



SMALL RuminanTs breeding for Efficiency and Resilience

## Breeding for reduced GHG and increased efficiency: a win:win for the sheep industry

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Jonathan Herron & Fiona McGovern



Smarter RoundTable, Ireland,  
12<sup>th</sup> July 2022

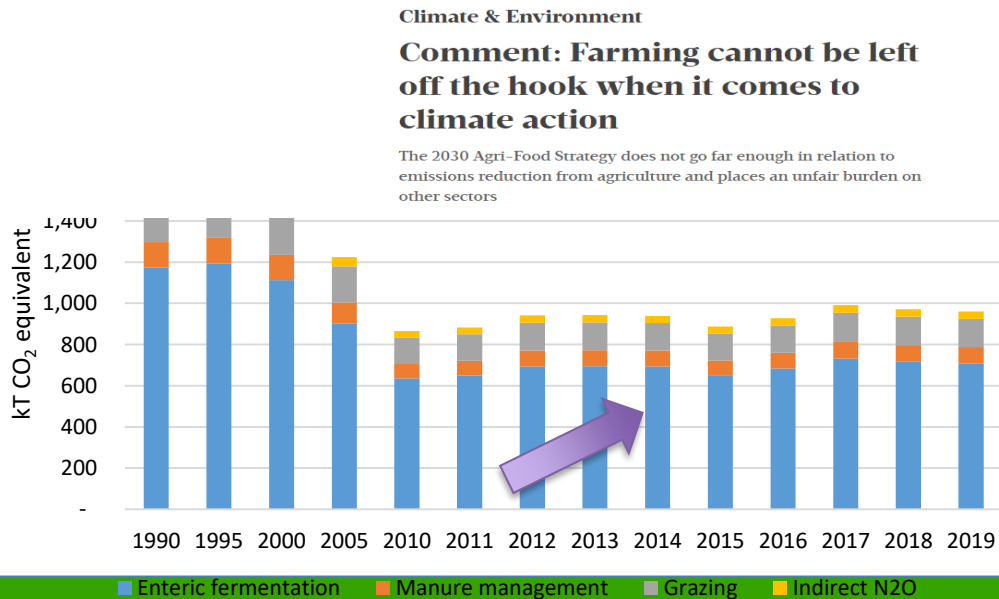


## National agricultural emissions



National GHG emissions

dominated by cattle and emissions

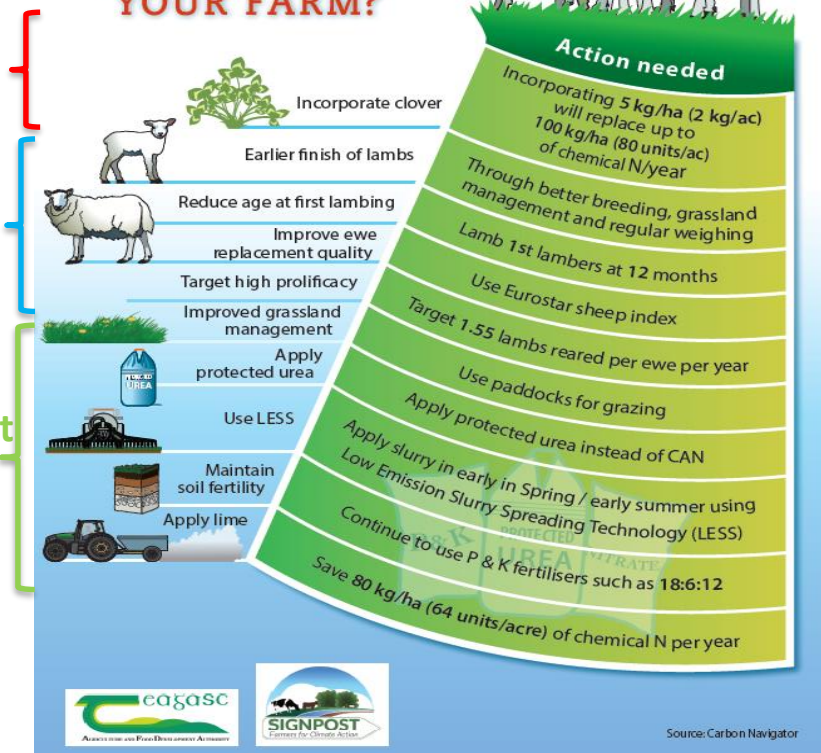


## Where are you on the 10 Steps to Reduce Emissions of YOUR FARM?

Diet

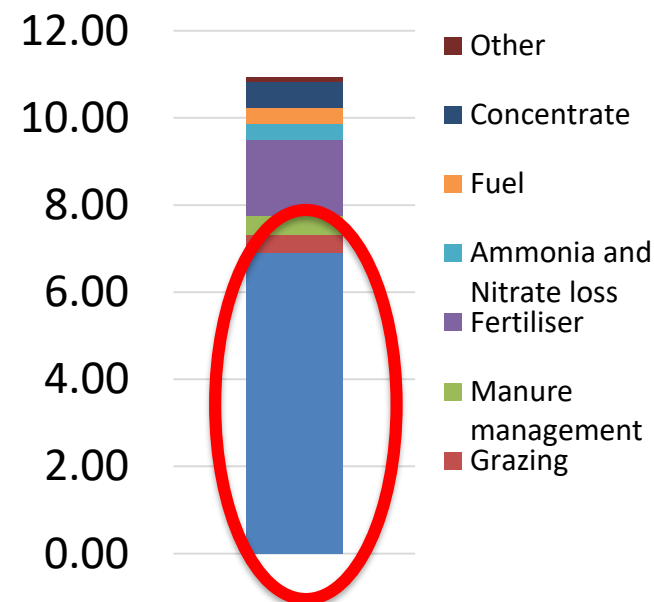
Breeding

Management



## Average Ewe

kg CO<sub>2</sub>-eq/ kg live weight



# Breeding

# Selecting on €uro-star indexes

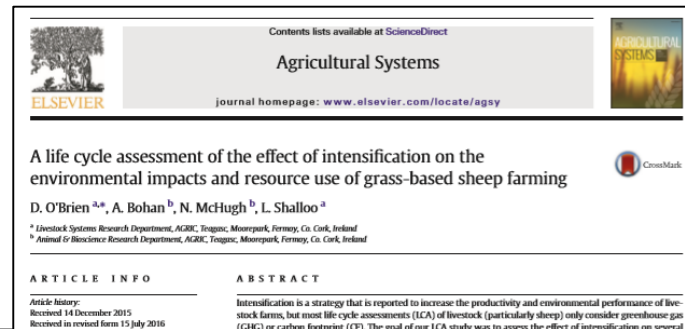
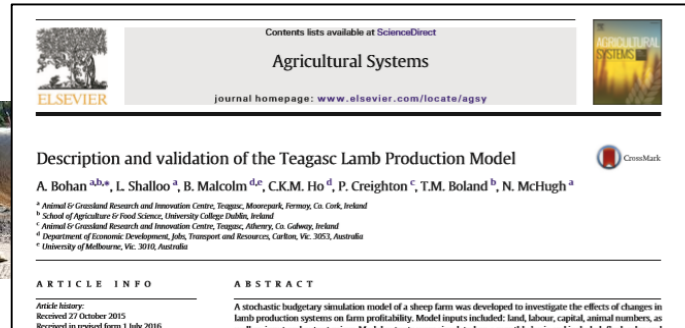
## 1 Star Flock



### 1 Star Flock

257 ewes

DTS : 203



## 5 Star Flock

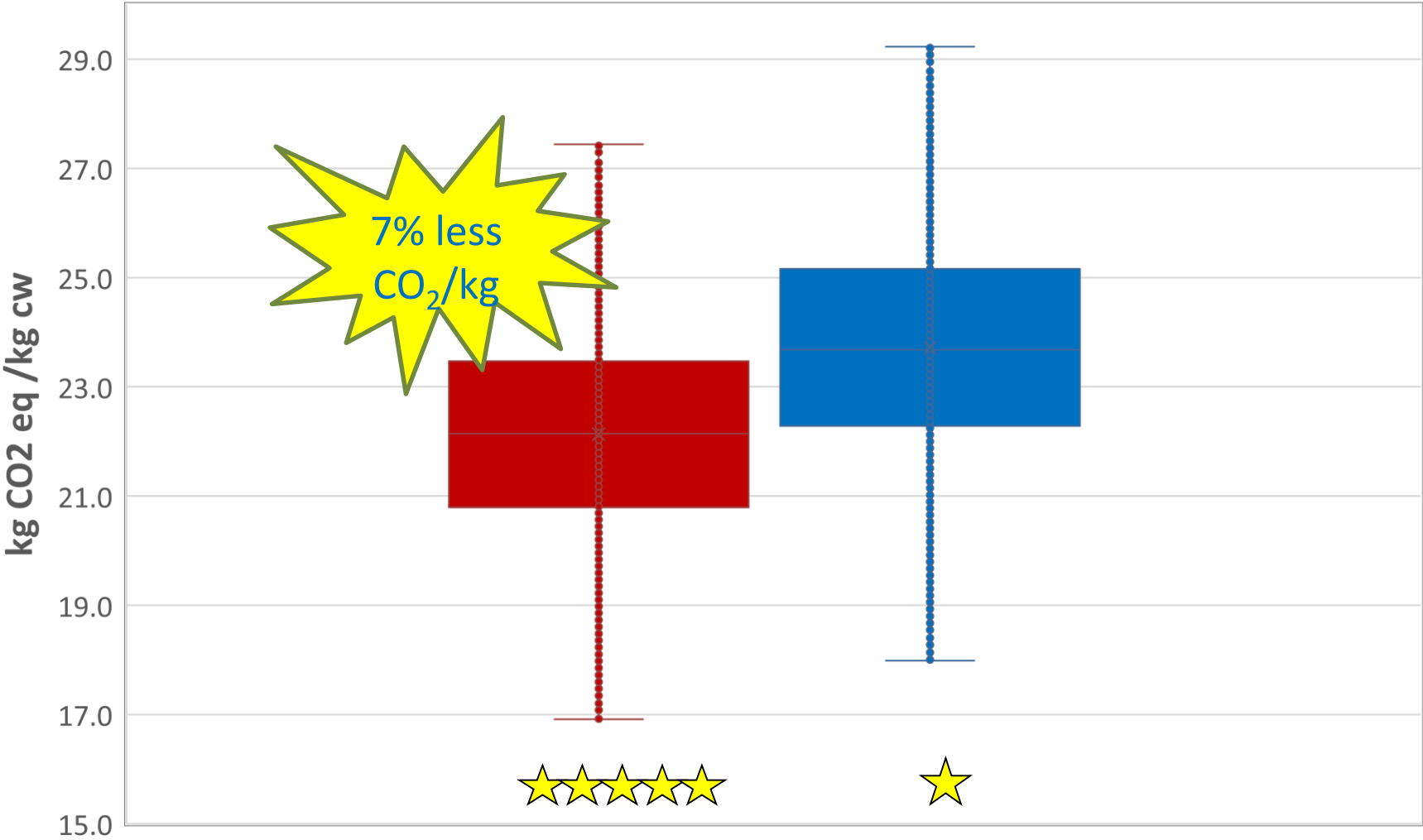


### 5 Star Flock

257 ewes

DTS : 190

Using CPI **+€18 per ewe** final data



# Direct Selection

# Why measure methane in sheep?

- Identify high and low emitters in the flock
- Develop breeding values for methane



The screenshot shows the Beef + Lamb New Zealand website. The header includes the logo and navigation links: Knowledge hub, Data & tools, Compliance, Events, News & views (selected), and Your levies at work. The main article is titled "Sheep farmers now able to breed 'low methane' sheep" and is categorized under "Media Release". It features social media sharing icons and a date of Wednesday, 27 November 2019. The article text states: "In a world first, New Zealand sheep farmers now have the ability to breed animals that emit less methane." Below the text is a photograph of a sheep in a pen, with a sign in the background that reads "40research".

beef+lamb  
new zealand

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FOR FARMERS

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Knowledge hub Data & tools Compliance Events **News & views** Your levies at work

Home > News & views > Sheep farmers now able to breed "low methane" sheep

Topics:  
Media Release

Sheep farmers now able to breed "low methane" sheep

In a world first, New Zealand sheep farmers now have the ability to breed animals that emit less methane.

Wednesday, 27 November 2019

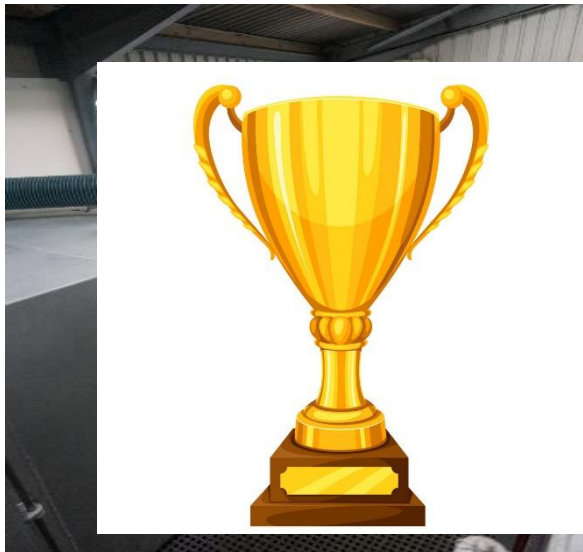
40research

Beef + Lamb New Zealand (B+LNZ) Genetics has launched a "methane research breeding value". Breeding value (BV) is a term used to help select important traits that ram breeders want to bolster within their flock (e.g. low methane-producing animals).





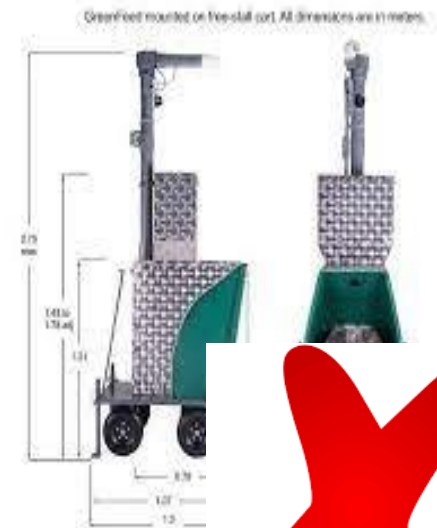
PACs



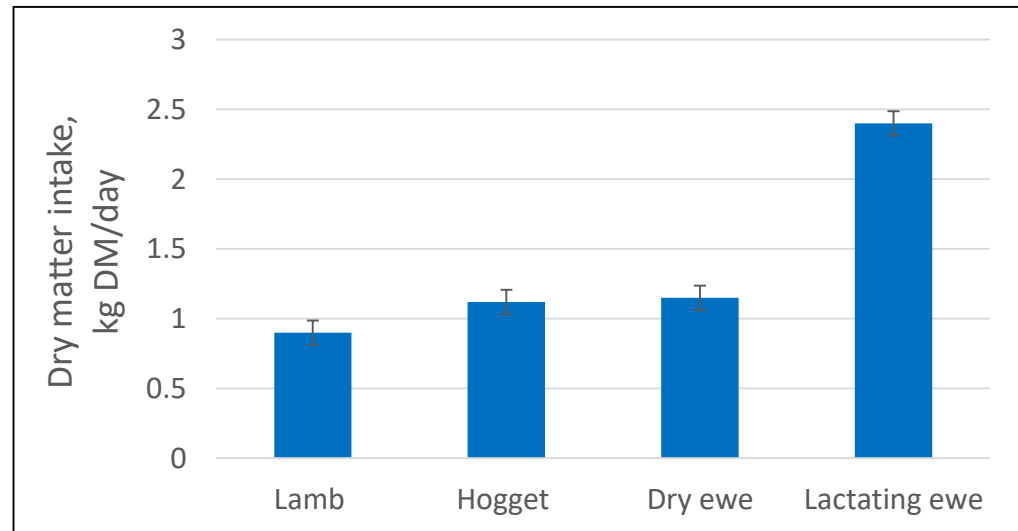
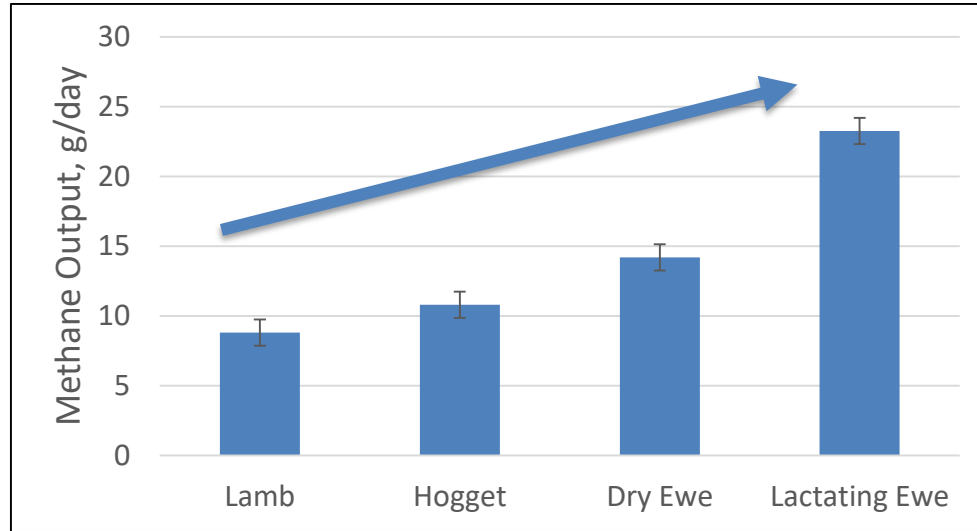
Respiration Chamber



GreenFeed



# Methane output and DMI in sheep





Methane (g/day)

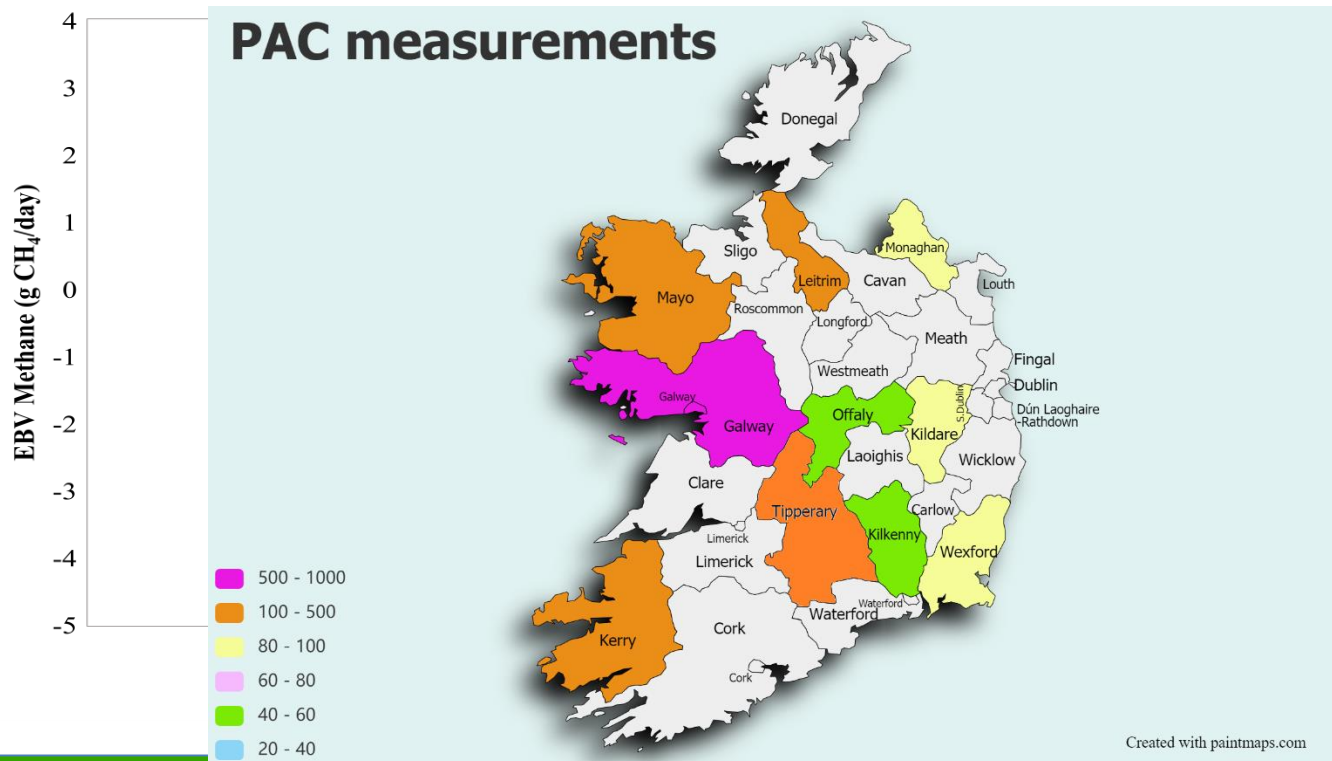
19.29

240

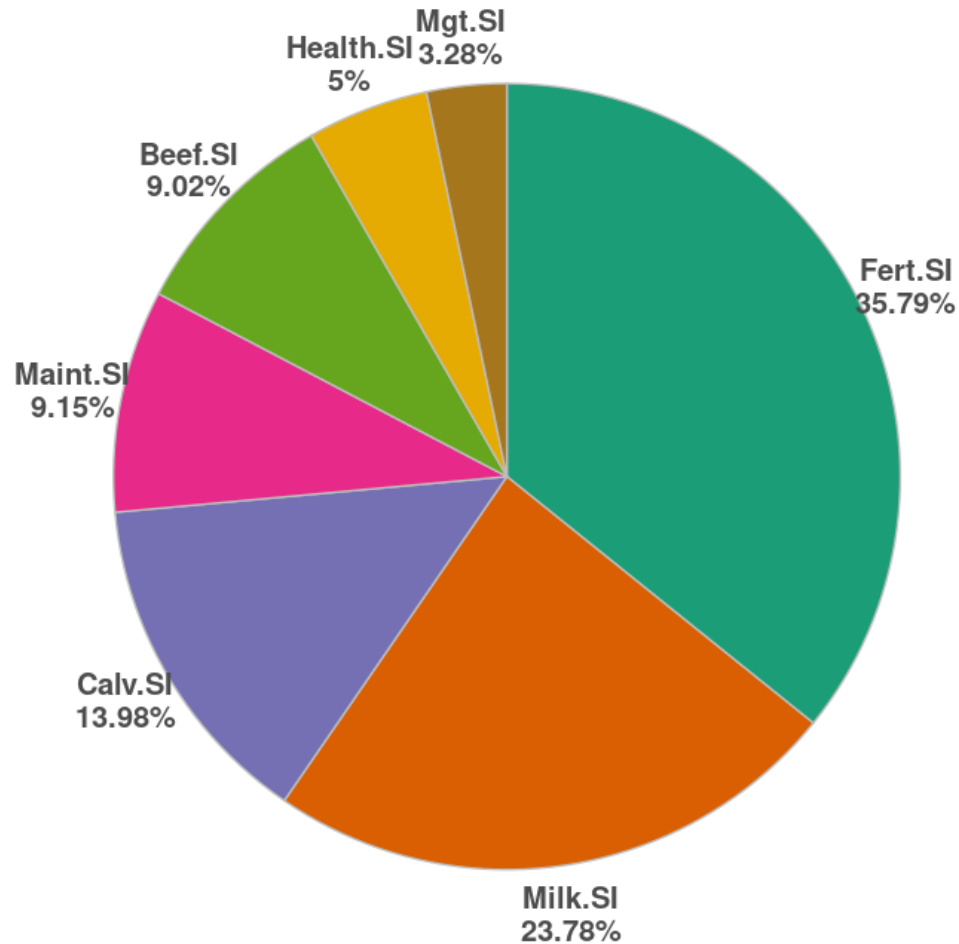
230

0.4-0.6 g CH<sub>4</sub> per kg live-weight

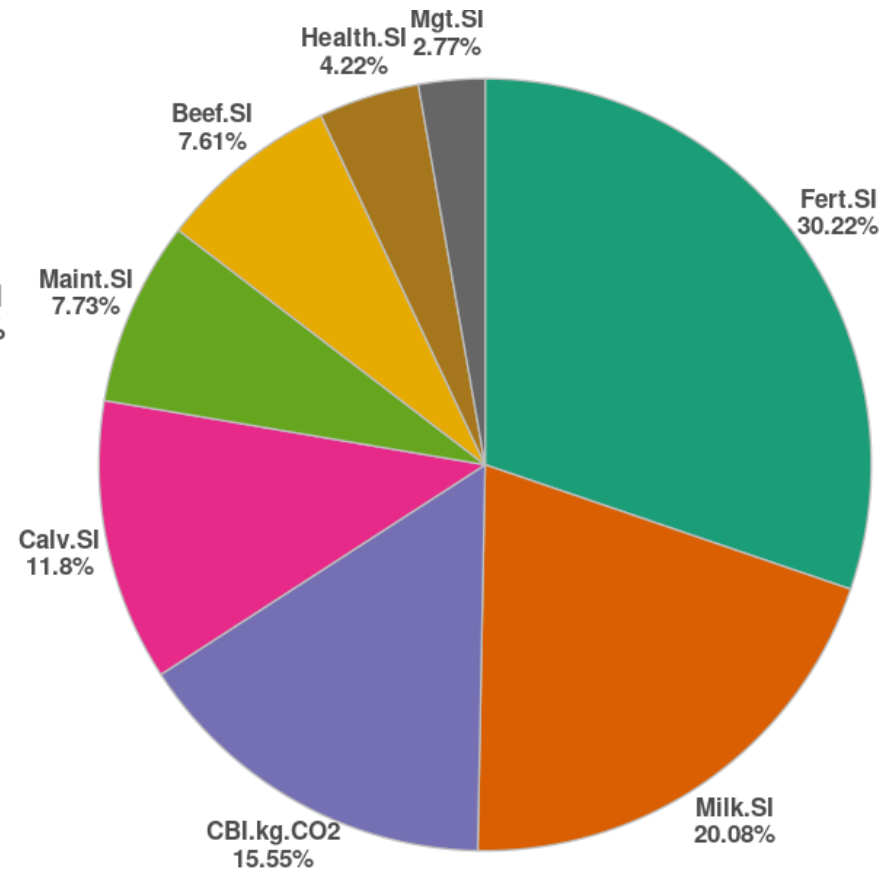
- Variation between animals for methane?
- Results to date:
  - Heritable → 25%
  - Repeatable → 39%



## Current EBI



## EBI + CBI c @ €160/t



- Methane measurements underway in sheep
  - Measuring commercial & pedigree flocks
- Results to date methane is under genetic control
  - Link to production traits
  - breed low emitters with high levels of performance
- Carbon sub-index to be developed
- Incorporate into the Terminal & Replacement Indexes

## SMARTER PARTNERS



*Thank you for your attention*

[www.smarterproject.eu](http://www.smarterproject.eu)