



Anticiper

Fédérer et accompagner

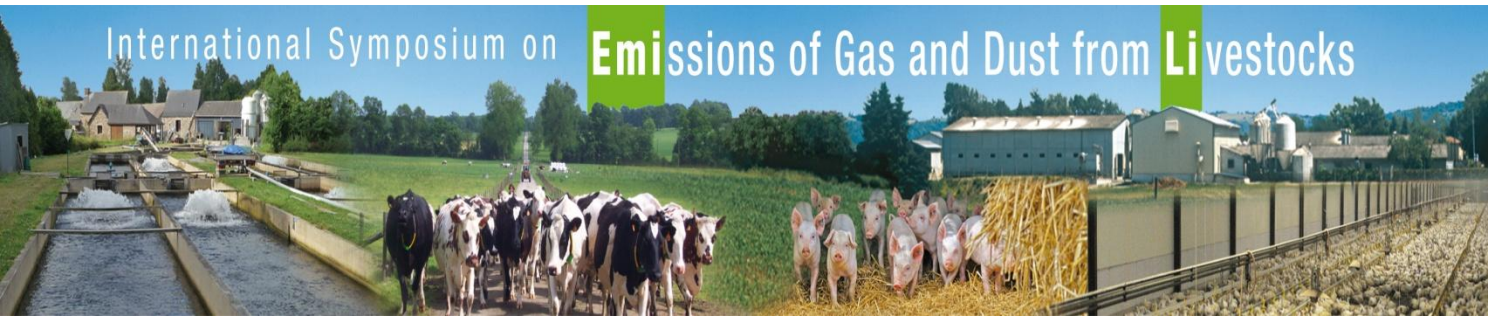
# The frequency of emptying slurry on gas and odours emitted by piggeries equipped with flushing systems

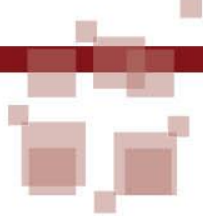
**Nadine GUINGAND, Alexande RUGANI,  
Robert GRANIER et Nathalie LEBAS**

**IFIP Institut du Porc – France**

International Symposium on **Emissions of Gas and Dust from Livestocks**

2012  
**EmiLi** June 10-13, 2012  
St-Malo, France





NH<sub>3</sub>

Water

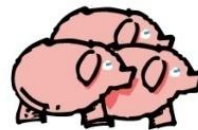
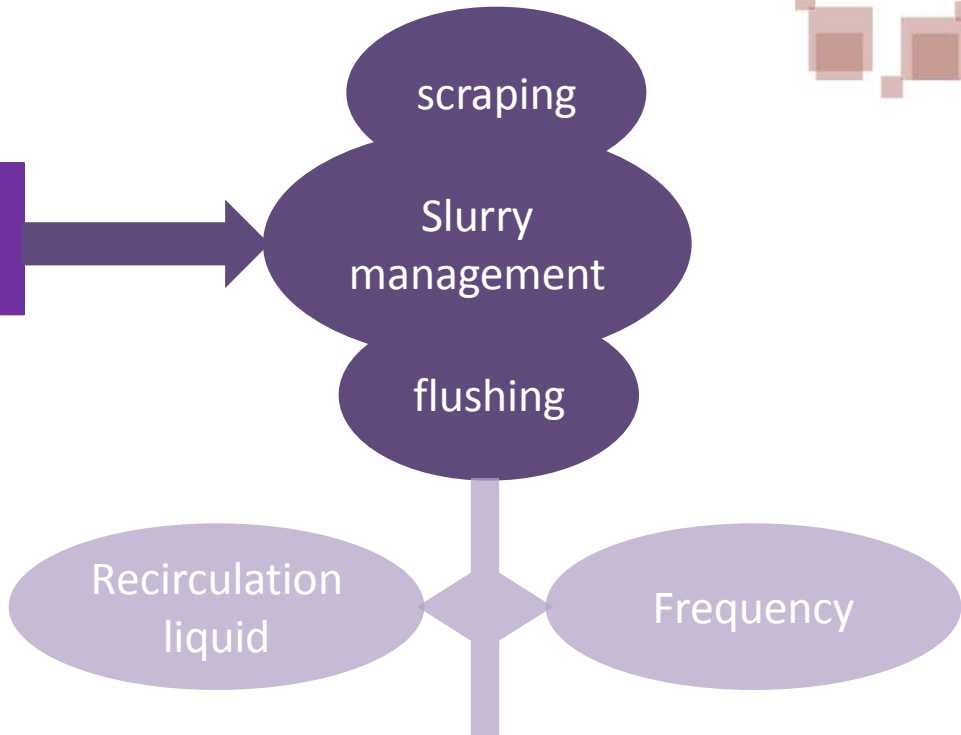
Energy

Best Available Technique

BREF Intensive Rearing  
of Poultry and Pigs  
(IRPP BREF)



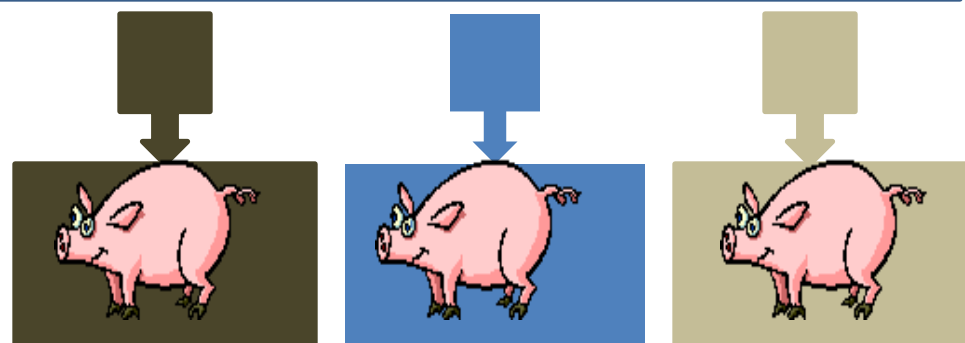
Industrial Emission Directive  
(2010/75/UE)  
*Replace IPPC directive*



+ 2 000 pigs (+ 30kg)  
750 sows

# Experimental design

2 Batches of 144 crossbred pigs



Concrete fully slatted floor

Set-point temperature : 24°C

Fresh air : ceiling of perforated sheeting

Air exhaust : under floor extraction

Management of the slurry

# Experimental design



Reference

Slurry stored in the pit



F2

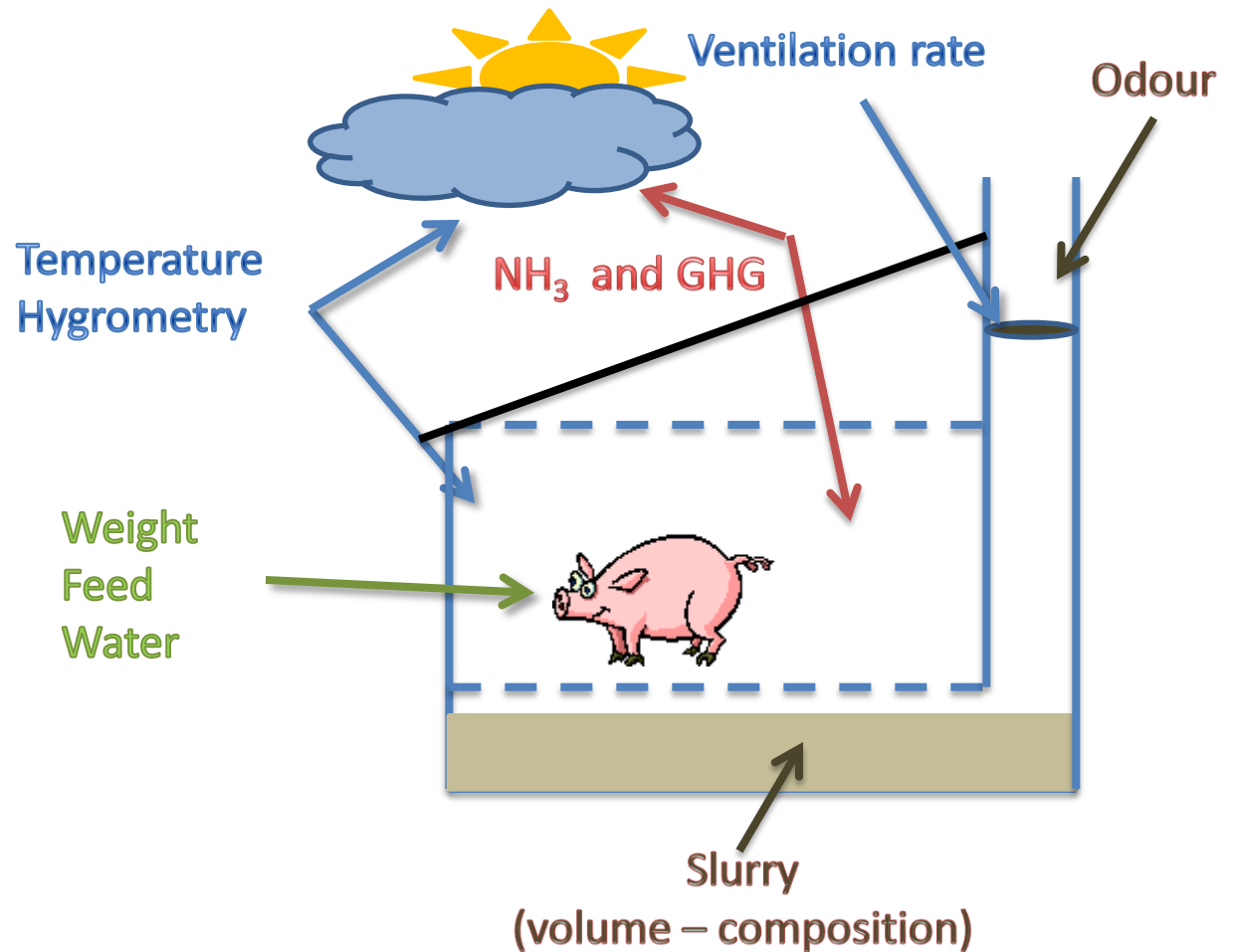
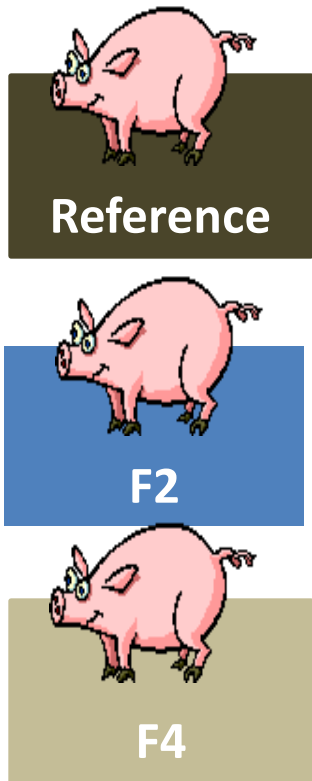
Removed **twice a day**  
recirculation liquid = liquid fraction of the slurry



F4

Removed **four times a day**  
recirculation liquid = liquid fraction of the slurry

# Measurements



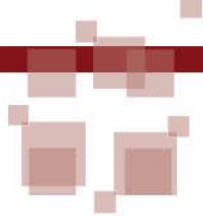
# Ambient parameters

Reference

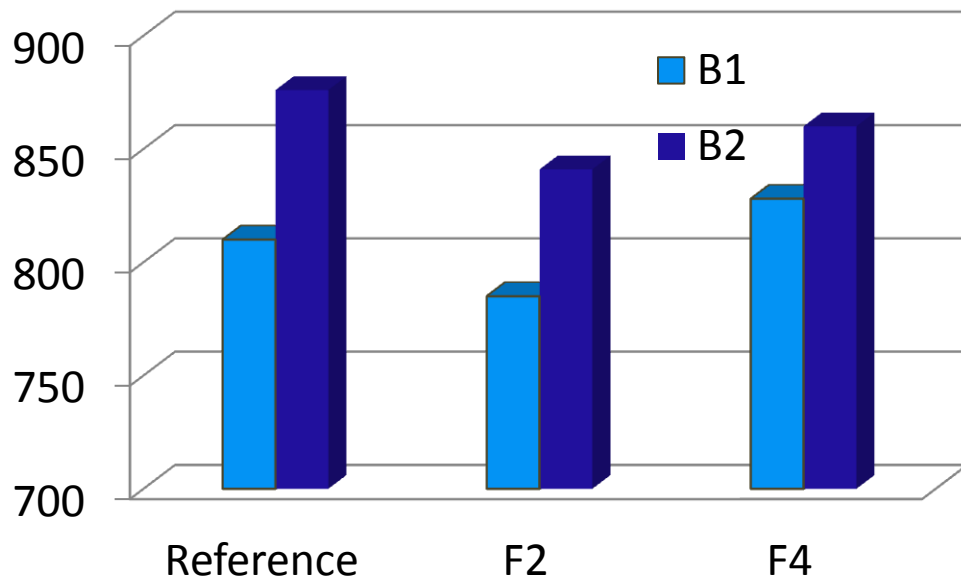
F2

F4

B1 (April to July)	Outdoor temperature (°C)		16,9±7,4	
	Ambient temperature (°C)	27,4±3,7	27,8±3,6	28,7±4,4
	Ventilation rate (m <sup>3</sup> per hour per pig)	31,3±13,6	31,4±13,0	31,2±12,9
B2 (Sept to Dec)	Outdoor temperature (°C)		10,8±6,3	
	Ambient temperature (°C)	25,3±2,0	25,0±2,1	24,6±2,2
	Ventilation rate (m <sup>3</sup> per hour per pig)	31,2±11,9	29,3±11,8	29,5±11,6



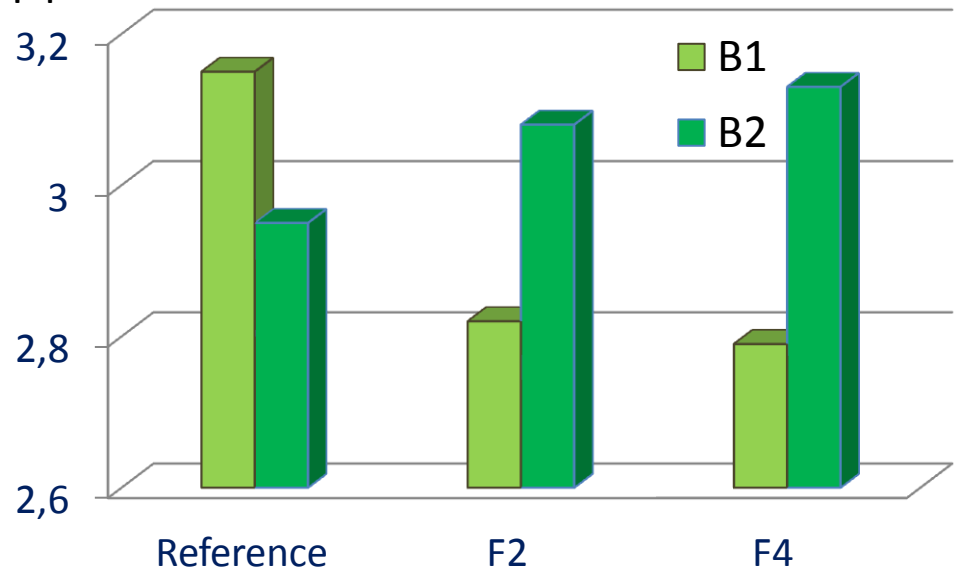
### ADG (g.d-1)



**B1 : F4 > F2 and Reference**  
**B2 : no difference**

**B1 : F4 > F2 and Reference**  
**B2 : no difference**

### FCR

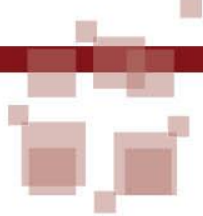


# Gaseous emissions

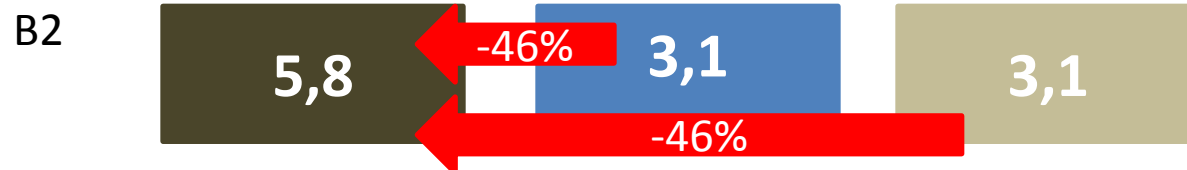
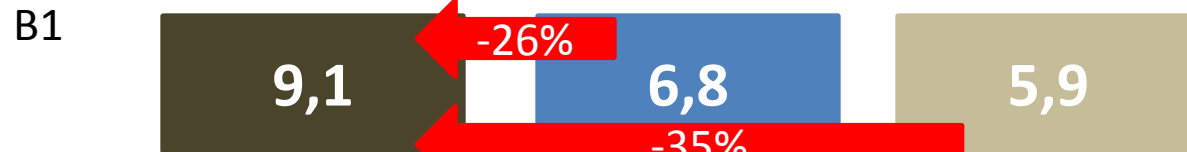




# Gaseous emissions



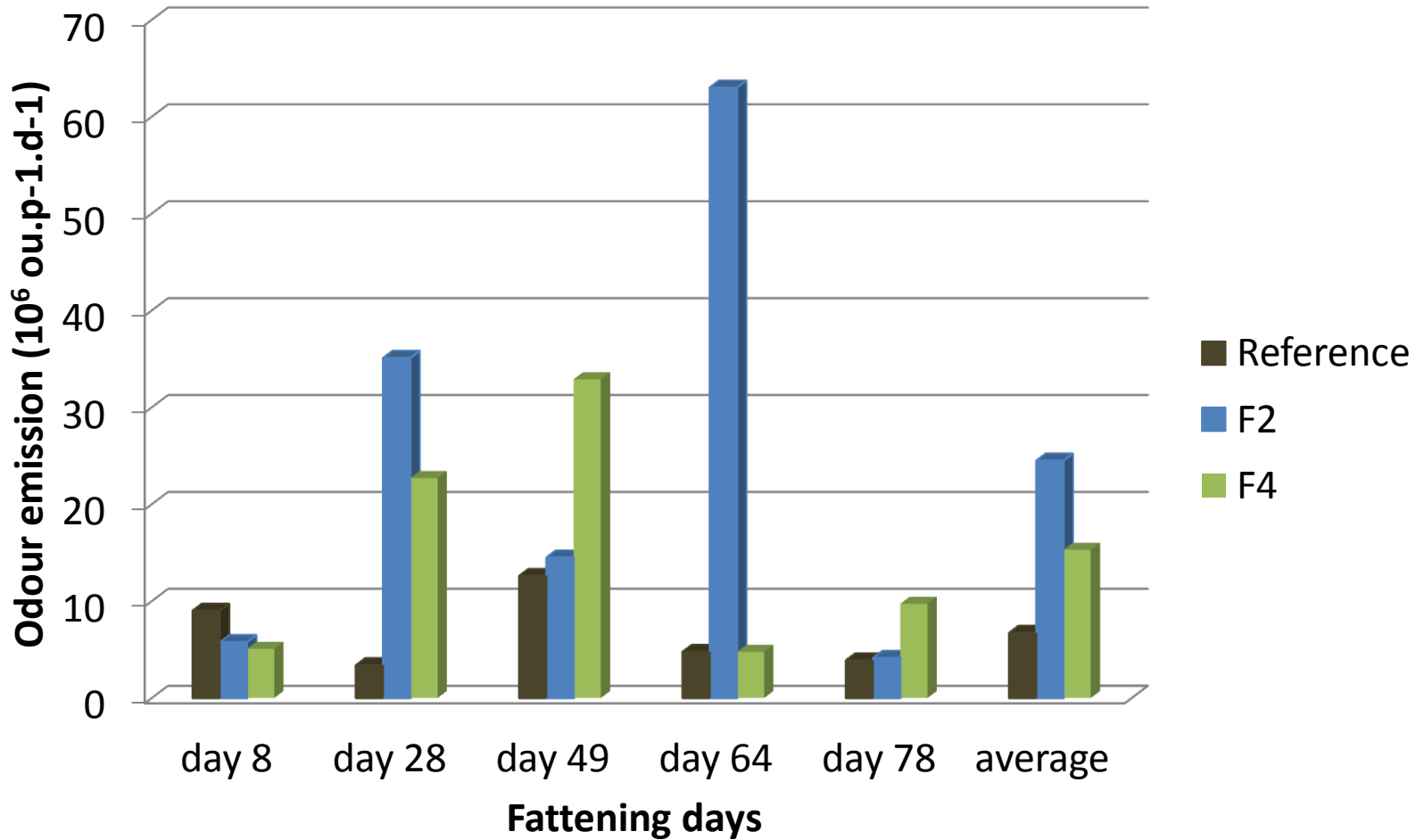
C<sub>CH<sub>4</sub></sub>  
(g per pig per day)

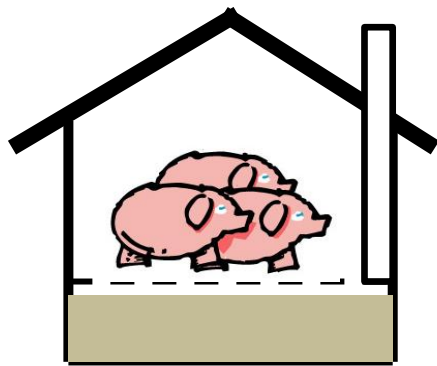
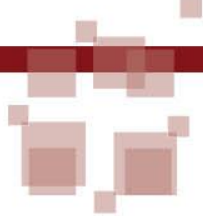


C<sub>CO<sub>2</sub></sub>  
(g per pig per day)

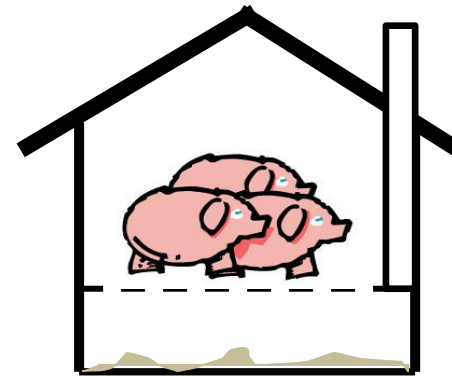


# Odours



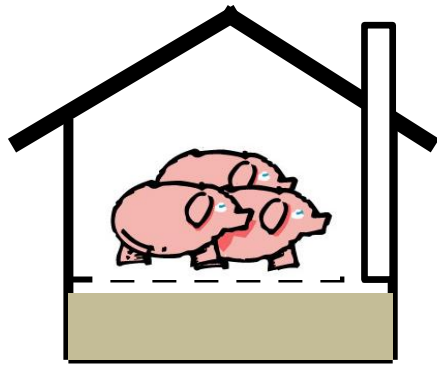


**Limiting the duration of slurry storage inside the building**

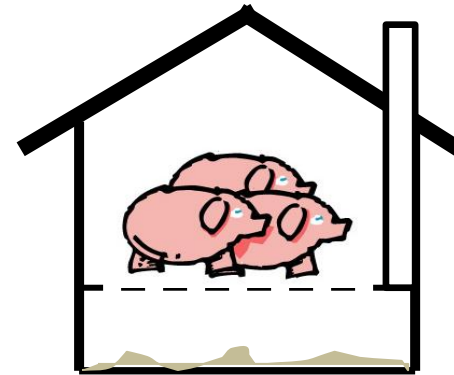


**Reduction of gaseous emissions**

**Reduction of odors**



slurry removal by  
flushing



Slurry agitation



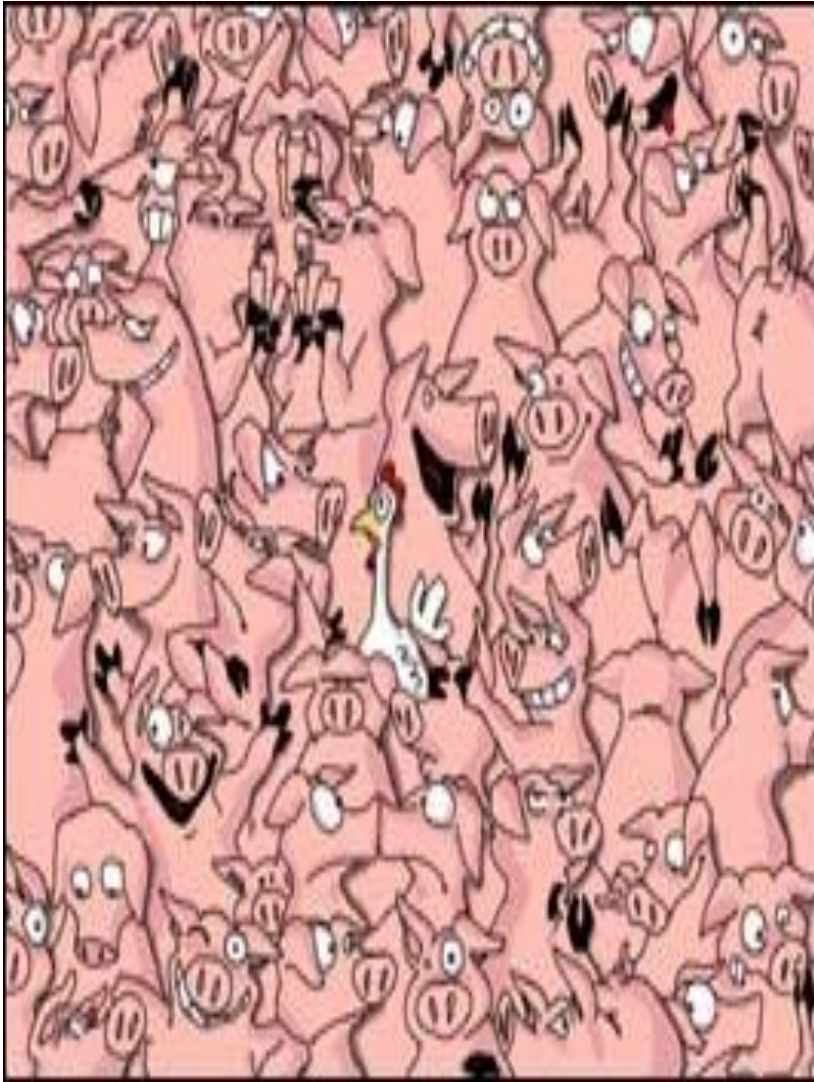
Exchange surface  
air/fresh slurry



?Higher volatilization  
with higher frequencies?

Increase of volatilization





Thank you  
for your attention !!!

