Animal Selection, Genetics & Genomics to manage ruminant CH_4 emissions:

a coordinated international research network.

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Why an International Network?

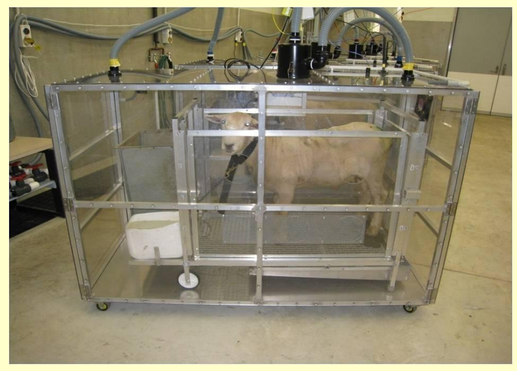
- The science behind genetic and genomic technologies requires a significant resource of animals and research under different environmental influences.
- The ASGGN will facilitate a coordinated international research effort to achieve progress at a much faster rate than is possible by any of its member countries working alone.
- ASGGN membership currently includes scientists from Asia, Australia, Canada, Europe, Ireland, New Zealand, Scandinavia, South America, the United Kingdom and the USA.

Why Animal Selection, Genetics & Genomics?

- Animal Selection exploits the genetic variation that exists between animals.
- Genetic improvement of productivity offers a means of managing CH_4 emission intensity.
- Differences between individual animals in CH_4 emissions for the same intake of feed are heritable and can be selected for i.e. a reduction in absolute emissions.
- Genomic selection allows selection of animals based on their genetic profile, without having to directly measure the specific trait on every animal.
- Genomic selection for difficult to measure traits, such as CH_4 emissions, offers a way of reducing methane emissions from ruminants as part of existing commercial genetic improvement.
- Implementing genomic selection for CH_4 emissions will require that thousands of animals per species are phenotyped and genotyped - this will cost less and will be quicker if international parties pool data and resources.

Describing the host animal CH_4 phenotype

- Comparisons between species and countries will be facilitated if the phenotype is measured using consistent protocols.
- Establishing common protocols will enable combining and sharing of data and of genetic parameter estimates.
- For CH_4 measurement, respiration chambers are the likely calibration “Gold standard”.
- Feed intake measurement will also be a component of calibration.
- A working party of the ASGGN is reviewing current knowledge in preparation for describing the best way forward.
- ASGGN also maintains strong linkages with the Rumen Microbial Genomics Network of the GRA.



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