Minutes of the 8th Methane Phenotype Working Group (MPWG)

By Phone 2200 GMT 14th Mar 2013


Apologies: John Basarab, Yvette de Haas, Grant Shackell, Kristi Cammack, Jan Lassen, Adrian Cookson, Ben Hayes, Phil Vercoe.

General Discussion:

Summary of NZAGRC/ PGGRC Workshop: Developing rapid, low cost methods for identifying low emitting dairy cattle phenotypes, chaired by Mark Aspin. Object was to pick three most likely methods and provide a recommendation to Harry Clark of which to pursue. The three methods were Greenfeed system, Sniffer, SF₆. All need further assessment in consistent ranking of animals, FI data and calibration to chambers.

Differences between portable chambers (PAC) and respiration chambers

- There is a difference in the behaviour of animals in PAC and chambers which causes re-ranking of animals. Finding the relationship between PAC and chamber is difficult
  - There is consistency in the PACs across feeds
  - NZ: The differences seen in the PACs are magnified compared to chamber.
  - A lot of the differences between animals could be attributed to eating, ruminating patterns and rumen mixing in the gut.
  - The fixed feeding often done in chamber measurements does not allow the variation to be expressed.

Sniffers, there is an issue around methane measurements of animals at feeding bins are much higher than at other times.

- RFI facility with sniffers on bins might have an effect
- Due to higher levels of eructation when feeding
- Dave Ross must have measurements. There was a trial with sniffers in respiration chambers to tray and calibrate. There must have been feeding in the chambers and data available on methane yields during and between feedings. John McEwan to find out.
- Need more info on eructation patterns over the whole day. Cesar
- Need information on difference in ranking of animals between sniffers and chambers.
- Some additional comment and advice is required.

Steve asked good question about putting information into this document/paper if not previously published. Some won’t want to put information into this document/paper if haven’t been individually published yet.

- We can throw everything onto the table. When we come to writing up if there is data not individually published, we could find alternative way to back up the point
There will be a window between when document is circulated internally, before the paper is actually published.
  - This will probably be until a year from now.
  - Aim for everyone to publish what they can within the year
  - Or could publish some as companion papers.

Need a description about Bos indicus breed. **Marcos**

Need a table at beginning listing the number of animals in world, and estimated amount of mega tons of CO₂ equivalents estimated for sheep, cattle, goats and water buffalo. And a sentence about that 20% of worlds land mass is used for animal production (ruminants) and this proportion won’t reduce.

**Gaps**

- Pattern of eructation
- Beef and dairy cattle CH₄ emissions and repeatabilities
- Field measurements of SF₆, PACs verses chamber measurements

**Actions**

- **Roger** to continue writing up his piece on sources of variation of CH₄
- **Cesar** to write up on
  - Observations between chambers and SF₆
  - Observation on eructation patterns and effects on CH₄
- **Hutton** write up on
  - Data gathered on PAC and chambers
  - CO₂ and CH₄ in chamber cattle data
  - To incorporate Kristi Cammack’s material and methods into
- **John McEwan** to write to Dave, Phil, Yvette, Jan to ask for paragraphs on what they have on variation in sniffers compared to chambers
- **Marcos** to write up on Bos indicus breed
  - The % of world cattle population
  - Emission data
  - What work is being done

**Next meeting, 5th April 11am NZ time. (4th 7pm Sao Paulo, 6pm Steve, 4pm John B 😊). Please circulate your summaries before this date, and preferably a few days before the meeting, not 30 minutes beforehand 😊.**

**ASGNN GGAA meeting**

- Netherlands and New Zealand are joint partners leading the LRG, so might be good to have a European convenor
- Database
  - Is to be based on International committee for Animal Recording (ICAR). They list trait definitions and specifications of how data should be reported. They don’t have the data. However, the propose database will hold data.
- We need a list of basic traits and their definitions. i.e. FI for the day, CH₄ in g/day, CO₂, VFAs etc. Units need to be the same and methods will need to be detailed for each set of data uploaded. There may need to be methods for transforming data to same units, scale.
- John, Natalie and Grant to write a short summary of
  - what the database is to be used for
  - list of basic traits and definitions to be in the database
  - how can combine and use data.
- **IP:** A draft of IP, transfer of data, should be completed in a couple of weeks
- Propose, an additional phone meeting, *early May*, inviting ASGNN members broader than MPWG group. Make it an important meeting and discuss
  - IP
  - Database
  - Agreement of a structure for going forward and nominations for leadership positions