

# Large-scale methane measurements on individual ruminants for genetic evaluations

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METHAGENE



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# This is what we want a cow to do ...

(4 to 9 hours/day - Hafez & Bouissou, 1975)



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# ... but what is also causing problems

Ruminants  
account for up  
to 18% of the  
world CH<sub>4</sub>  
production

In EU:  
13%

Animal nutrition  
Microbes  
Genetics

Reduction of  
GHG of 20%  
by the year  
2020 relative  
to 1990 levels

90% of CH<sub>4</sub>  
produced in  
rumen



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# Genetics as mitigation strategy

- Making use of natural variation between animals
  - Permanent and cumulative changes in performance

Information on many phenotypes is needed!

- Enteric CH<sub>4</sub> is expensive and difficult to measure
  - Different equipments
  - Different protocols

# Measuring equipments (1/2)



Respiration chamber  
Gold standard!

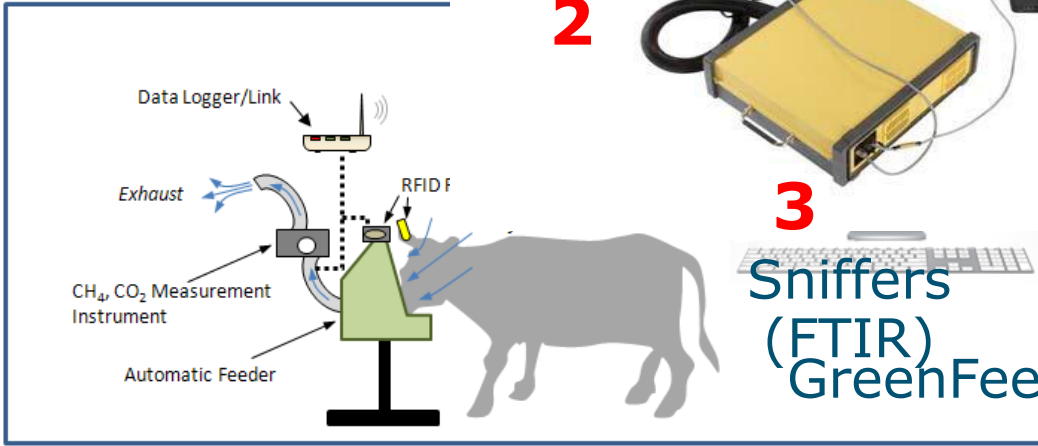


SF6

# Measuring equipments (2/2)



Laser





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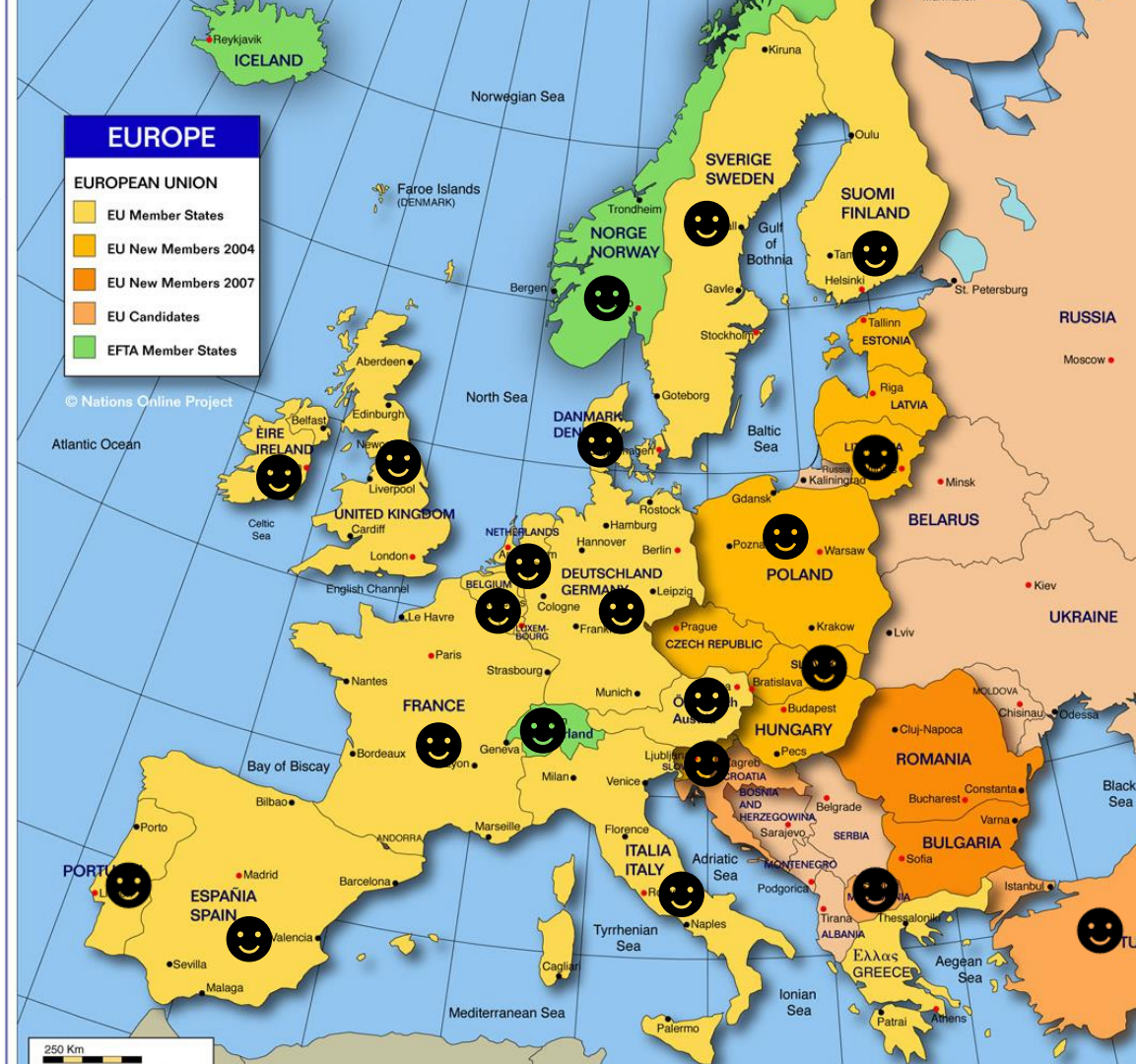
# Objectives of METHAGENE

- Define best trait for methane emission;
- Harmonise protocols for large-scale methane measurements using different techniques;
- Identify proxies for methane emissions to be used for genetic evaluations; and
- Quantify benefits for producers when incorporating methane emissions into national breeding strategies.

# Members

21 countries

- AT; BE; CH; DE; DK; ES; FI; FR; IE; IT; LT; MAC; NL; NO; PL; PT; SE; SLO; SK; TU; UK



# Activities and meetings

- Kick-off meeting – Dec 2013 (Brussels)
- Start up meeting – May 2014 (Amsterdam)
- Annual Workshops
  - Granada, Nov 2014
  - Wageningen, Oct 2015



# Activities and meetings

- Training schools
  - Dummerstorf – Oct 2014
    - Methane physiology
  - Poznan – Sept 2015
    - Methane data analyses



- Expert meeting – Catania, April 2015

# Activities and meetings

## Short term scientific missions

- Develop linkages and scientific collaborations between participating institutions involved in the Action
- 1 week up to 3 months
- Priority given to ESRs

# STSM routes

## 12 STSMs

- BE-ES
- CH-DE
- FR-UK
- UK-FR
- IT-DE
- ES-FR
- SK-DE
- DE-CH
- PL-UK
- AT-DE
- TR-IE
- SK-CH



# Dissemination

- [www.methagene.eu](http://www.methagene.eu)
- Twitter account





GGAA2016

Melbourne Australia

14-18 February 2016

[www.GGAA2016.org](http://www.GGAA2016.org)



# Thank you!

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