

Herd health score and cost calculator tools for pig herds



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Introduction

Pig health is at the centre of a sustainable national pig herd that contributes fully to national food security with reduced environmental impact. Farmer groups within the UK believe such will be achieved by disease elimination, disease impact reduction and improving herd health status.

Scotland's Rural College (SRUC) was funded by BPEX (a division of the Agricultural and Horticultural Development Board) to provide easy measures of herd health and financial status of breeding and finishing farms on a regular basis. The objectives were, therefore, to provide a set of recommendations on the feasibility of developing a new or improved prototype of a herd health score (HHS) and cost calculator models. Some of the findings of the project are presented in this poster.

Methods

A systematic literature review of the current state of knowledge on herd health measuring tools was completed. Three interactive workshops were held involving invited specialist pig veterinarians. Two selected HHS approaches found in the review were presented, compared and the vets asked to identify and rank the components for inclusion in a HHS. In addition 12 further pig veterinary specialists were asked to do the same in an online exercise. Based on these outputs two HHS models, one for breeding and one for finishing herds and two cost calculators for porcine respiratory and reproductive syndrome (PRRS) and enzootic pneumonia (EP) diseases were developed.

Results

Figure 1 and 2 illustrate examples of the results of the online questionnaire answered by 12 vets for breeding and finishing herds respectively:

Parameters identified by the pig vets and included in a HHS were:

● **Breeding herds:** 1. Number of pigs weaned per sow, 2. Number of pigs born alive per sow, 3. Percentage of returns, 4. Impact of sow reproductive health diseases and piglets' diseases with importance to production, 5. Antimicrobial treatment.

● **Finishing herds:** 1. Mortality at fattening, 2. Average daily live weight gains, 3. Impact of pig diseases with importance to production, 4. Antimicrobial treatment, 5. Percentage of animals showing clinical signs of respiratory disease, 6. Carcass lesions^{*}, 7. Vices (tail biting).

* **Carcass lesions:** 1. Percentage of pneumonia, 2. Percentage of pleurisy, 3. Percentage of milk spots, 4. Percentage of skin lesions, 5. Percentage of pericarditis, 6. Percentage of total condemnations.

Scale of HHS: The final score is the sum of singles scores and varies between 0-13 (best and worst respectively) for breeding herds and 0-18 for finishing herds. Table 1 presents an example of score calculations:

Table 1 Ten diseases included in breeding herd HHS and related scores based on clinical effects

Diseases score	Diseases breeding herd	Clinical effect		
		Absent	Minor	Major
	PMWS, PRRS, Porcine Parvovirus, Swine Influenza, Leptospirosis, Enzootic Pneumonia, APP, Swine Dysentery, Syndromic Diarrhoea, Syndromic Meningitis	0	1	2
Disease score		Parameter score		
0-4		0		
5-8		1		
9-12		2		
13-16		3		

Figure 3 and 4 illustrate simulated distributions of annual gross margins of healthy and diseased sows and healthy and diseased finishing pigs respectively estimated by the two cost calculators:

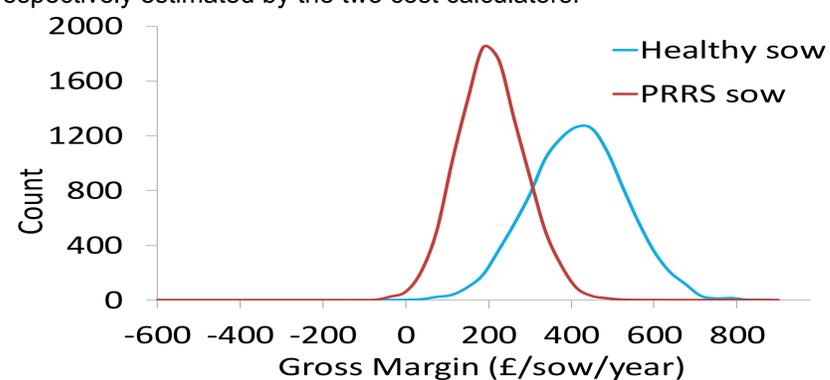


Fig. 3 Simulated distributions of annual gross margin of a healthy and a PRRS infected sow

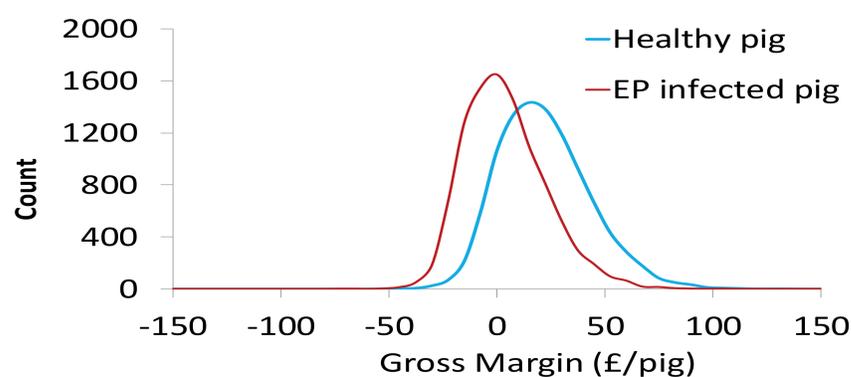


Fig. 4 Simulated distributions of annual gross margin of a healthy and an EP infected finishing pig

Conclusions

Based on literature review and in consultations with vets, we developed simple prototypes of herd health scores and cost calculator tools suitable for the British pig production systems which can be used for benchmarking of producers. Further validation is in progress using production/health data and via feedback on online version.

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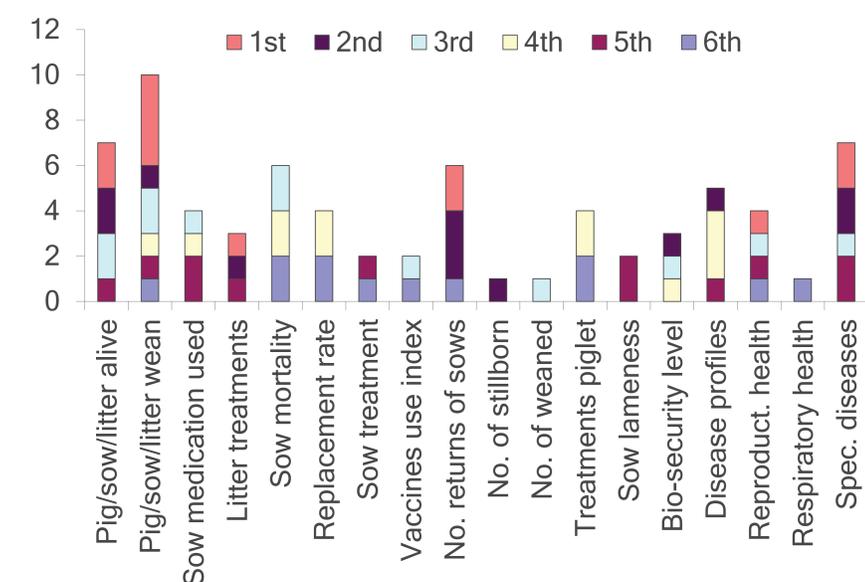


Fig. 1 Importance of the parameters to be included in HHS for breeding herds ranked by 12 pig vets (1st = most important, 6th least important)

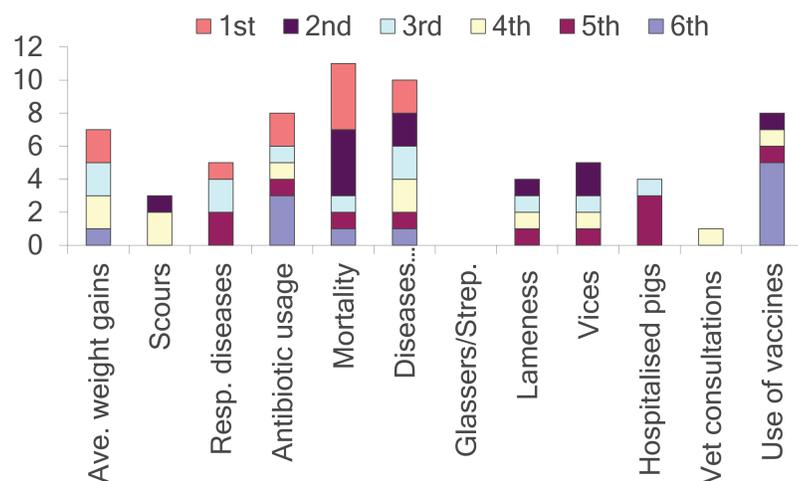


Fig. 2 Importance of the parameters to be included in HHS for finishing herds ranked by 12 pig vets (1st = most important, 6th least important)