# Data description

- ## In the Excel file (Data.xls):

Five columns including: Time, Air temperature (15 cm above the slurry surface), Slurry temperature (5 cm under the slurry surface), Air humidity (15 cm above the slurry surface), Ventilation rate (measured in the ventilation opening).
A big amount of measurements must be taken with a time step between 1 and 15 minutes.

Time	Air Temp (°C)	Slurry Temp. (°C)	Air Humidity (%)	Ventilation (m^3/h)
5/20/09 8:29 AM	0.0	0.0	85.0	2420.9
5/20/09 8:44 AM	0.0	0.0	100.0	2500.0
5/20/09 8:59 AM	0.0	0.0	56.0	2500.0
5/20/09 9:14 AM	0.0	0.0	90.4	2500.0

The figure below show and exemple of manure tent:

1. Ventilation system (*Fancom* fan) where the ventilation rate is measured

2. Temperature and humidity sensors (a) manure surface temperature (b) air humidity and temperature sensors near to the manure surface (online)
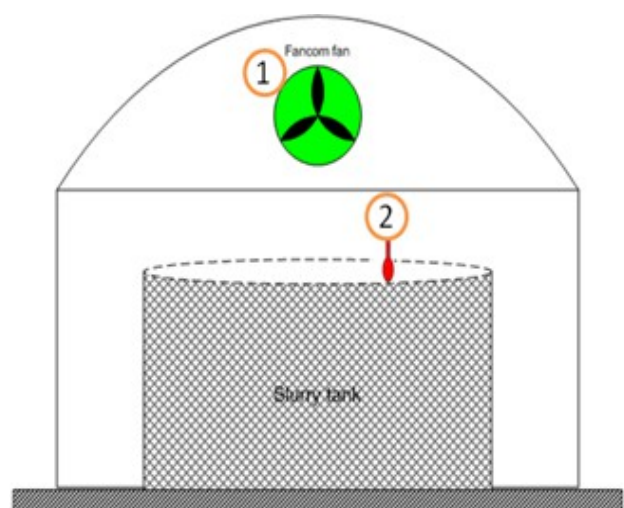
• <u>In the Excel File (Data_Tent_completed_web.xlsx):</u>

Are identified useful variables to proceed to the model definition such as the Ammonia measurements at the inlet and the outlet, the net ammonia emission (g/hour) and ventilation rate (m^3/hour). This part correspond to the observed values.

Time	Ammonia (mg/m³) Inlet	Ammonia (mg/m³) oulet	Ventilation rate (m3/h)	NH3 emission g/h
25/06/2009 00:09:47	0,4	1,7	2458,1	3,16
25/06/2009 01:06:01	0,4	1,6	2575,9	3,22
25/06/2009 02:53:59	0,3	1,6	2306,6	2,91

The second section refers to calculated emissions, the (a) and (b) parameters are vectors of the ammonia concentration. The (e) parameter is a vector of the model errors.

values to be completed to check results...

initial calibration

$$NH3 = a.Tair + b.Tman + e$$

model parameters			calculated emission	
a	b	e	calc NH3 emission g/h	
-0,01	0,19	0,4	2,8	

The third part corresponds to the comparison with a mass balance, and the calculation of the losses between two time steps, and during the whole measurement period.

comparison with mass budget

emission (obs/est) gNH3/h	loss (g N/time step)	loss cum (kg N/tank)
3,16	2,44	0,002

- ## Here below:

Are the calibration results of the ventilations system used in the tent.