



COST

Large-scale methane measurements on individual ruminants for genetic evaluations



COST

METHAGENE

FA1302

Start date: 10/12/2013

End date: 09/12/2017

Year: *Starting*

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Chair

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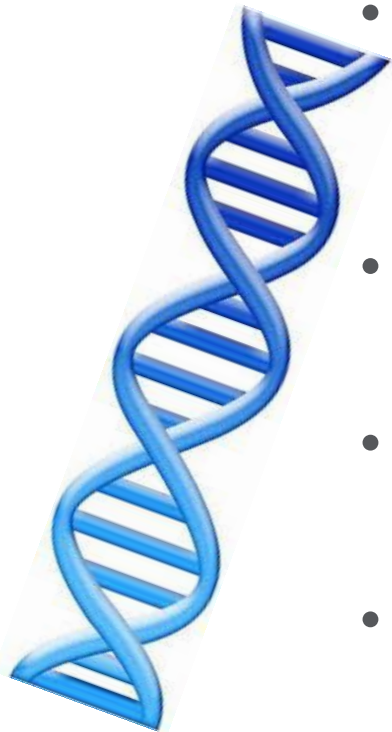
Rumination causes problems



Scientific context and objectives (1/4)

Background / Problem statement:

- Mitigation strategies:
 - Feeding (change of diet, add new components)
 - Genetics
- Preliminary data suggest that genetic selection to reduce methane emissions is possible.
- Successful breeding programs require large datasets of individual animal measurements
- Cannot be generated by any EU country working alone, but can be done in collaboration





Scientific context and objectives (2/4)

Brief reminder of MoU objectives:

The goal of METHAGENE is to discuss and agree on

- 1) protocols to harmonise large-scale methane measurements using different techniques;
- 2) easy to record and inexpensive proxies for methane emissions to be used for genetic evaluations; and
- 3) approaches for incorporating methane emissions into national breeding strategies



Scientific context and objectives (3/4)

Research directions:

- To establish an international network of nutritionists, physiologists, animal breeders, microbiologists, environm. engineers working in the field of methane production
- The Action objectives will be achieved with the activity of five Working Groups, STSMs, and training schools
- Methods:
 - Questionnaires/inventories
 - Literature review
 - Sharing data + first analyses
 - White paper

Scientific context and objectives (4/4)

Research directions:

- The Action's innovative work is in:
 - Animal breeding as a mitigation strategy
 - Combine datasets => international collaboration
 - Methane emissions measured using different techniques and measurement strategies => protocols



Working groups

Working Group 1:

Methane determining factors

To compile a) an inventory and discuss possible factors associated with variation in methane production, b) standardized definitions for methane measurements, and (c) combined and integrated data into novel genetic models.



Working groups

Working Group 2:

Comparison and calibration of measurements

To generate, discuss and develop protocols for collection, harmonisation, comparison, calibration and storage of methane emission measurements on individual animals made using different techniques and measurement strategies.

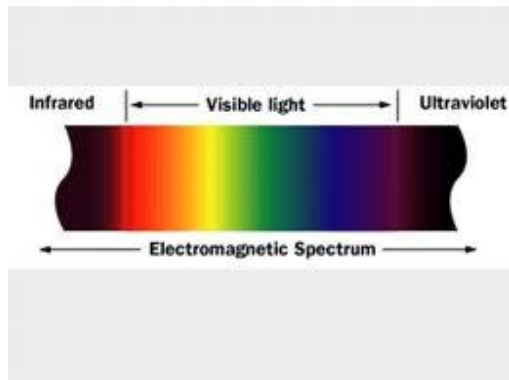


Working groups

Working Group 3:

Proxies for methane emission

To brainstorm and (in)validate easy to measure, inexpensive indicators of methane that are closely related to enteric methane emissions, and examine their relationships with methane emissions.



Working groups

Working Group 4:

Benefit for producers

To quantify the importance of methane emissions (or indicators) relative to other performance traits in breeding goals (e.g., milk or meat yield, fertility), and indicate the benefit for producers when methane emissions is included in breeding goals within EU dairy cow populations.



Working groups



Working Group 5:

Knowledge and management exchange (KME)

To support KME of innovations to methane sensor, breeding, dairy, and meat industries. In order to increase the potential application of the results, international stakeholders are involved in METHAGENE.

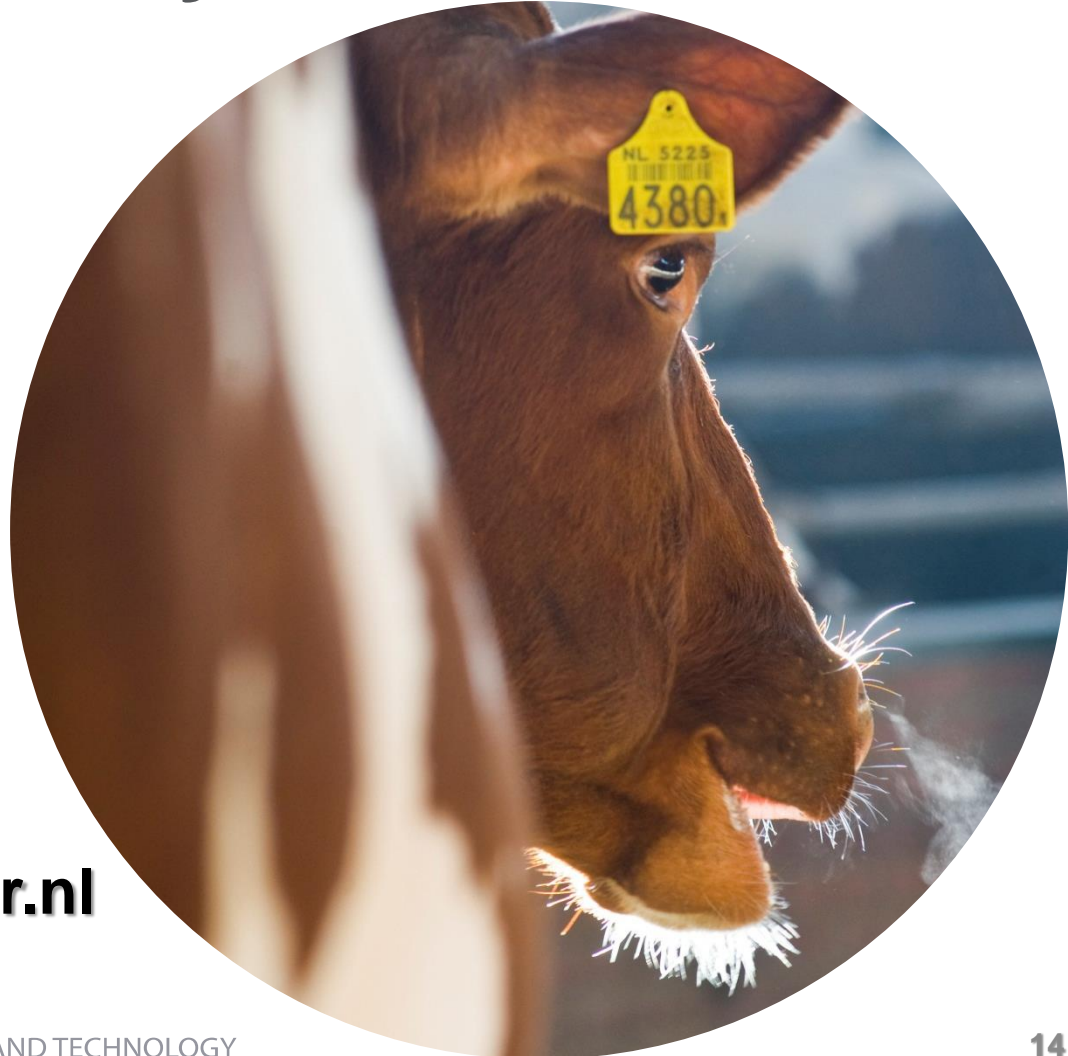
- Dissemination, exposure, website, articles
- Arrangements STSM



Future Plan and Challenges

- First STSM-call is out, deadline April 30th, 2014
- Start-up meeting on May 8th, 2014 at Schiphol Airport for whole consortium (~50 people will participate)
 - Main focus on WG1 (methane determining factors) and WG2 (protocols to harmonise different techniques)
 - Inventory on who is measuring what and how
- Training school on “Physiology of methane for geneticists” early October 2014 in Dummerstorf, Germany
- Workshop mid November 2014 on WG1 in Malaga, Spain
- Continuous updates on: www.methagene.eu

Thank you for your attention



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