

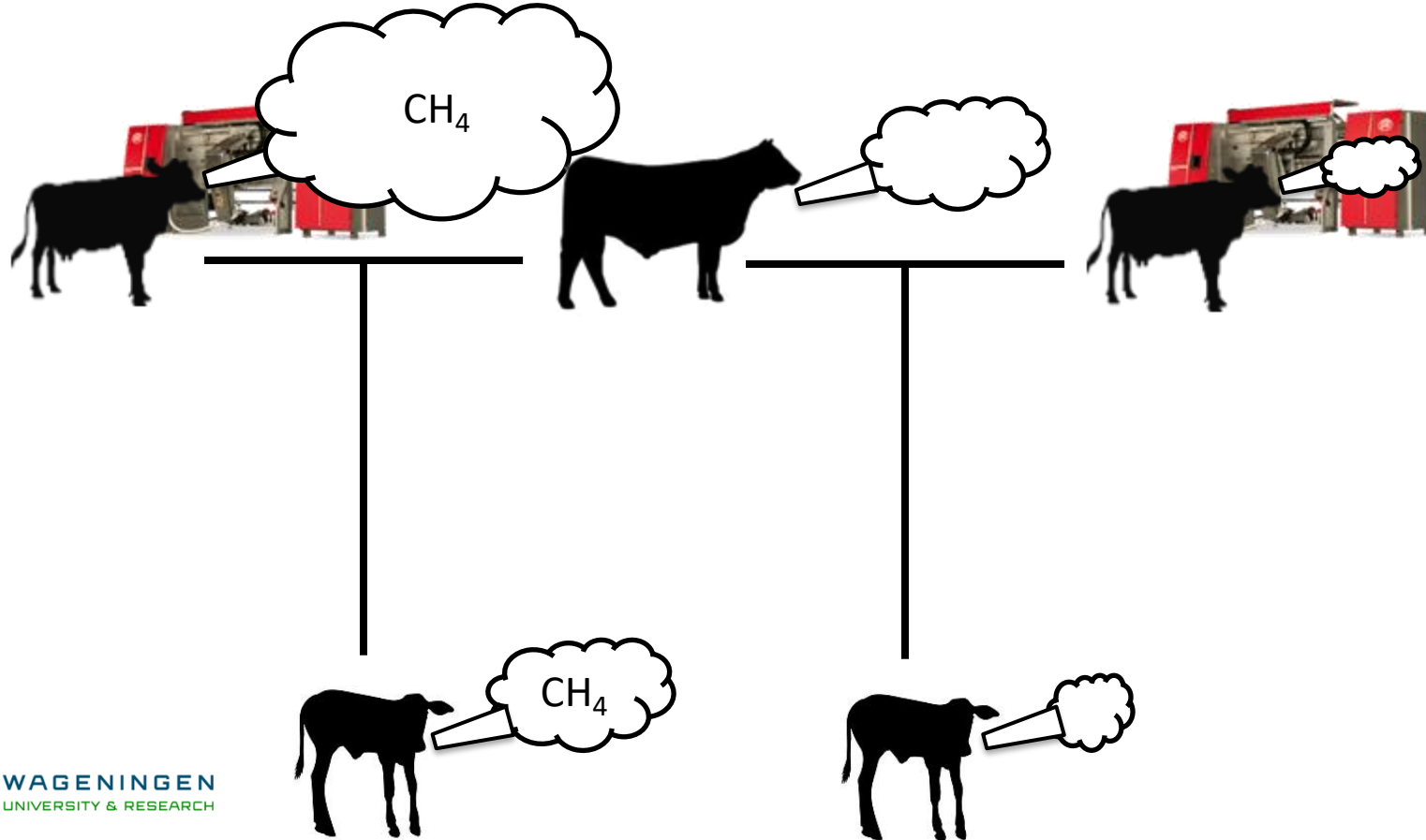
SOP sniffers


Coralia Manzanilla Pech, Yvette de Haas, Chantal van Gemert

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Ultimate aim





We have to record
the methane
emission on

 **100,000** animals 

Agscent



- Based in Australia, used in USA and Australia
- Current model: GHG 2100
- Tunable Diode Laser sensor for CH₄
- Non-Dispersive Infrared sensor for CO₂
- Range
 - CO₂: 0-20.000ppm
 - CH₄: 0-40.000ppm
- Weight: 14 kg
- Price: mid range

Arcoflex



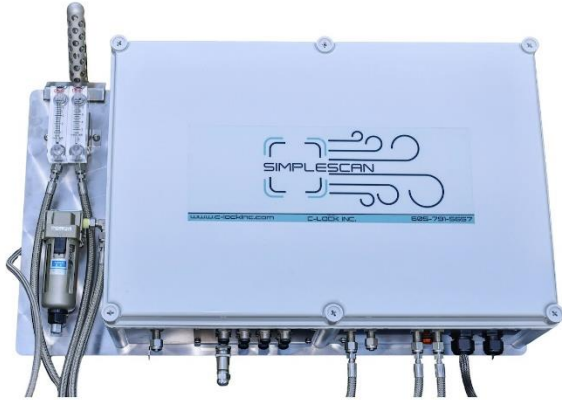
- Based in Australia, used in Australia and New Zealand
- Currently only measures methane
 - Newer version also CO2
- No tubes used
- Range: 50 – 5.000ppm
- Weight: 5 kg
- Price: low range

Carltech

- Based in The Netherlands, older versions currently used in The Netherlands
- New version under development, expected early February
- Range:
 - CO₂: 0 – 50.000ppm
 - CH₄: 0-2.000ppm
 - Optionally an O₂ sensor can be included
- Weight: 10 kg
- Price: low range



C-Lock



- Based in the USA
- Focused on the GreenFeed, but also developed the SimpleScan
- Range:
 - CO₂: 0 - 20.000ppm
 - CH₄: 0 – 40.000pmm
- Weight: 18 kg
- Price: high range

Gasera

- Based in Finland
- Gasera one pulse
- Can measure up to 9 gasses and H2O
- Photoacoustic detection, broadband IR source and narrow band optical filters
- Range:
 - CO2: 0,3 – 30.000ppm
 - CH4: 0 - 100.000ppm (can be reconfigured)
- Weight: 13 kg
- Price: high range



Gasmet



- Based in Finland
- Model: GT5000, Can measure up to 50 gasses.
- Needs daily calibrations with nitrogen by hand.
- Fourier Transformed Infrared sensor
- Range:
 - CO₂: 0 - 100.000ppm (adjustable)
 - CH₄: 0 – 100.000ppm (adjustable)
- Weight: 9,2 kg
- IP20
- Price: high range

Edinburgh sensors



- Based in the UK, used in Denmark, Finland, Spain.
- Develops Gascards and Guardians
- Range:



- CO2: depends on gascard
 - Generally used: 0-50.000ppm
- CH4: 0 – 10.000ppm

- Has to be build around the sensors
- Weight: 15 kg (also depending on build)
- Price: low range

Tecnosens



- Based in Italy, used in Italy, Spain, Canada, Switzerland, USA, Uruguay
- MooLogger, advanced and standard versions
- Using a Non Dispersive Infrared sensor
- Range:
 - CO₂: 0 - 50.000ppm
 - CH₄: 0 – 5.000ppm
 - Optional O₂: 0-25.000ppm
- Weight: 10,9 kg
- Price: low range

Nikira Labs

- Based in the USA
- CH₄/CO₂/H₂O analyser.
- Range:
 - CO₂: 100 - 20.000ppm
 - CH₄: 1 – 20.000ppm
 - Optional H₂O: 500-20.000ppm
- Weight: 14 kg
- Price: high range

La Trobe University

- University in Australia
- Research centre developed a sniffer in-house
- Currently not commercially available
 - Working on patents and commercial license
 - Information on ICAR WIKI will be updated, once allowed.
- Good ranges, weight and price range
- Current version still needs manual calibration
 - Next version everything will be automated
 - Not in time for this project

Redeveloped Carltech sniffer

- Old sniffers with new methane sensor
 - Edinburgh sensors CH₄ 0-10.000ppm
 - Old CO₂ sensors
- Testing the Edinburgh Sensors
 - Cannot test effect of build from Denmark with this set-up.
- Stability
- Possibility of still using old sniffers



Next steps

- Select 4 or 5 sniffers, based on our criteria
- Test them in the Air Quality Lab
- Install them on 2 farms in NL (Dairy Campus & de Marke)
- Let them run for 1 year and evaluate monthly
- Learn about combining data
- Set up the SOP
 - Installing
 - Data usage

