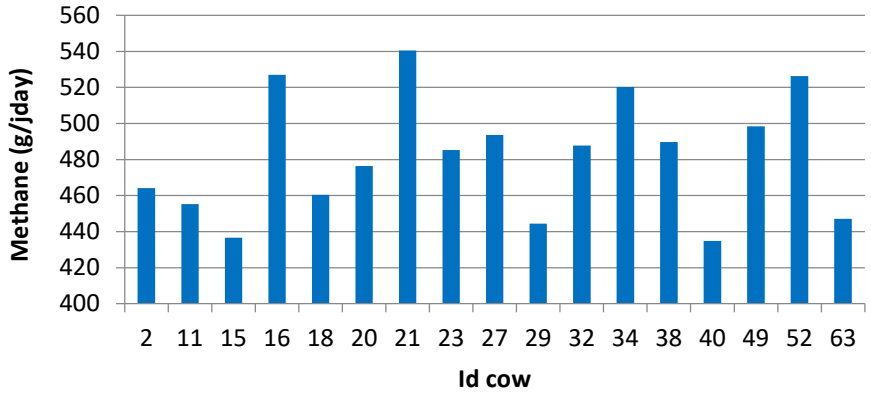
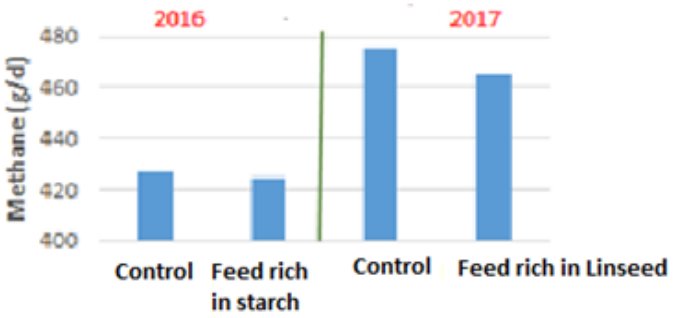
# Results

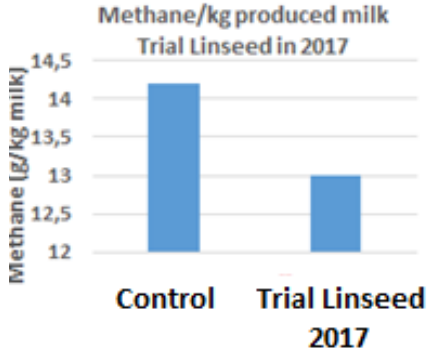
**Methane measurements in the experimental group in 2016**




**Methane predicted on basis of milk composition**




**Methane/kg produced milk Trial Linseed in 2017**




# 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-indivual variability is partly due to genetic so genetic selection of low emitter animals could be considered in the future

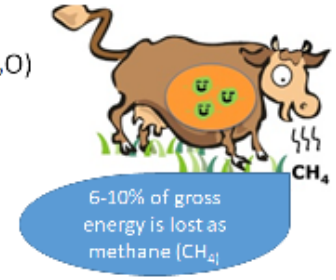
LIFE DAIRYCLIM

LIFE DAIRYCLIM Project

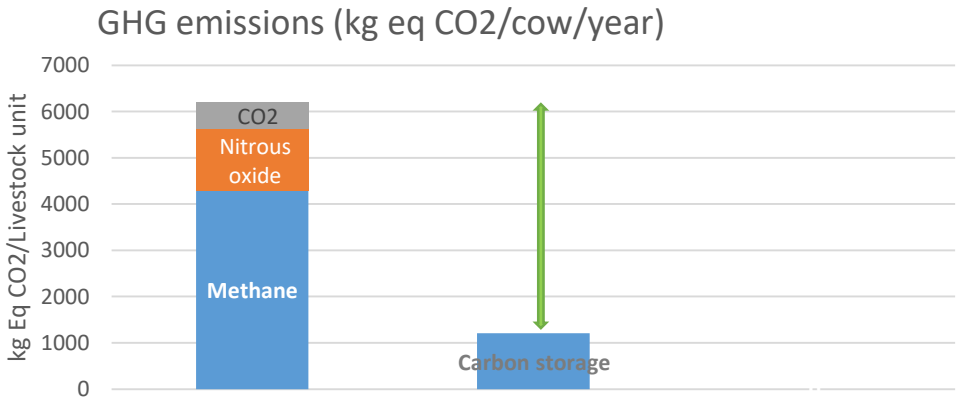
# Introduction

Greenhouse gas (GHG) emissions from livestock

- ✓ Enteric fermentation ($CH_4$)
- ✓ Manure management ($CH_4$-$N_2O$)
- ✓ Soil management ($N_2O$)
- ✓ Use of fossil fuels ($CO_2$)



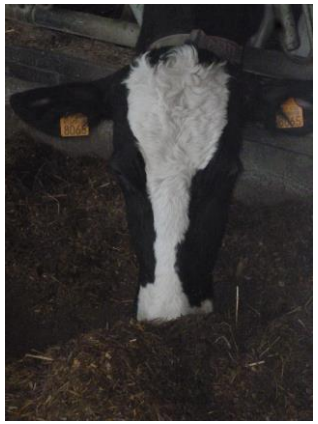

- **Methane from cows 'enteric fermentation represents 70% of total methane emissions of the agricultural sector.**
- **However a part of emitted methane is mitigated by carbon sequestration in permanent grasslands valued by cattle**



# 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

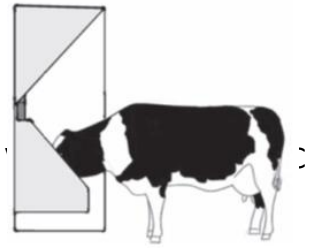
⟺

The other group
Control feed

# Methods used to measure methane emissions

2 methods were tested:

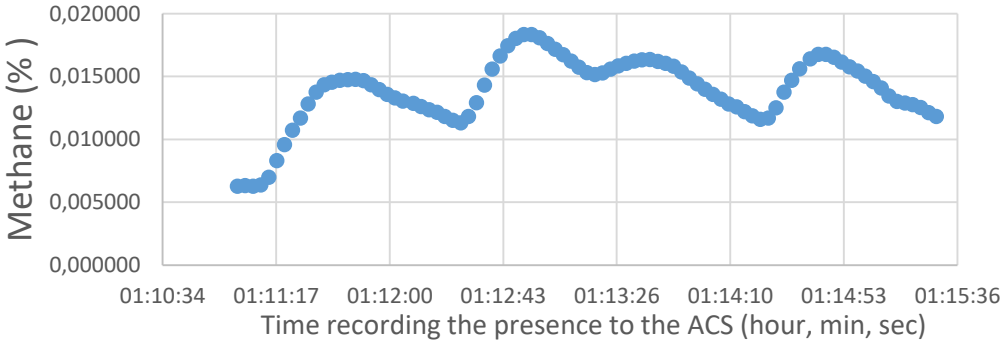
- Methane produced and emitted at feeding when consuming concentrates provided by the automatic concentrate supplier (ACS)



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