Workshop on 'Methodologies for measurement of methane emission from ruminants', from 26 September to 7 October 2005 in Zürich, Switzerland

Summary

This training workshop was conducted for Research Contract Holders (RCHs) of the CRP entitled 'Development and Use of Rumen Molecular Techniques for Predicting and Enhancing Productivity through a Reduction in Rumen Methane', D3.10.24 and was held after the first RCM, at the ETH's experimental station, Emmau, approx. 40 km outside Zurich. The main objective of the CRP, under which this workshop was organised, is to reduce methane (a greenhouse gas) emission from livestock and divert the energy being lost in methane production towards increasing livestock production thus enhancing the efficiency of production and reducing environment pollutants. Since methods for measuring methane from animals are complex and the capacity to measure methane from whole animals did not exist with the RCHs, the holding of this training workshop was mandatory for successful completion of the CRP.

This training course was organised through Professor Michael Kreuzer, a FAO/IAEA Technical Contract Holder under the CRP. All eight RCHs attended the training workshop. Three invited scientists (Dr. Kris Thompson, USA; Dr. Roger Hegarthy, Australia; Prof. Jamie Newbold, UK) and one local scientist (Dr. Michael Kreutzer) delivered the lectures and provided the practical training. The programme of the training workshop consisted of lectures and practical exercises on:

- SF6 tracer technique
- Respiration chambers
- Tunnel System for methane determination using an infra-red detector and GC
- Chamber/box system for methane determination using a GC
- Indirect method for methane determination by infusion of labelled short chain fatty acids
- Direct method for methane emission by infusing labelled methane

Advantages and disadvantages of each method were discussed. A manual in hardcopy form covering the above methodologies was provided to the participants. Feedback on the training programme was taken from the participants through discussions and a questionnaire. All participants graded the training workshop as very good/excellent. All participants indicated that they acquired all the practical skills for conducting the methodologies and they were confident of introducing and using one of the techniques demonstarted in their laboratories. This expertise together with the use of molecular methods for quantifying rumen microbial population would provide a better understanding of the roles and interactions of different groups of rumen microorganisms in methane production, fiber degradation and livestock productivity.

Participants

Same as for the first RCM