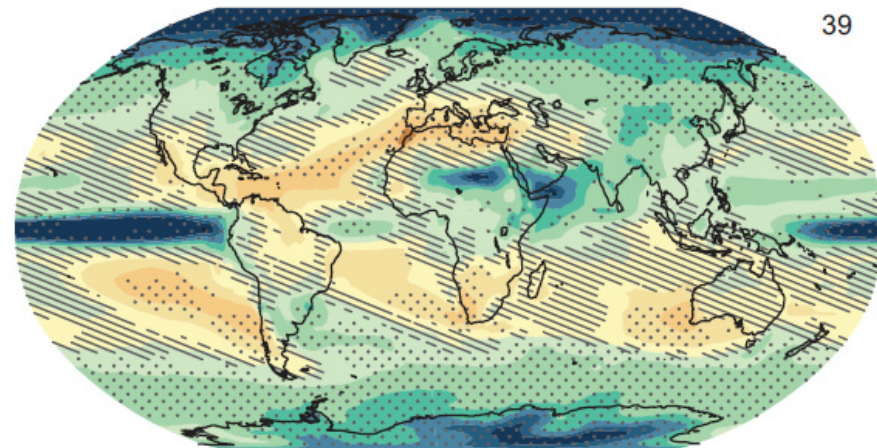
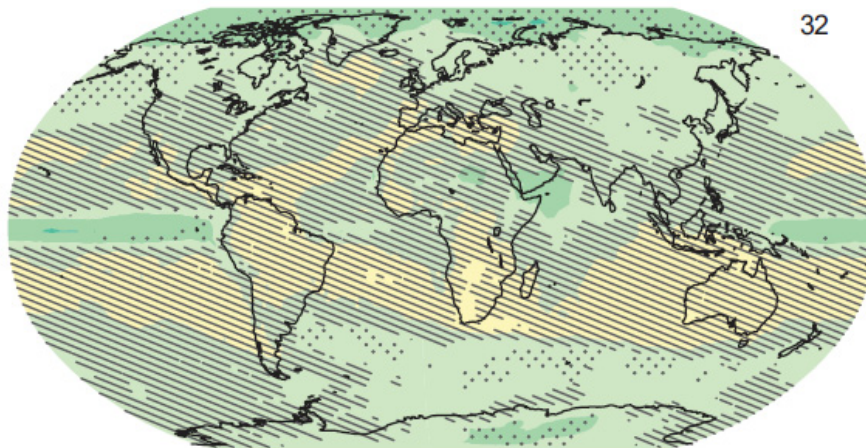
RCP 2.6

RCP 8.5

(a) Change in average surface temperature (1986–2005 to 2081–2100)



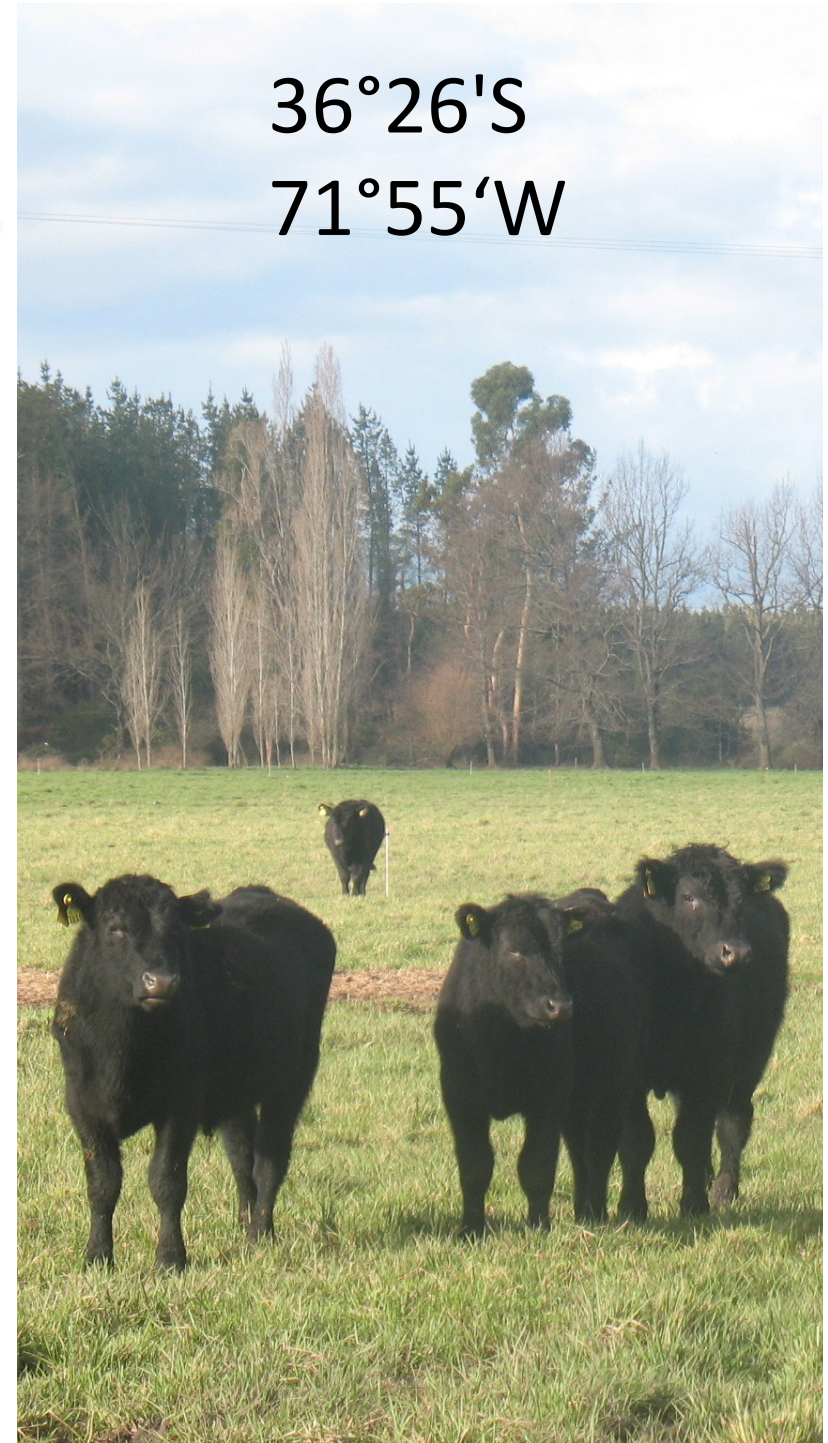
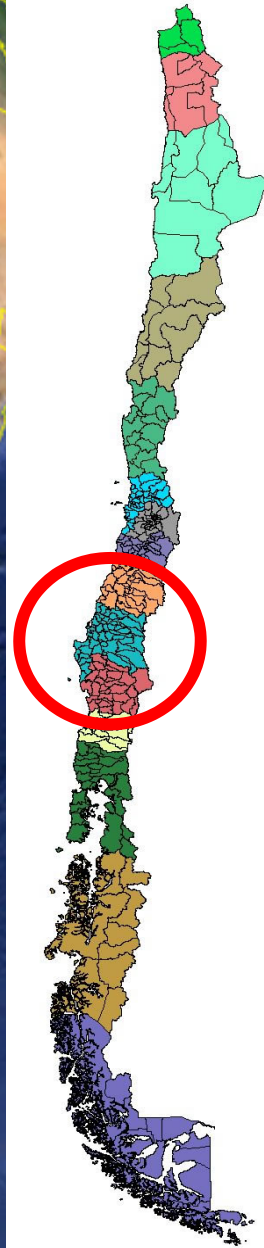
(b) Change in average precipitation (1986–2005 to 2081–2100)



Fuente: IPCC, 2013

Objetivo

- To develop a model to estimate carbon footprint for beef
- Use it to estimate carbon footprint in an “average” farm of south-central Chile



Materials and method

- PAS2050 from 2008
- Cradle to farm gate
- Pasture based system
- All feed from farm
- British beef breed

Materials and method

- Calf production and rearing
- Feedlot for 120 days
- Corn grain and silage diet
- Slaughter 475 kg and 18 months
- 56% yield steers, 50% cull cows

Results

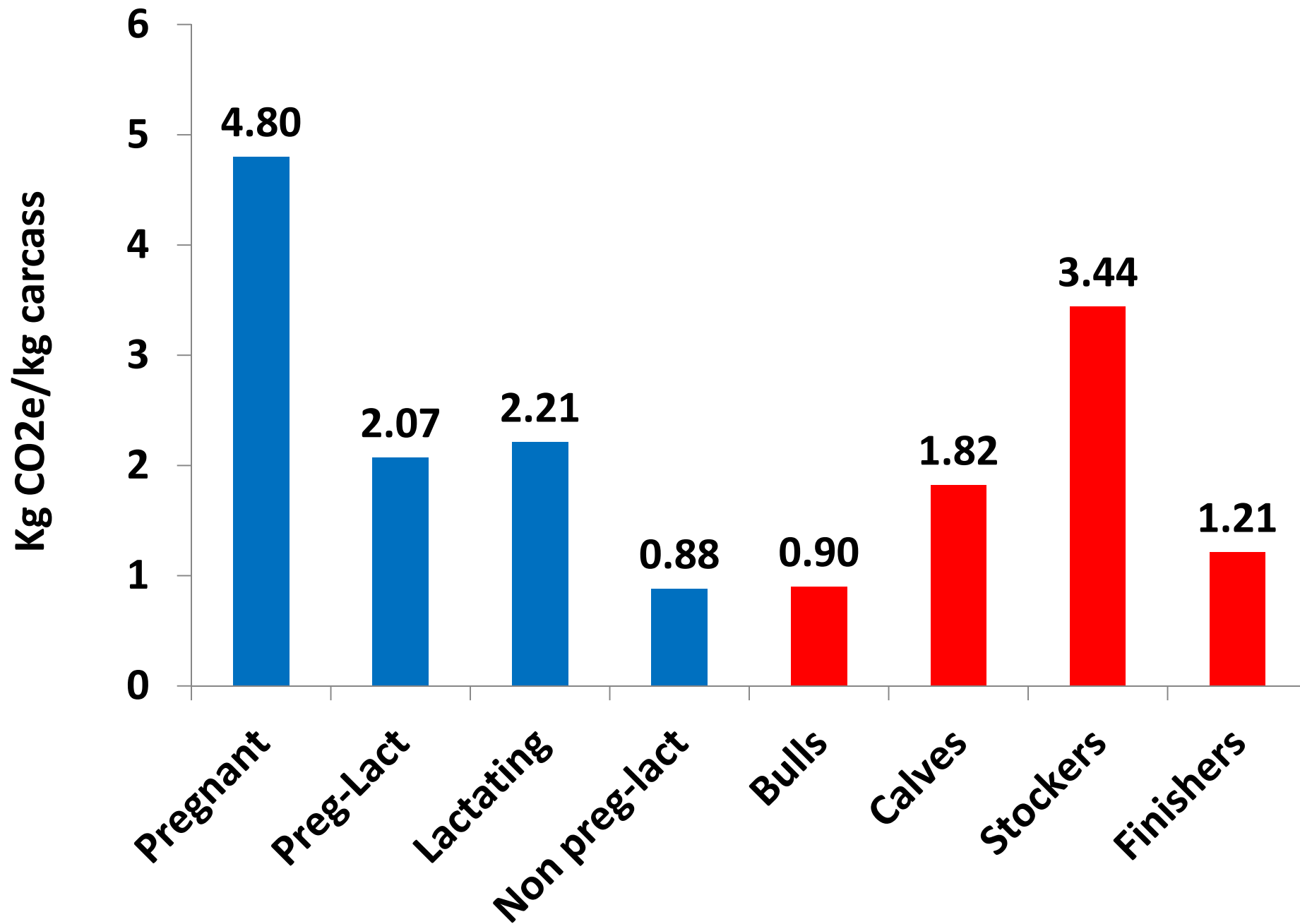
17,33 kg CO₂e/kg carcass

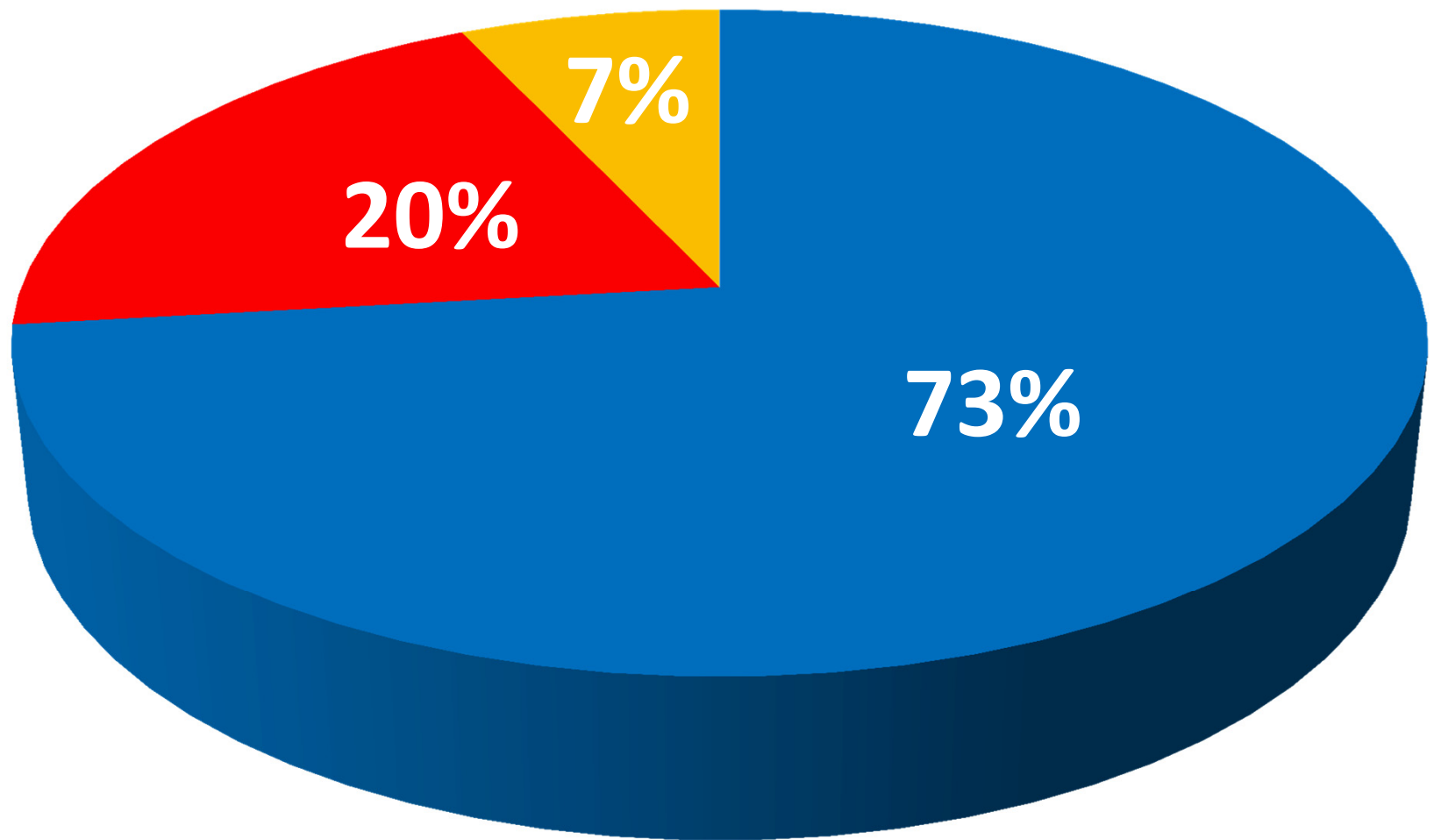
- 28 kg CO₂e/kg in Brasil (no LUC)
Cedeberg et al, 2011
- 16 to 27,3 kg CO₂e/kg in Europe
Nguyen et al., 2010

Results

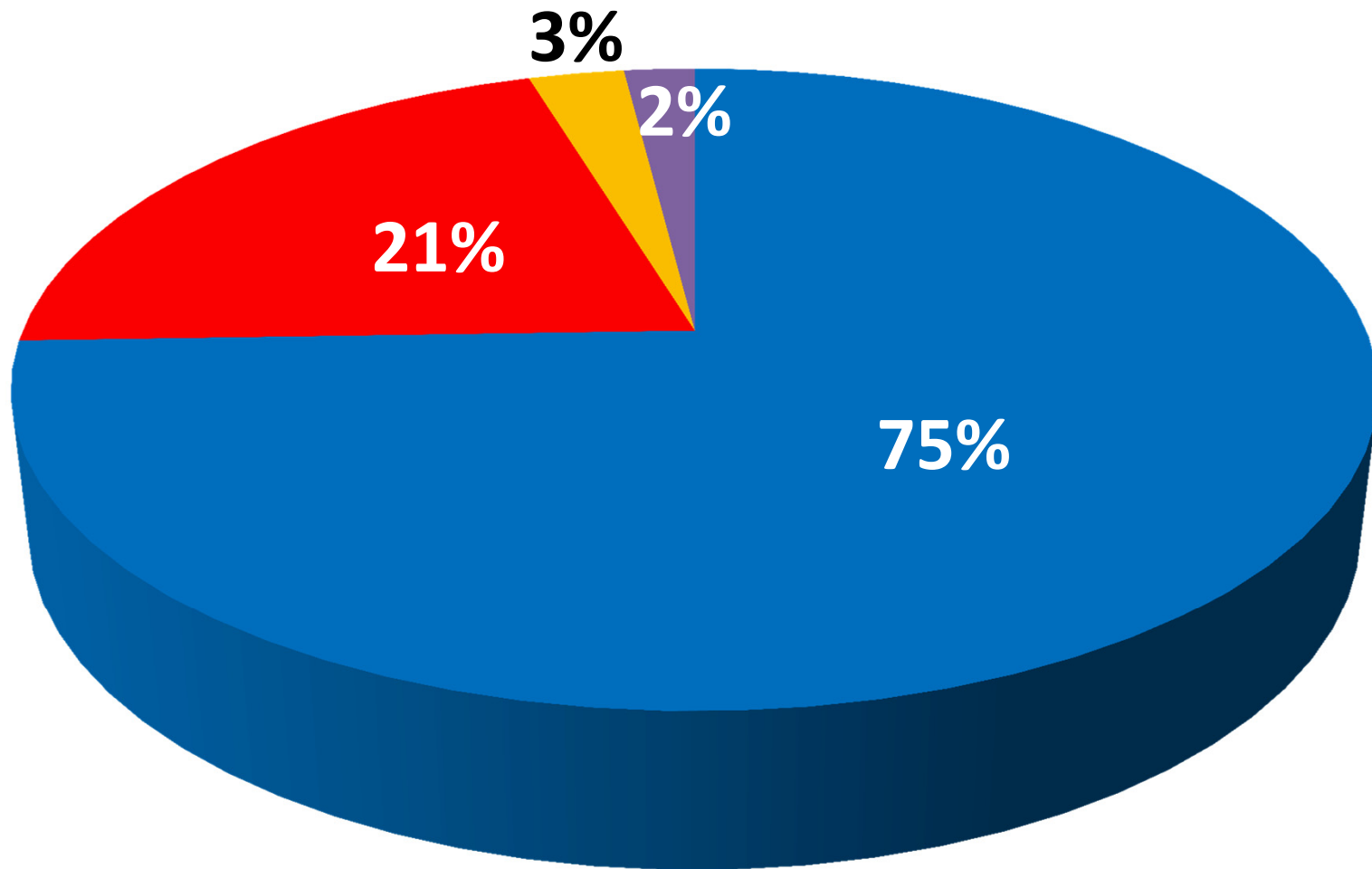
17,33 kg CO₂e/kg carcass

- 36,4 kg CO₂e/kg in Japan
Ogino et al. 2007
- 22 to 25,3 kg CO₂e/kg by other authors
Johnson et al., 2003; Cederberg and Stadig, 2003;
Williams et al., 2006.





■ Cow-calf ■ Stockers ■ Finishing



- Methane enteric and manure
- Energy
- NO2 manure and soil
- Urea and limestone

Conclusions

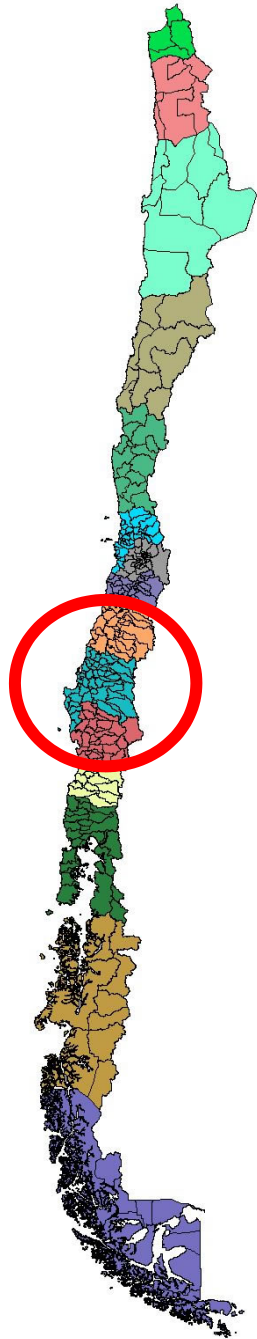
- Carbon footprint: 17,33 kg CO₂e/kg carcass
- In lower range of similar systems
- Distribution similar to other studies



Carbon footprint of a typical grass-based beef production system in Chile

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- RCP 8.5 – High emissions: This RCP is consistent with a future with no policy changes to reduce emissions. It was developed by the International Institute for Applied System Analysis in Austria and is characterised by increasing greenhouse gas emissions that lead to high greenhouse gas concentrations over time.
 - RCP 2.6 – Low emissions: This RCP is developed by PBL Netherlands Environmental Assessment Agency. Here radiative forcing reaches 3.1 W/m² before it returns to 2.6 W/m² by 2100. In order to reach such forcing levels, ambitious greenhouse gas emissions reductions would be required over time.



36°26'S
71°55'W

