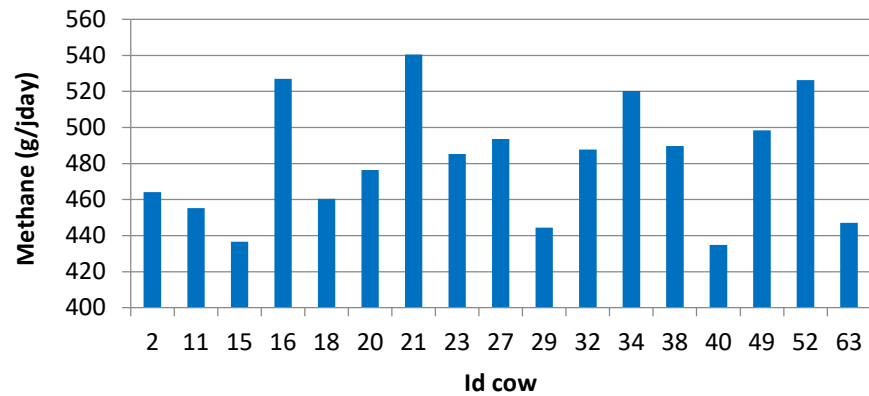
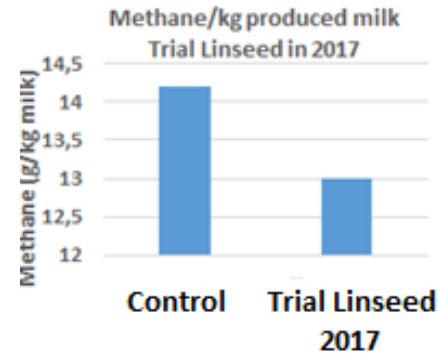
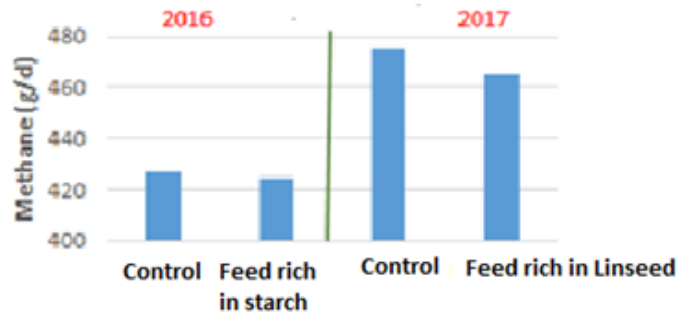


Methane measurements in the experimental group in 2016



Methane predicted on basis of milk composition



## Conclusion

- These results demonstrate the real potential of use of extruded linseed to decrease methane emissions of dairy cows
- The inter-individual variability is high (in this example, emitted methane varied from 430 to 540 g/day).
- This inter-individual variability is partly due to genetic so genetic selection of low emitter animals could be considered in the future

## Introduction

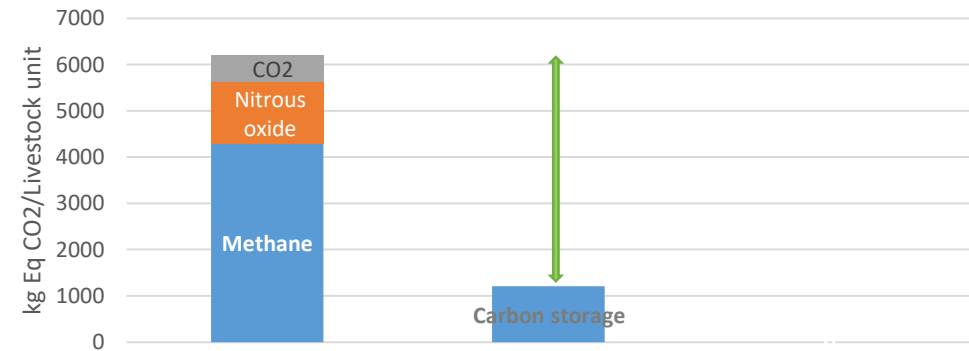
Greenhouse gas (GHG) emissions from livestock

- ✓ Enteric fermentation ( $\text{CH}_4$ )
- ✓ Manure management ( $\text{CH}_4$ - $\text{N}_2\text{O}$ )
- ✓ Soil management ( $\text{N}_2\text{O}$ )
- ✓ Use of fossil fuels ( $\text{CO}_2$ )



- Methane from cows 'enteric fermentation' represents **70%** of total methane emissions of the agricultural sector.
- However a part of emitted methane is mitigated by carbon sequestration in permanent grasslands valued by cattle

GHG emissions (kg eq  $\text{CO}_2$ /cow/year)



## Material and methods

The project has begun in October 2015

Trials were conducted

- in 2015-2016 at the Experimental farm of Sart Tilman
- in 2016-2017 at the **Centre of Agronomic Technologies of Strée**
- A diet mainly based on forages was provided to dairy cows  
It was completed by concentrates supplied
- At milking (Robotic milking - Sart Tilman)
- At the automatic concentrate supplier (CTA – Strée)



## Tested feeds

The herd is divided into 2 groups

One group received:

Concentrates rich in starch

OR

Concentrates rich in fat

- Extruded linseed OR
- Extruded canola seed



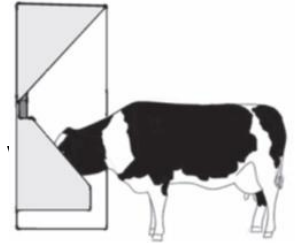
The other group

Control feed

## Methods used to measure methane emissions

2 methods were tested:

- Methane produced and emitted at feeding when consuming concentrates provided by the automatic concentrate supplier (ACS)

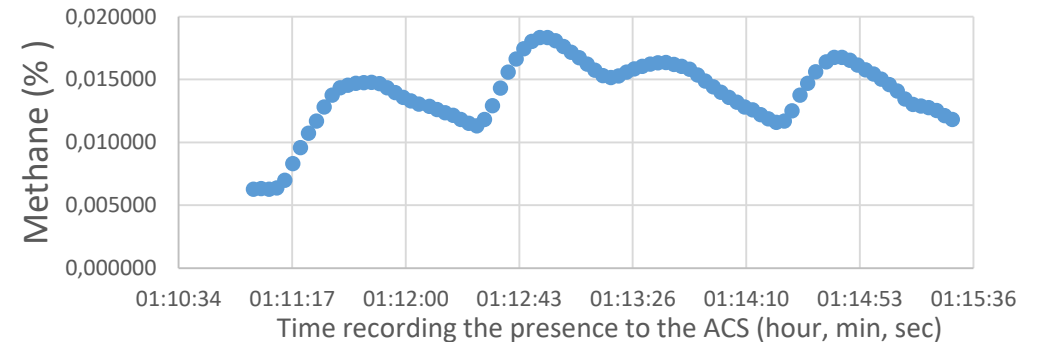


The device measuring the methane was set up on the ACS



The device (Guardian®) allowing methane emissions measurements at the ACS

Example of methane emission record



This Figure shows how methane is emitted following eructations peak detected by the Guardian®

- Emitted methane is also predicted in milk samples by applying a method based on milk mid infra red spectra analysis and taking into account the lactation stage of the animals

