



In vivo methane measurements

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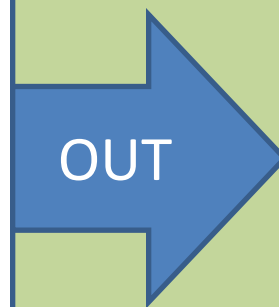
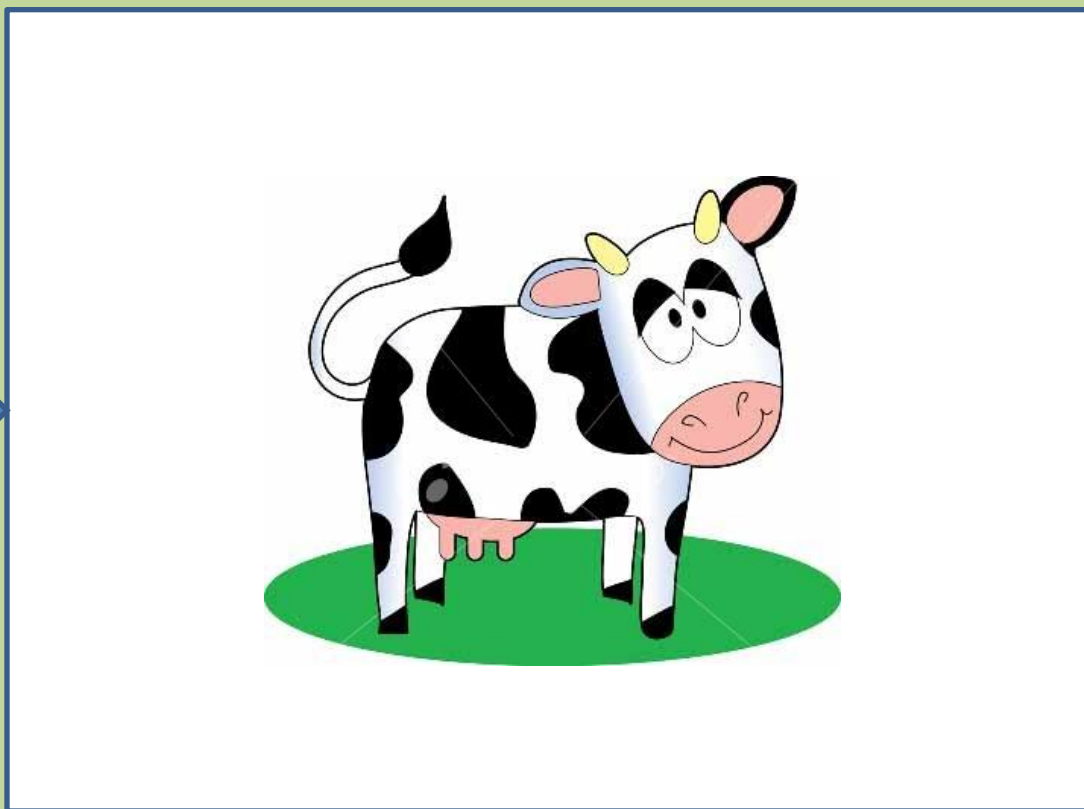
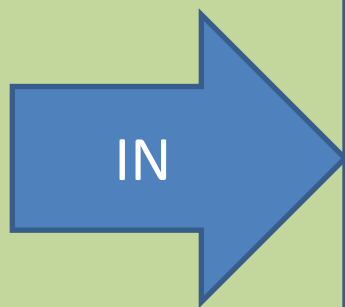
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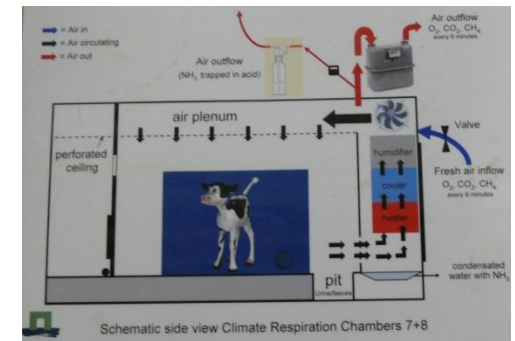
Overview of the most common used in vivo measurements

- Respiration chamber
- Open circuit chamber
- Hood-type gas exchange chamber
- Tunnel
- Micrometeorological mass balans
- SF6 tracer technique
- Intragastric infusion
- Milk fatty acids analysis



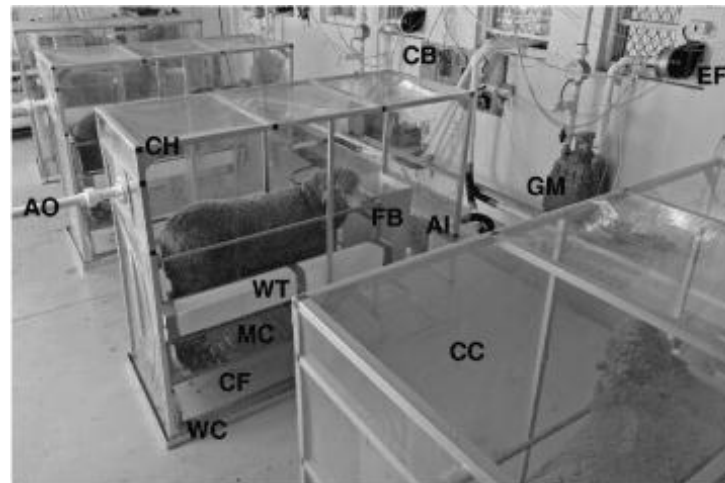
Respiration chamber

- Sealed room with controlled air temperature (calorimeter)
- dual-channel infrared and paramagnetic analysers
- Under- or overpressure
- Online measurement O_2 CO_2 CH_4 NH_3



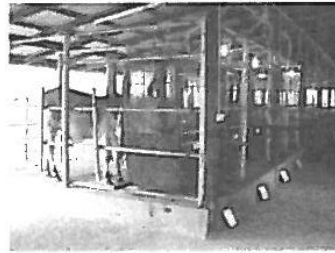
Open circuit gas exchange rooms

- Sealed chambre with ventilators
- Online measurement of CH₄ and possibly other gasses
- No calorimetric
- Underpressure



Hood-type respiration method

- Strongly comparable technique
- Only the head is sealed
- No calorimetric



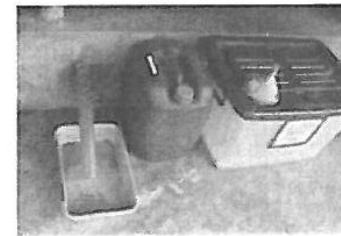
(a)



(b)



(c)



(d)



(e)

Tunnel

- Plastic tunnel with small tunnels as in- and outlet with measuring points



Micrometeorologic mass balance

- Calculation of net emission from animals in small bounded areas from the difference in the amounts of CH_4 carried across the upwind and downwind planes of the test area

Tracer: 10 (out of 100) units/t recovered
 CH_4 : 5 units/t recovered



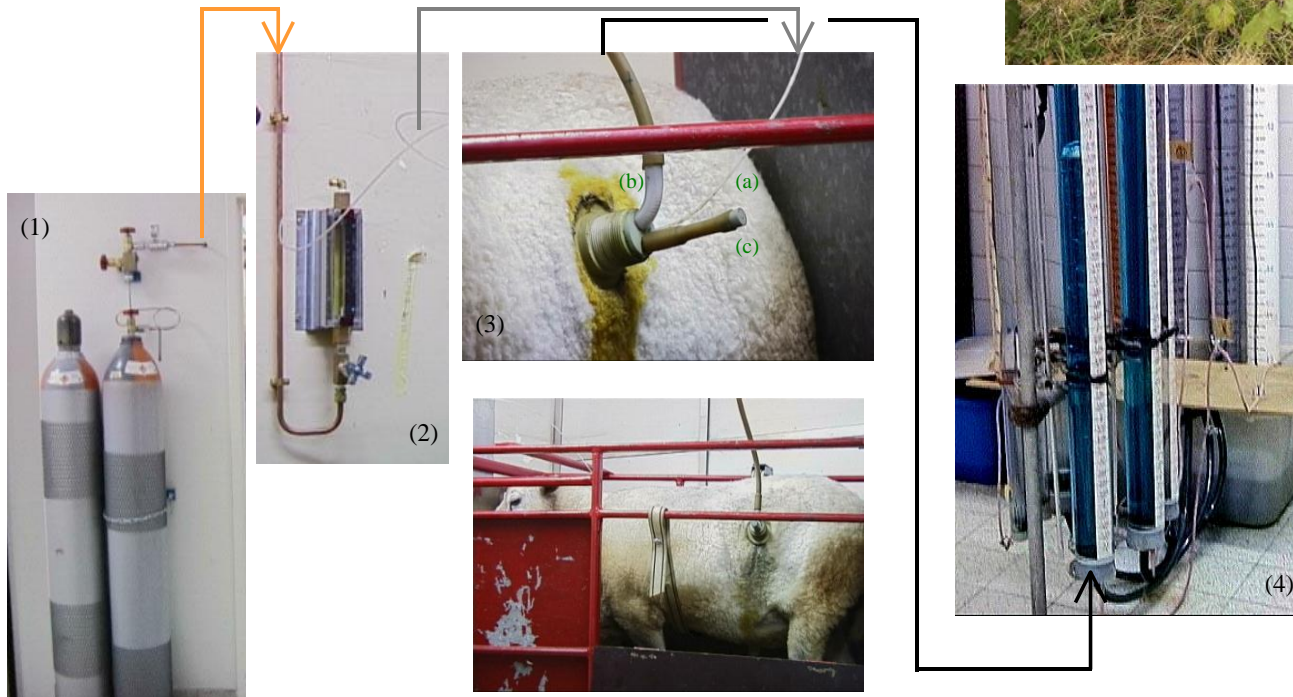
SF₆

- SF₆ tracer in rumen bolus
- Vacuümcanule
- Halster with sampling device



Intragastric infusion

- Intragastric infusion via fistula
- Ethaan as tracer



Milk fatty acids

- Estimation of (changes in) the produced methane from (changes in) the fatty acid concentration in the milk



Thank you for your attention

Workshop SMethane
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