

Supplemental Material

Effects of pH, Total Solids, Temperature and Storage Duration on Gas Emissions from Slurry Storage: A Systematic Review

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Table S1. Unit conversions of gas emissions data in selected literatures.

Gas emissions ¹	Original units ²	Unit conversions ³
NH ₃ -N emissions, % of initial TN	mg NH ₃ (kg raw manure) ⁻¹	× 14/17/initial TN content (% of fresh weight)/100
	g NH ₃ -N (kg TAN) ⁻¹	× initial TAN content (g/kg fresh manure)/initial TN content (g/kg fresh manure)/10
	g N (kg TN) ⁻¹	/10
N ₂ O-N emissions, % of initial TN	g (kg raw manure) ⁻¹	× 10 × 28/44/TC (% of fresh weight)
	g N ₂ O-N (kg TN) ⁻¹	/10
CH ₄ -C emissions, % of initial TC	g (kg raw manure) ⁻¹	× 10 × 12/16/TC (% of fresh weight)
	g CH ₄ -C (kg TC) ⁻¹	/10
		× 12 × initial VS content (% of dry matter) × initial TS content (% of fresh manure)/16/TC (g/kg fresh manure)/100
	g CH ₄ (kg VS) ⁻¹	

¹ NH₃-N: ammonia-nitrogen; N₂O-N: nitrous oxide-nitrogen; CH₄-C: methane-carbon; TN: total nitrogen; TC: total carbon. ² TAN: total ammonium nitrogen; VS: volatile solids. ³ TS: total solids.

Table S2. Pearson correlation coefficients among explanatory variables of NH₃-N losses from dairy slurry storage (number of measurements = 34).

Variables ¹	LOS	T	pH	TS	TN
LOS	1				
T	0.49	1			
pH	0.28	-0.13	1		
TS	0.09	0.29	0.46	1	
TN	-0.04	0.02	0.67	0.78	1

¹ LOS: length of storage; T: ambient temperature; TS: total solids; TN: total nitrogen.

Table S3. Pearson correlation coefficients among explanatory variables of N₂O–N losses from dairy slurry storage (number of measurements = 24).

Variables ¹	LOS	T	pH	TS	TN	TC
LOS	1.00					
T	0.49	1.00				
pH	0.04	0.41	1.00			
TS	0.08	0.60	0.46	1.00		
TN	0.00	0.61	0.66	0.84	1.00	
TC	0.07	0.59	0.39	0.99	0.81	1.00

¹ LOS: length of storage; T: ambient temperature; TS: total solids; TN: total nitrogen; TC: total carbon.

Table S4. Pearson correlation coefficients among explanatory variables of CH₄–C losses from dairy slurry storage (number of measurements = 24).

Variables ¹	LOS	T	pH	TS	TC
LOS	1.00				
T	0.09	1.00			
pH	-0.01	0.45	1.00		
TS	0.03	0.55	0.51	1.00	
TC	-0.04	0.56	0.45	0.99	1.00

¹ LOS: length of storage; T: ambient temperature; TS: total solids; TC: total carbon.

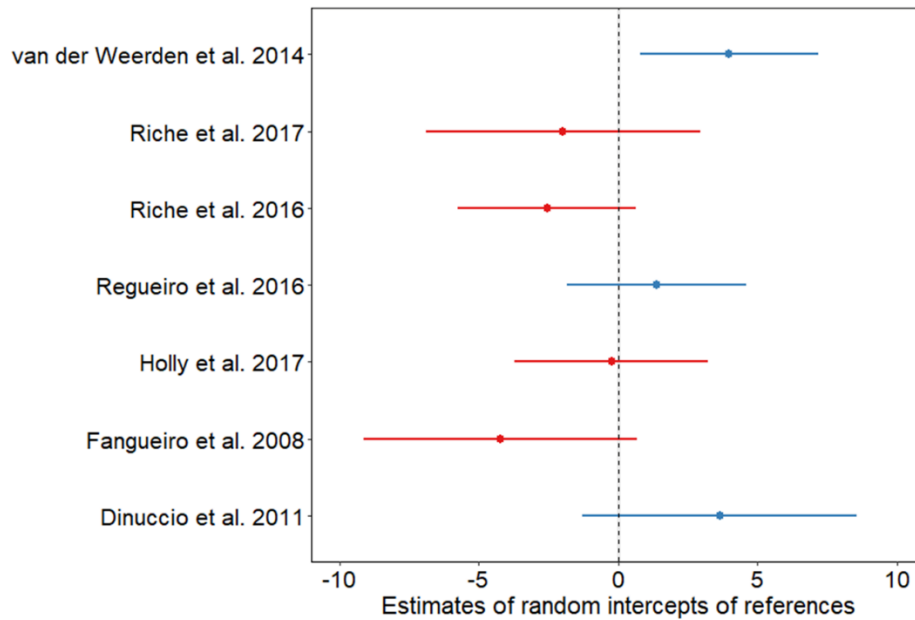


Figure S1. Estimates of random intercepts of linear mixed effects model: lmer (NH₃–N ~ pH + TS + T + LOS + (1 | Reference)).