

*Supplementary Materials*

# **Ammonia Emission Characteristics of a Mechanically-Ventilated Swine Finishing Facility in Korea**

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**Table S1.** Results of correlation analyses (Spearman's rho) of daily ammonia concentration, temperature, relative humidity, ventilation rate, and ammonia emission

	<b>Ammonia concentration</b>	<b>Temperature</b>	<b>Relative humidity</b>	<b>Ventilation rate</b>
Temperature	-0.88 <sup>a</sup> <0.01 <sup>b</sup>			
Relative humidity	-0.77 <0.01	0.84 <0.01		
Ventilation rate	-0.34 <0.01	0.48 <0.01	0.60 <0.01	
Ammonia emission	0.92 <0.01	-0.76 <0.01	-0.61 <0.01	-0.03 0.619

<sup>a</sup> correlation coefficient.

<sup>b</sup> p-value.

1 **Table S2.** Comparison of pig farm characteristics and results of this study with that of other published studies. Growing length, number, and weight range of pigs, and  
 2 ammonia concentration, temperature, ventilation rate, ammonia emission factor, and flooring type of finishing swine farms using a mechanical ventilation system are  
 3 compared.

Reference	Growing length	No. of pigs	Weight (kg)	Ammonia <sup>a</sup> (ppm)	Room temperature (°C)	Ventilation rate <sup>b</sup> (m <sup>3</sup> h <sup>-1</sup> pig <sup>-1</sup> )	Emission factor (g d <sup>-1</sup> pig <sup>-1</sup> )	Floor type <sup>c</sup>
[1] <sup>d</sup>	104 days	36	25.0–111.1	7.22	23.0	53.5	5.87	PS (25%)
	104 days	36	29.6–100.1	17.57	19.0	19.5	5.69	PS (25%)
	112 days	36	29.6–116.8	10.44	21.1	30.6	5.70	PS (25%)
[2] <sup>e</sup>	82 days	25	88	13.2	25.0	124.6	4.12	FS
	42 days	25	78	6.89	23.0	124.6	2.36	FS
	42 days	25	85	13.78	25.0	124.6	4.36	FS
[3] <sup>f</sup>	–	300	35–	15.2	–	32.4	11.9	FS
	–	1450	35–	13.7	–	6.0	6.9	FS
	–	2000	35–	10.2	–	7.2	11.3	FS
[4]	4 months	80	23.8–111.7	–	20.5	81.4	6.22	FS
[5]	7 days	885	48.7	–	26.0	114.1	2.94	–
	9 days	995	34.6	–	10.2	20.7	1.77	–
	20 days	476	116.6	–	11.6	39.5	3.48	–
	6 days	875	50.6	–	16.0	34.4	3.04	–
[6] <sup>g</sup>	14 days	240	80	14.9	25.0	62.0	13.8	FS
This study <sup>h</sup>	83 days	96	27.8–91.5	4.19	23.9	24.9	1.68	PS (50%)

4 <sup>a</sup> where the concentration unit was mg m<sup>-3</sup>, it was converted to ppm by applying 24.45/17.03 (assuming 1 atm, 25 °C).

5 <sup>b</sup> where the ventilation rate unit was m<sup>3</sup> s<sup>-1</sup>, m<sup>3</sup> min<sup>-1</sup>, and m<sup>3</sup> d<sup>-1</sup>, it was converted to m<sup>3</sup> h<sup>-1</sup>, divided by the number of pigs, and calculated the ventilation rate.

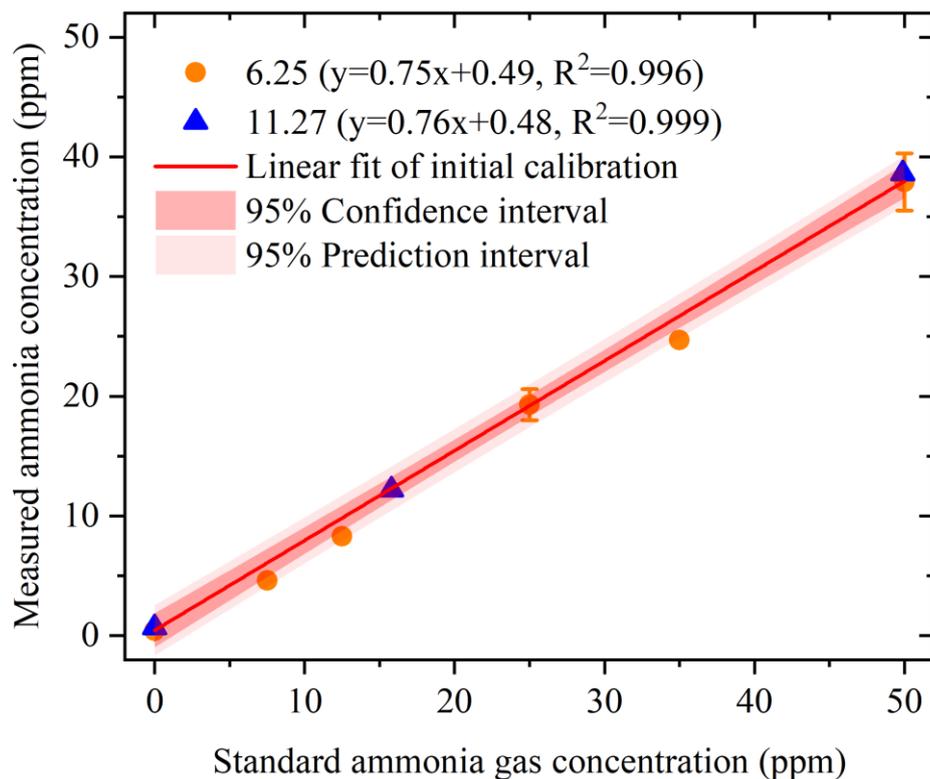
6 <sup>c</sup> abbreviations: PS: partly slatted floor; FS: fully slatted floor. The percentage in brackets is the percentage of slatted flooring.

7 <sup>d</sup> data from summer periods (groups 1, 2, and 3 for fattening pigs) were used.

8 <sup>e</sup> S1, S7, and S14 data were used.

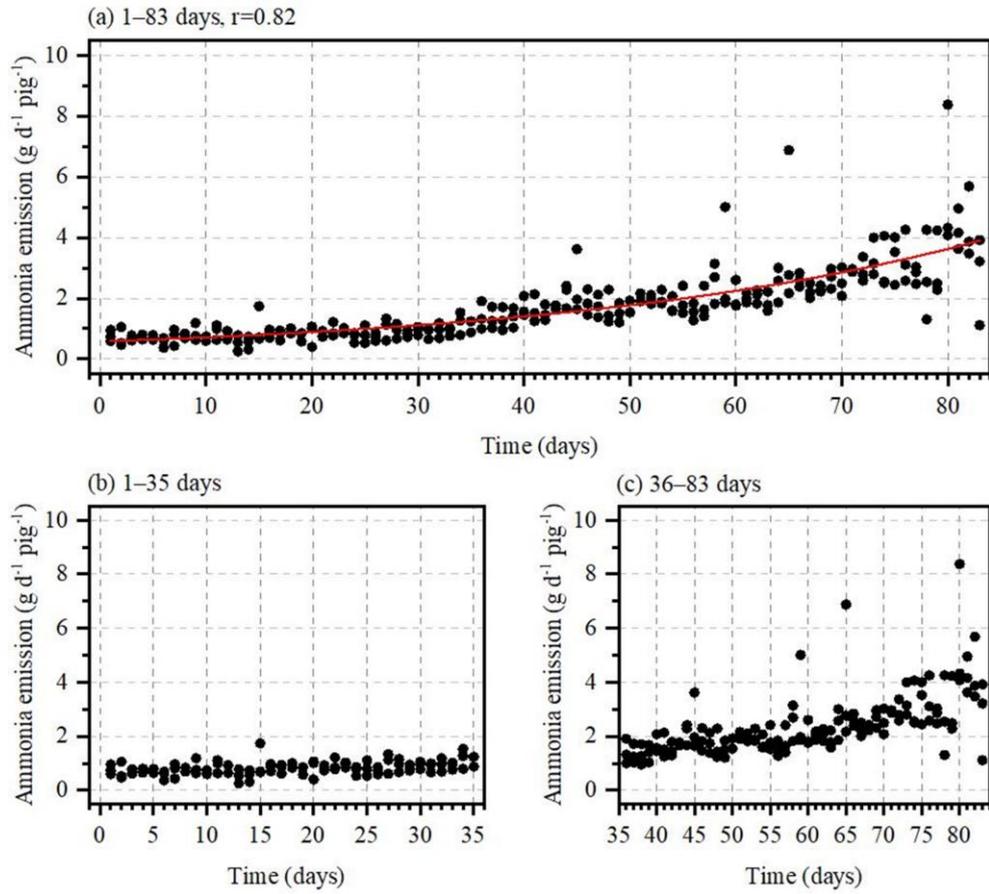
9 <sup>f</sup> P2(A), P2(B), and P3 data were used.

- 10 <sup>s</sup> untreated control data were used.
- 11 <sup>h</sup> calculated as the average of the three rooms.
- 12 – not reported.



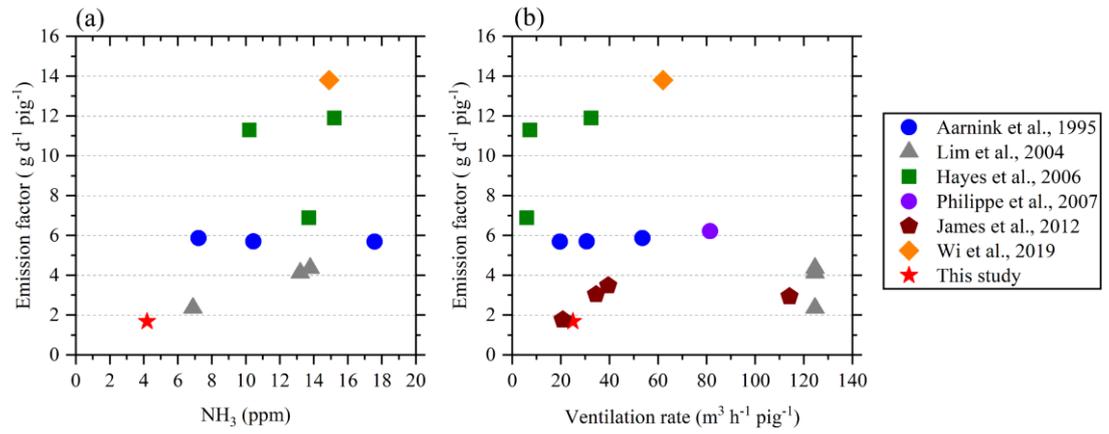
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