Large scale methane measurements on individual ruminants for genetic evaluations

INTRODUCTION

Reducing methane emissions of ruminants is a hot topic. In the EU, the livestock sector accounts for about 13% of total greenhouse gas emissions. Of the various greenhouse gases produced by ruminants, enteric methane (CH₄) is the most important contributor, with a global warming potential 25 times that of carbon dioxide (CO₂). Despite extensive research on solutions to reduce enteric methane emissions, there is little or no concerted EU-wide effort to develop usable tools for genetic reduction of methane. METHAGENE offers a platform for this effort.

JOIN METHAGENE!

Are you planning to buy equipment and start measuring methane?
Are you working on in vitro studies on methane?
Are you approaching the study of enteric methane from a completely different perspective?

If you are new in this field, if you actively want to share your knowledge, and if you want to learn from others, we would like to help you and also learn from you. Come on, and join our network soon!

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CONTACT DETAILS

METHAGENE is a unique network:
- Bringing together European experts working on strategies to quantify and mitigate methane emissions from ruminants and growing unique synergies.
- Integrating a range of disciplines to cover all methane-determining factors; animal nutritionists, animal breeders, environmental engineers, animal physiologists, rumen microbiologists, bio-informaticians, system biologists, statisticians, gas analysis experts.
- Stimulating research, education and exchange of knowledge and experience
- Training of Early Stage Researchers at training schools across Europe and on Short-Term Scientific Missions (STSMs)

METHAGENE started on December 10th, 2013 and will run until December 9th, 2017.

www.methagene.eu
www.cost.eu
Working Group 1
Methane determining factors

What?
- Compiling all possible factors associated with variation in methane production
  - Animal factors
  - Nutritional factors
  - Rumen microbial factors
- Establishing standardised definitions for methane measurements

Why?
- Input for the best experimental design
- Develop guidelines when collecting methane emission data

Working Group 2
Measuring techniques and strategies

What?
- Establishment of protocols for:
  - calibration
  - comparison
  - harmonisation
  - merging
- Use of different techniques and measuring strategies

Why?
- Being able to compare measurements of different studies
- Being able to combine data from different studies and enlarge the power of analyses

Working Group 3
Proxies for methane

What?
- Compiling, testing and developing low-cost indicators of methane output
  - Milk
    - Yield + Composition
    - MIR spectra data
  - Feed intake
  - Animal anatomy
    - Rumen size
    - Body size
  - And other indicators

Why?
- Reducing costs of measurements
- Enlarging dataset with individual data

Working Group 4
Benefits for producers

What?
- Recommendations and suggestions for approaches to include methane into breeding goals
- Indications of the societal, environmental and economic value of methane output

Why?
- Animal breeding is a mitigation strategy that is cost-effective, permanent, and cumulative
- Methane emissions are related to energy loss of feed intake (2-12%)
- Reducing methane whilst maintaining production has direct economic benefits