Modelling the links between farm characteristics, respiratory health and pig production traits.

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Supplementary Material

Table S1. Sensitivity analysis for selecting the slaughter range for matching the production data to the CCIR data. When using 5 weeks before the production slaughter date and 4 weeks after the production slaughter date, we achieve the best matching in the CCIR data.

Weeks before slaughter date	Weeks after slaughter date	Zero matches		Too few pigs matched		Correct matches		Too many pigs matched		Total Batches
		No. batches	%	No. batches	%	No. batches	%	No. batches	%	
3	3	82	8	350	34	582	57	3	<1	1017
3	4	82	8	337	33	591	58	4	<1	1014
3	5	82	8	334	33	590	58	6	<1	1012
4	3	81	8	257	25	674	66	3	<1	1015
4	4	81	8	248	25	678	67	5	<1	1012
4	5	81	8	247	24	676	67	6	<1	1010
5	3	81	8	235	23	696	69	3	<1	1015
5	**4**	**81**	**8**	**227**	**22**	**699**	**69**	**5**	**<1**	**1012**
5	5	81	8	226	22	697	69	6	<1	1010

S1 Questionnaire: see separate document

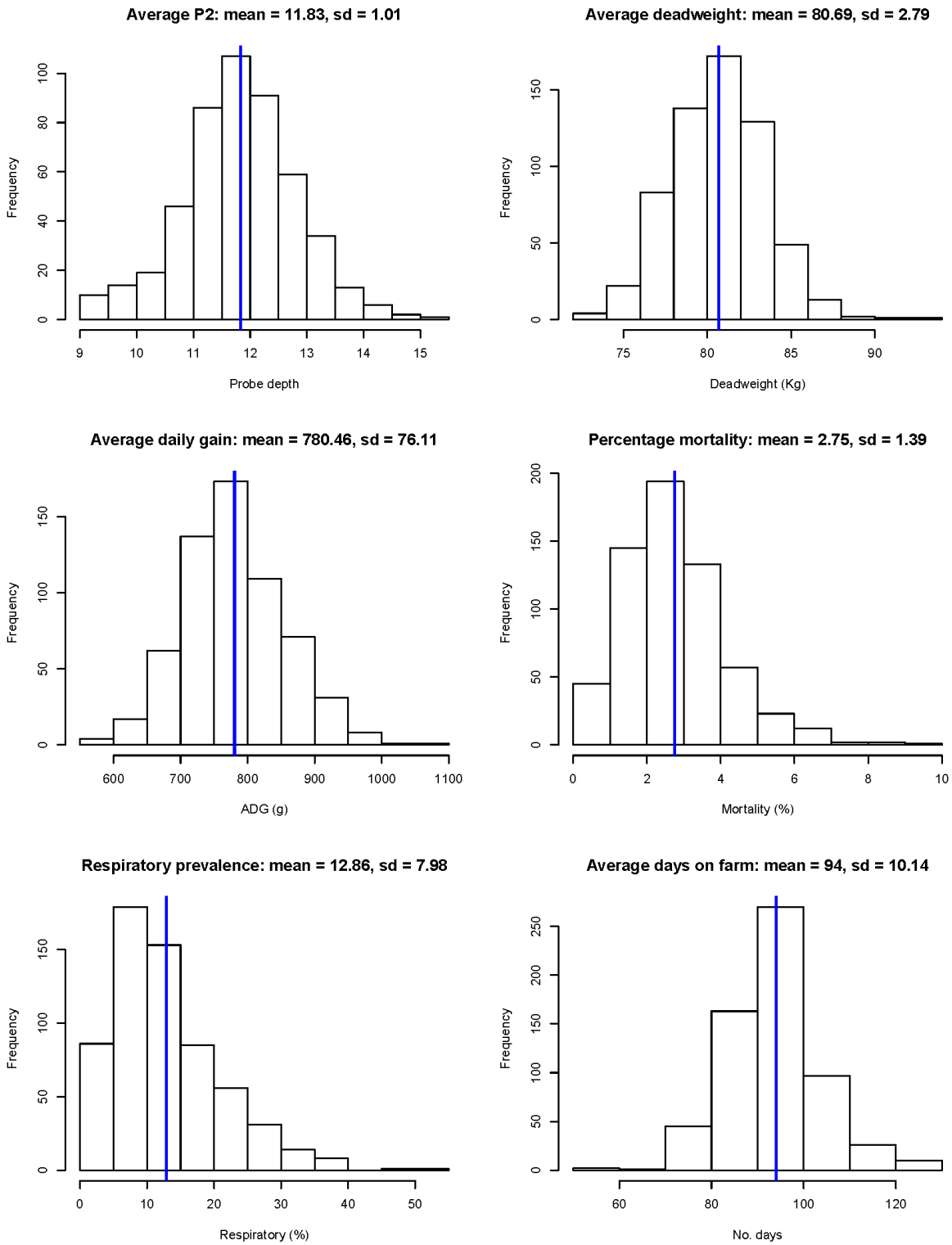

Figure S1. Histograms of raw data, showing overall distributions with the mean denoted by the blue line.

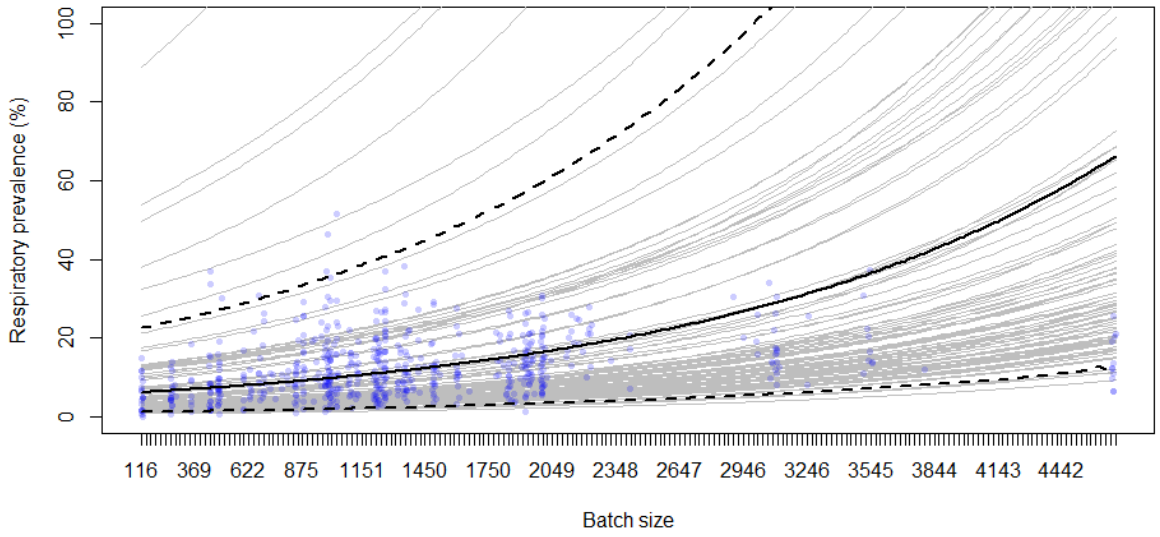

Figure S2. The effect of batch size on respiratory prevalence. The posterior mean is denoted by the solid black line with the 95% highest density interval of the mean shown by the dashed lines. The grey lines show 100 representative samples from the posterior distribution marginalising across farm random effects. Respiratory prevalence was calculated from the counts of respiratory conditions and the total pigs in the batch. Raw data are shown by blue dots and highlight the paucity of farms with very large batch sizes (> 2000 pigs).

Table S2. Summary of comparisons of the effect of housing type on counts of respiratory conditions recorded at slaughter

Comparison (housing type)	Mean difference	Highest density interval
Slats vs straw yards	4.84	-1.79, 12.48
Slats vs kennels	5.04	-1.47, 12.20
Slats vs mixed	6.02	-0.31, 13.17
Kennels vs mixed	0.98	-1.47, 3.38
Kennels vs straw yards	-0.19	-3.18, 2.62
Mixed vs straw yards	-1.18	-4.30, 2.11

Table S3. Summary of comparisons of the effect of the number of pig batch sources on the deadweight of batches of pigs.

Comparison (no. of source farms)	Mean difference	Highest density interval
1 vs 2	0.52	-0.36, 1.44
1 vs 3	0.99	0.030, 1.97
1 vs >3	0.76	-0.27, 1.81
2 vs 3	0.47	-0.39, 1.30
2 vs >3	0.24	-0.64, 1.09
3 vs >3	-0.23	-1.19, 0.75

Table S4. Summary of comparisons of the effect of housing type on deadweight of batches of pigs.

Comparison (housing type)	Mean difference	Highest density interval
Slats vs straw yards	1.03	-0.57, 2.85
Slats vs kennels	0.67	-0.92, 2.24
Slats vs mixed	1.01	-0.60, 2.68
Kennels vs mixed	0.34	-0.41, 1.10
Kennels vs straw yards	0.37	-0.45, 1.21
Mixed vs straw yards	0.025	-0.99, 0.93

Table S5. Summary of comparisons of the effect of the number of pig batch sources on the backfat (P2) of batches of pigs.

Comparison (no. of source farms)	Mean difference	Highest density interval
1 vs 2	0.15	-0.23, 0.53
1 vs 3	0.11	-0.30, 0.52
1 vs >3	-0.12	-0.55, 0.31
2 vs 3	-0.04	-0.39, 0.29
2 vs >3	-0.27	-0.61, 0.11
3 vs >3	-0.22	-0.64, 0.17