



Instituut voor Landbouw- en Visserijonderzoek

## Lessons from SMEthane:

# Developing in vivo screens to measure the effect of plant extracts on methane production

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March 2012

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Animal Science

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# Overview of the most common used in vivo measurements (within SMEthane)

- Respiration chamber
- **Open circuit chamber (ILVO, Aberystwyth)**
- Hood-type gas exchange chamber
- Tunnel
- Micrometeorological mass balans
  
- **SF6 tracer technique (INRA)**
- Intragastric infusion
  
- Milk fatty acids analysis

# SMEthane

Planned long term trials: 21

Today: partial results from

- INRA: 2 trials
- ILVO: 2 trials

w1	w2	w3	w4	w5	w6	w7	w8
cont	Contr <b>X</b>	Test	Test <b>X</b>	Test	Test <b>X</b>	Test	Test <b>X</b>

# INRA

Tracer: 10 (out of 100) units/t recovered  
CH<sub>4</sub>: 5 units/t recovered



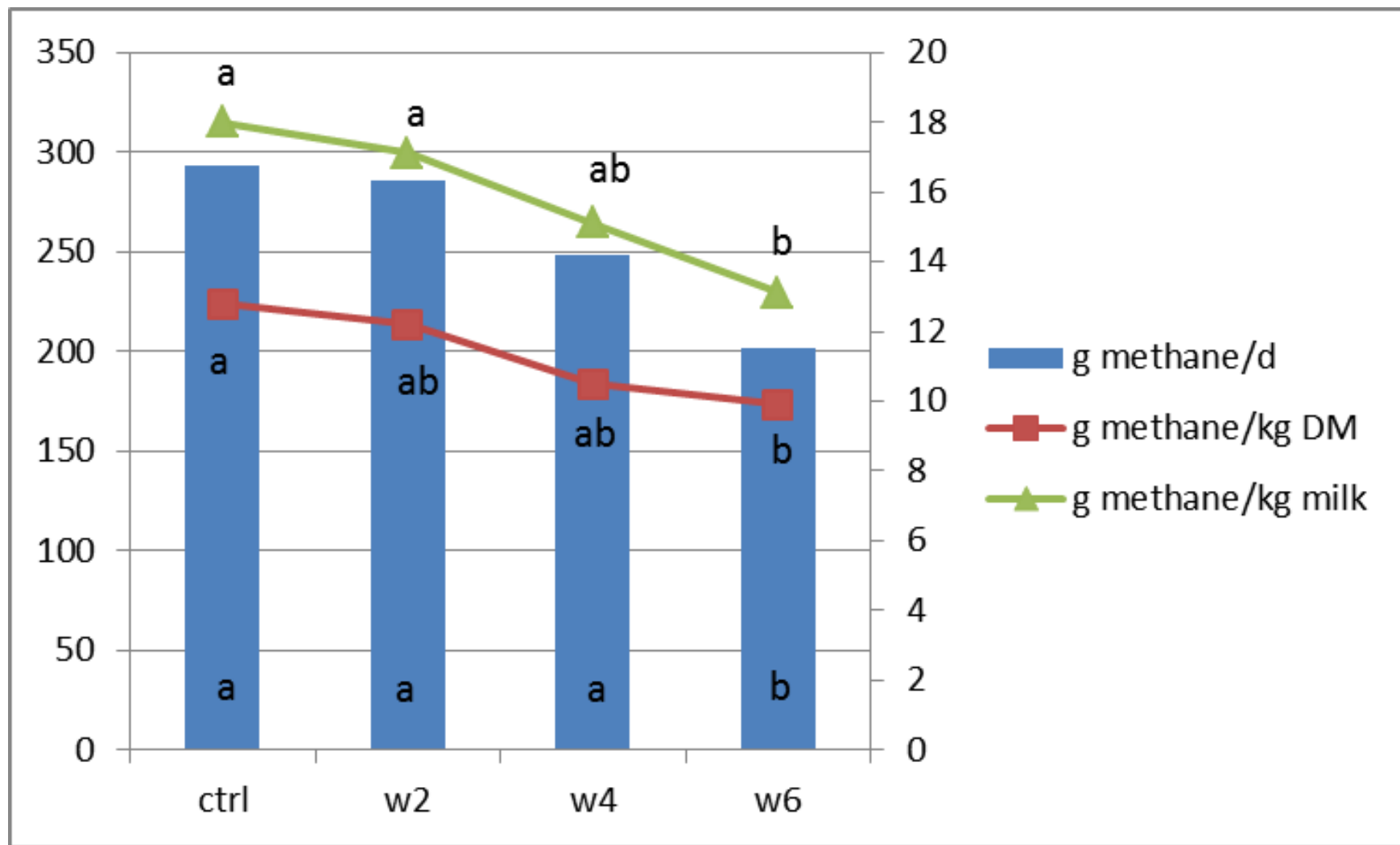
# SF<sub>6</sub>

- SF<sub>6</sub> tracer in rumen bolus
- Vacuümcanule
- Halster with sampling device



# Methane production, intake and milk production of cows supplemented with product X

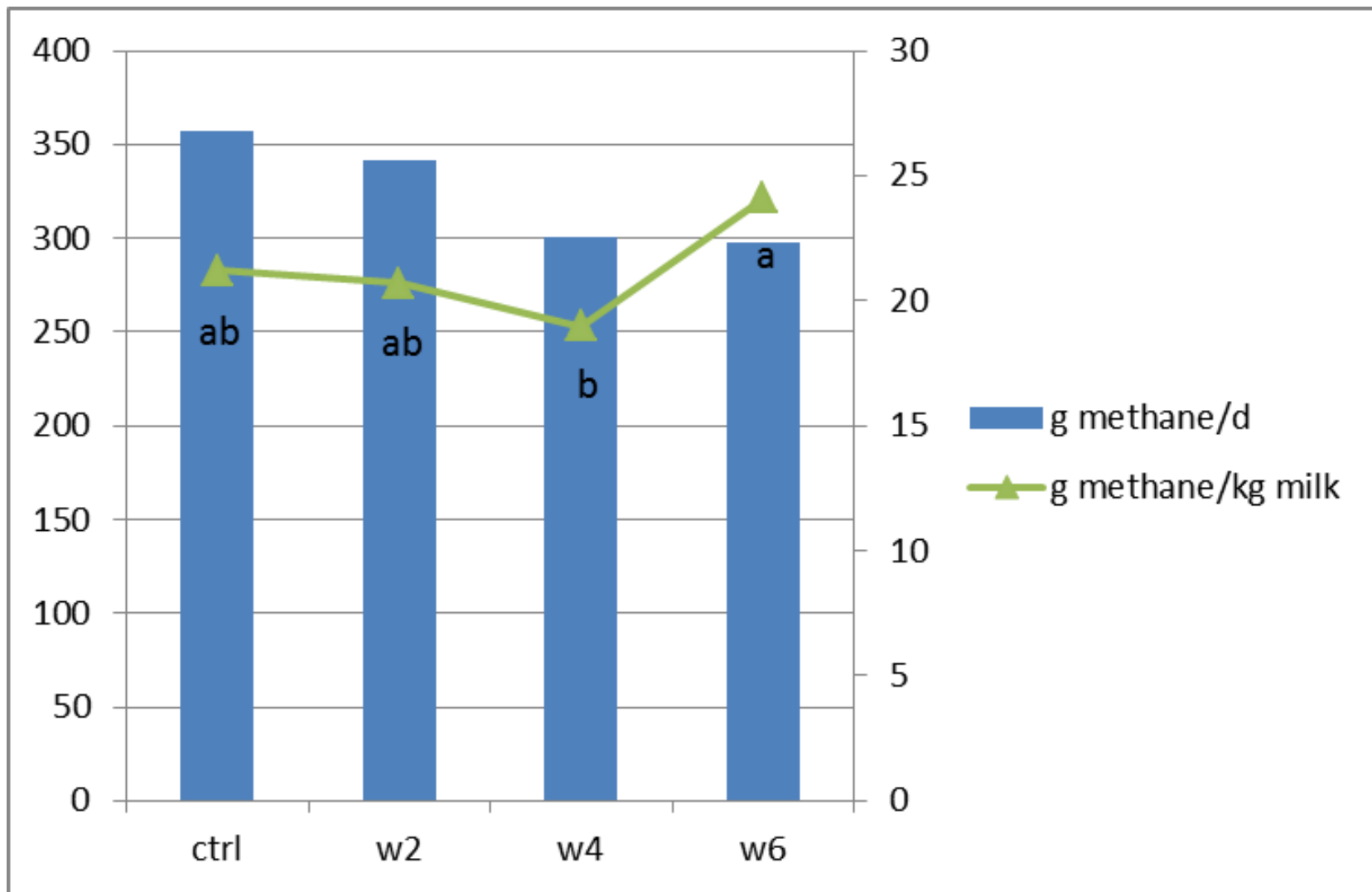
	Before		During treatment				SEM		
			2 weeks		4 weeks			6 weeks	
<b>Methane</b>									
<b>g/cow/d</b>	293.3	a	286.0	a	248.6	a	201.3	b	17.88
<b>g/kg DMI</b>	12.8	a	12.2	ab	10.5	ab	9.9	b	1.48
<b>g/kg milk</b>	18.0	a	17.1	a	15.1	ab	13.1	b	1.12
<b>Dry matter intake, kg/d</b>	16.3	b	16.8	ac	16.5	bc	15.3	d	0.23
<b>Milk production, kg/d</b>	23.8	ab	24.4	a	24.9	a	21.5	b	1.85



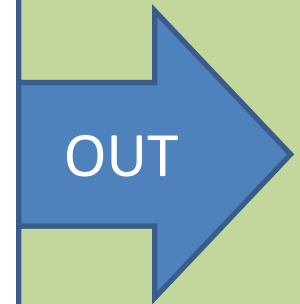
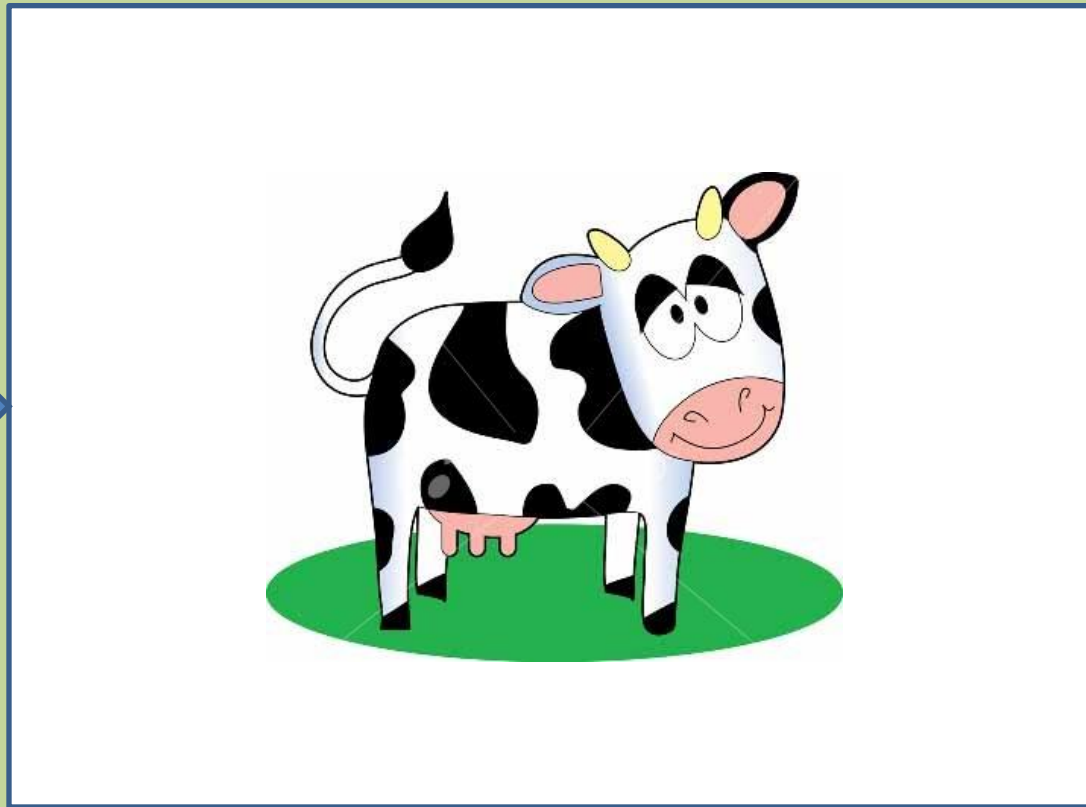
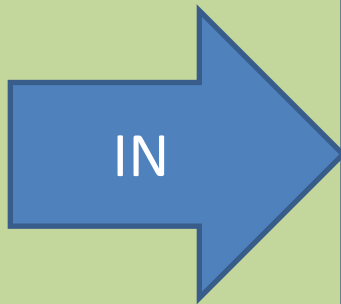
# Methane production and milk production of cows supplemented with product y

	Before	During treatment						SEM
		2 weeks	4 weeks	6 weeks				
<b>Methane</b>								
<b>g/cow/d</b>	357.3	341.6	300.9	297.3			39.88	
<b>g/kg milk</b>	21.2 ab	20.7 ab	19.0 b	24.1 a			2.09	
<b>Milk production, kg/d</b>	17.2 a	16.3 ab	15.6 b	12.6 c			1.31	



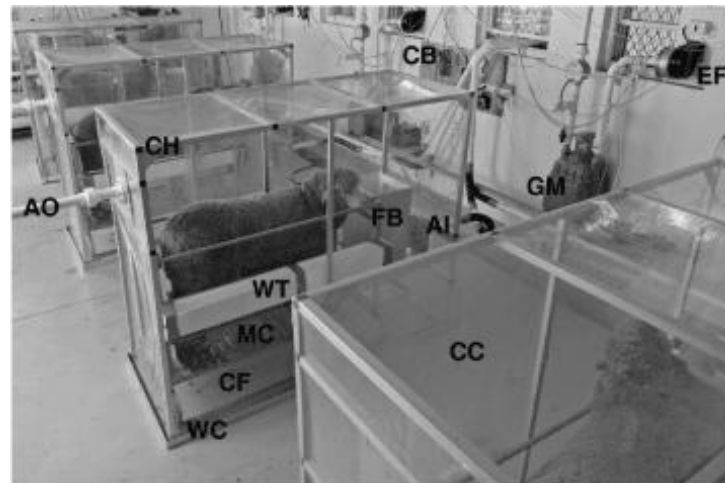


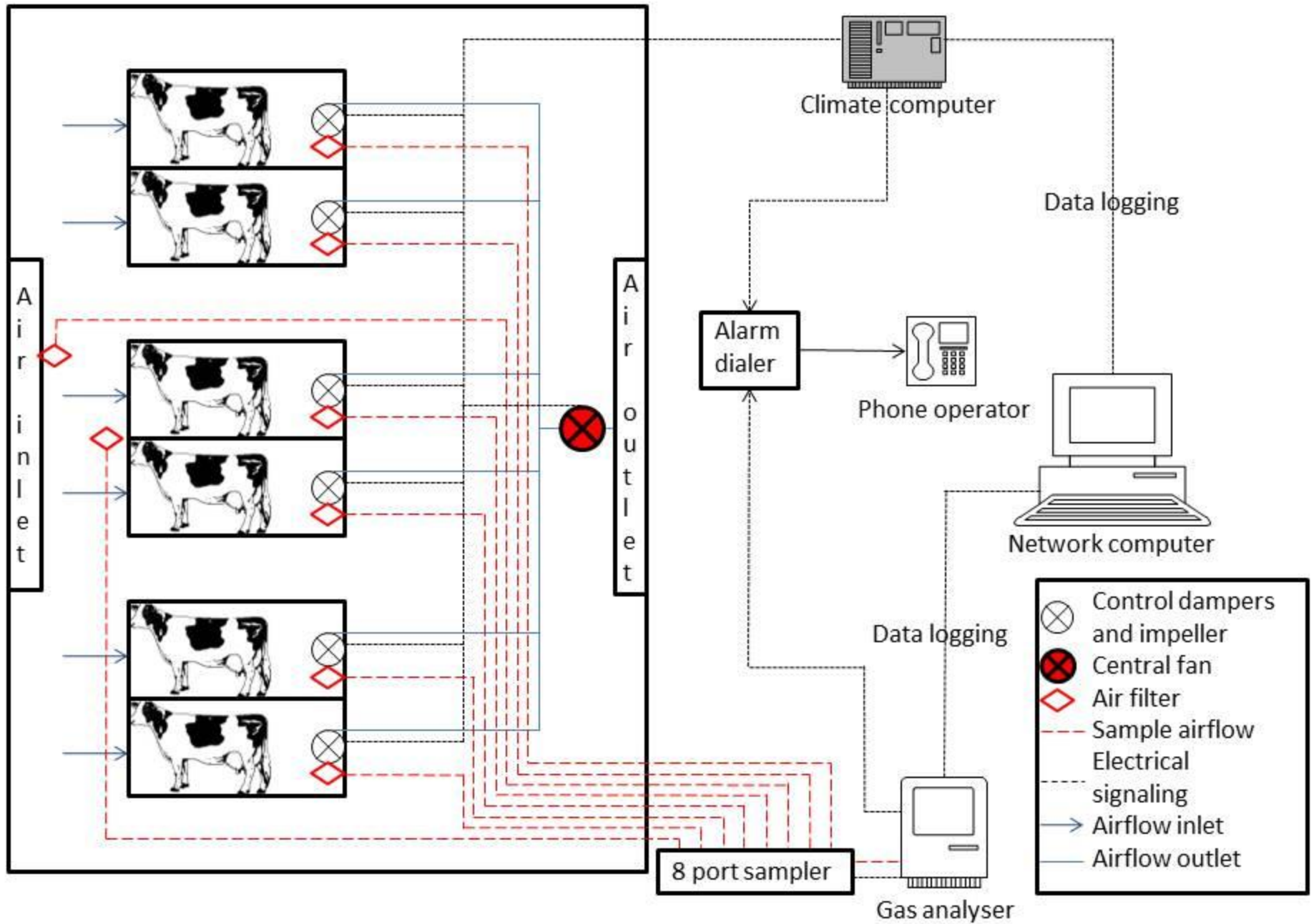
# ILVO



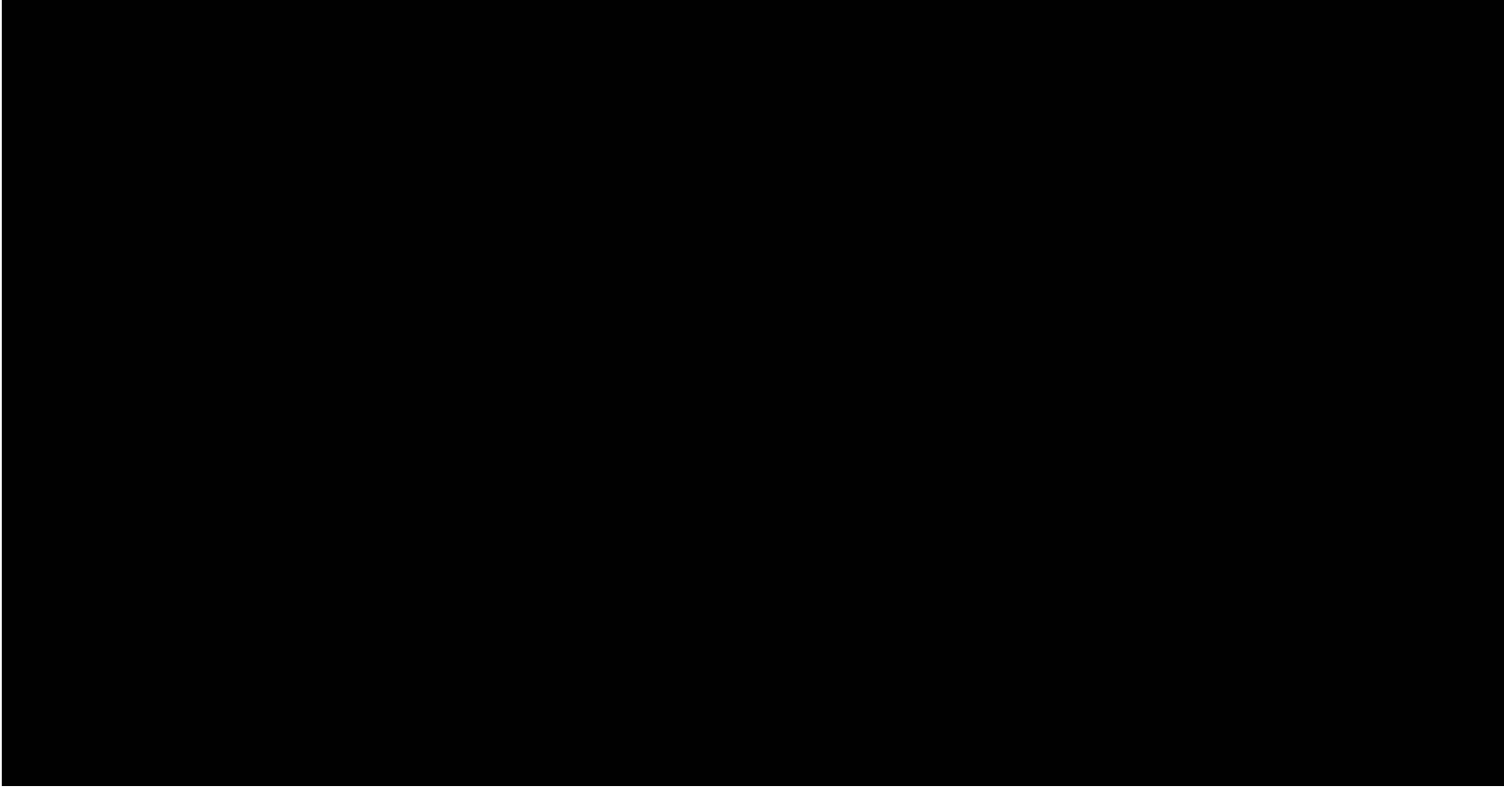
# Open circuit gas exchange rooms

- Sealed chambre with ventilators
- Online measurement of CH<sub>4</sub> and possibly other gasses
- No calorimetric
- Underpressure

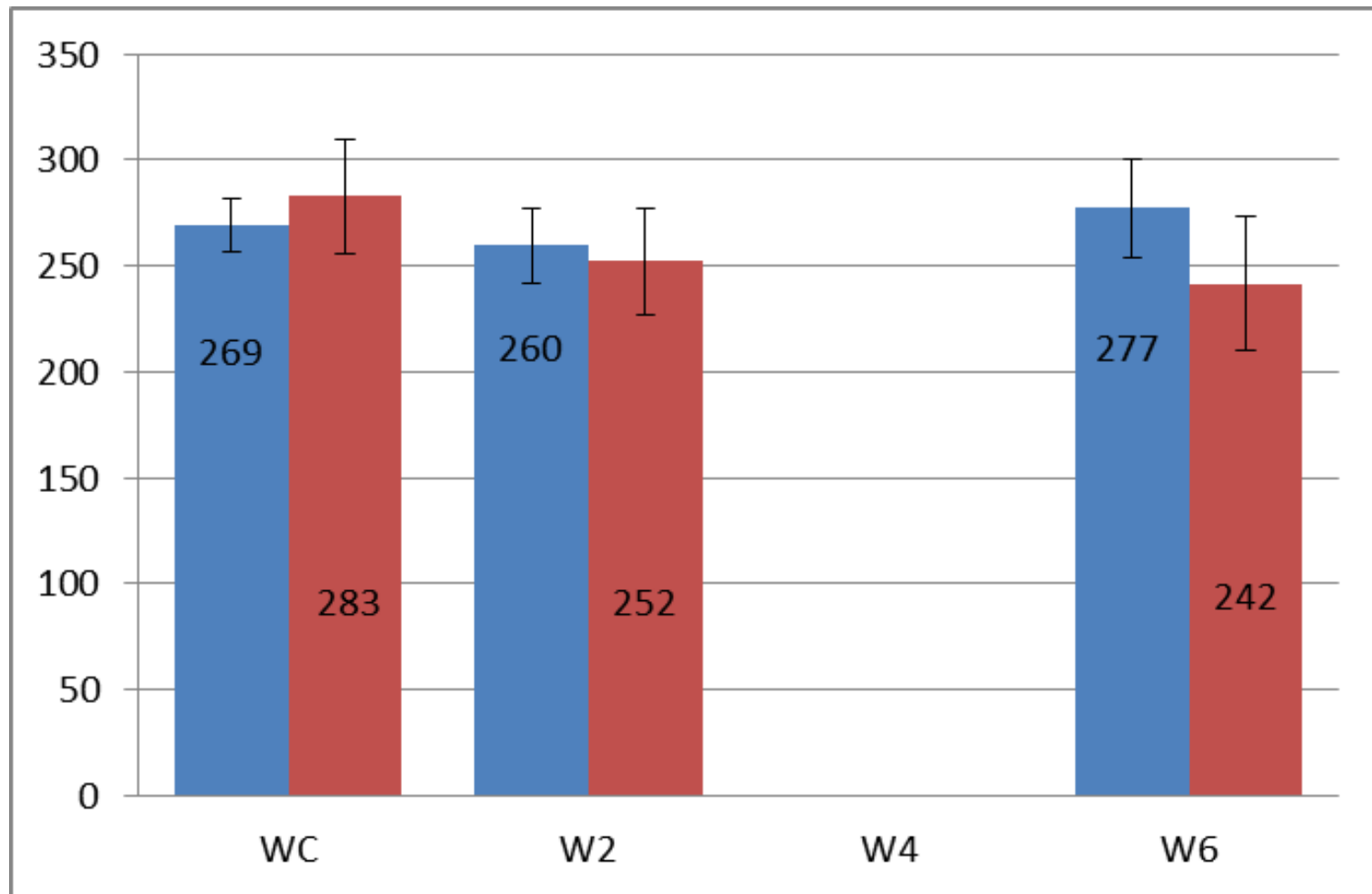




# Methane measurement chambers at ILVO



# Methane production of cows supplemented with product a en b





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# Thank you for your attention

Workshop SMEthane  
September 2011

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