4th February 2006

Dear

Many thanks for inviting me to visit your farm to discuss the PMWS issues affecting the farm.
As discussed at the meeting, control of the clinical signs of PMWS is extremely difficult and can only be achieved by excellent attention to detail. The detail can be broken down into four broad categories:

Biosecurity, Pig Flow, Health maintenance, Secondary treatment regimes

Biosecurity

In general biosecurity was good, but enhancements are possible. For example,

a. Use of the showering facilities for all visitors
b. Provision of outer clothing, including boots for all visitors. This should start before the feed mill area. Although I accept that the shower is at Jason's part of the farm!
c. No cars to go to the farm area

Further biosecurity arrangements can be discussed.

Pig Flow

The pig flow was poor, with part rooms being providing. The farm layout was also too variable. However, I think a simple change in layout would provide for an all-in/all-out programmed centered around 304 pigs a batch (week?).

Currently the rooms are 304 228 228 304 Robert

304 304 304 304 304 304 304 304 120 Jason

I suggest that the farm should run as a weekly batch around 304 pigs. Therefore, a simple move to:

304 228+60 228+60 304 and

304 304 304 304 304 304 304 304

The overflow room is divided into two – to provide two rooms of 60. I understand that the 120 room is then not available as an overflow/ end room. The combined group is slightly short at 286 – but modification of the passageways, would easily provide room for the 304 pigs.

The 120 finishing room can be easily divided into two airspaces needing a wall and a Y piece on the feederline

Examination of the proposed pig movements over the next 5 months indicated little all-in/all-out was expected:

Date	Number	Suggested
Jan 2	304	304
9	456	304
16	304	304
23	0	304
30	0	304
Feb 6	456	304
13	456	304
20	0	304
27	0	304
Mar 6	0	304
13	506	304
20	506	304
27	508	304
Apr 3	0	304
10	0	304
17	0	304
24	0	304
May 1	532	304
8	532	304
15	0	304
22	0	304
29	0	304
June 5	456	304
12	456	304
Totals	**5472**	**7296**

Which is a difference of 1824 pigs – assuming the farm could take 304 pigs a week. It has to be accepted, however, that pigs entering at 30kg leaving at finish at 110 kg will take 14-15 weeks and the farm only offers accommodation for 12 weeks, therefore the farm should provide three more rooms of 304 or accept that three weeks worth of pigs have to be sold elsewhere.

However, the loss of costs covered at $50 per pig (farrow to finish) is tremendous - at over $15000 per year. You would have to do your own calculation of the costs associated with the presence of each pig. But note that the major fixed costs would hardly change (excluding building the extra three rooms).

Knowledge of pig flow

It was disappointing (but not unusual) that knowledge of the pig production at the source farm was not present on the finishing farm. Most of the contract finishers allow this to occur. However, I would suggest that on a batch system (weekly) you both should have knowledge of:

N^{o} of gilts available 95kg to breeding
N^{o} of females bred this batch
N^{o} of sows farrowed this batch
N^{o} of weaners produced this batch
N^{o} of weaners moving to the farm – as a number and weight

For example if Mike, is a 50 sow's a week to farrow farm (approx 1200 sow unit)
These numbers should be: (ball park figures only) (Below is an embedded excel sheet – you can do you own estimations using the example).

7	→	63	→	50	→	34200 kg
	9 weeks		17 weeks		24 weeks	

Based on the farrowing house potential

		Target Pigs sold annually	24700
		Target Weight paid for annually kg	1778400
1	Batch time in weeks	Target Numbers weaned annually	26000
80	Current farrowing rate %		
72	Expected average deadweight kg		

N^{o} of gilts available 95kg to breeding	70
N^{o} of females bred per batch	63
N^{o} of sows farrowed per batch	50
N^{o} of piglets born alive per batch	550

This would then allow you to compile a csum of records predicting future weaner inputs and also allow for shortcoming to be seen and discussed months in advanced.

This approach is often rejected initially as too much interference between the contractor and breeder. However, it does create a team/family approach to farming – essential to overcome the ravages of PMWS.

Health Maintenance

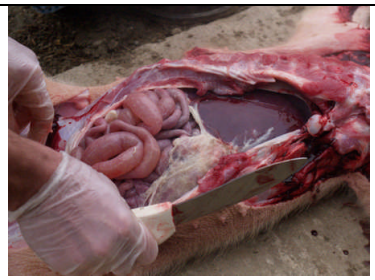
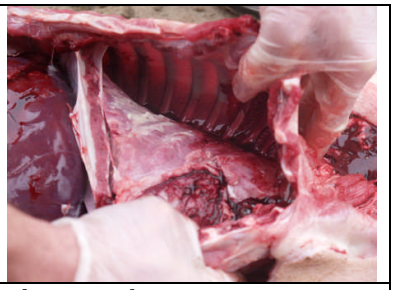
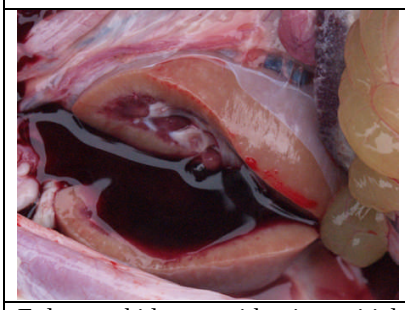
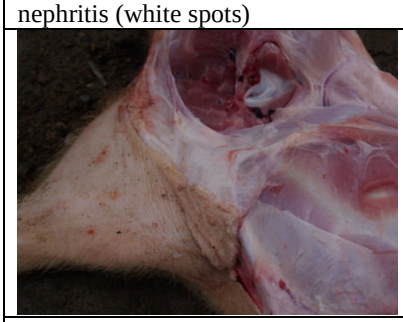
This is based on seven components:
Stock, Water, Feed, Floor, Air, Medicines, Stockmanship.
Each of these areas were examined to illustrate weaknesses that need avoiding/minimizing to help overcome PMWS.

Stock

Clearly the stock was suffering. In addition, it was evident that the stock were compromised on arrival. This whole area needs re-examination.

It was disappointing that neither Robert nor Jason could tell me what was the official health status of the purchase weaners or what pre-purchase vaccine programme was in place. Both of these areas need urgent review.

Two pigs were post-mortemed. Samples were taken to confirm PMWS. Both pigs presented with severe peritonitis, pleurisy and pericarditis – resembling Glasser's but the colour of the adhesions were more characteristic of Streptococcus as well as the normal *Haemophilus parasuis*.

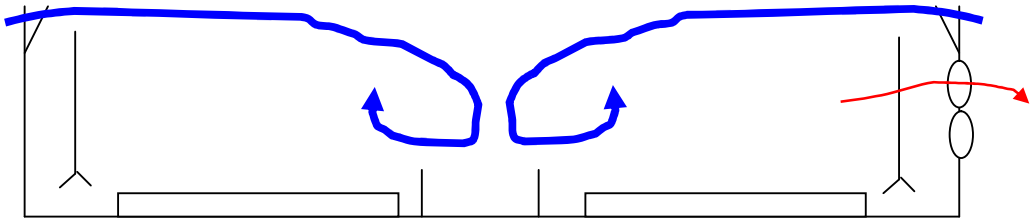
		
Poor pigs in grower	Pig 1 - Peritonitis – localized around stomach	Pleurisy and pneumonia
		
Enlarge kidney with interstitial nephritis (white spots)	Gastric ulceration - Severe	
		
Pig 2 – prominent lymph node	Pericarditis	Pleurisy

Water

The pigs are liquid fed, however, addition water was supplied by hanging nipples. It was clear that the water supplies require urgent review and standardization - with flow ranging from 300 ml to 1500 mls per minute. Suggested flow 1200 mls per minute.

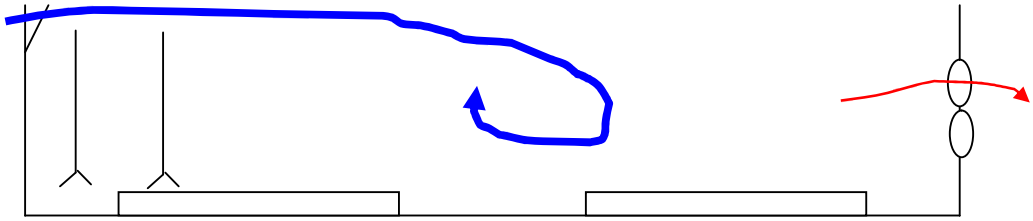
Air
Upon entry into the building it was seen that louvers were partially opened. With PMWS this 'minor' error cannot occur – it results in draughts.

We discussed air movement is general and pen layout. I would consider moving the water supplies to the front of the pens towards the falling air mass so the pigs could sleep out of the potential draught. Combining pens were also discussed so pigs could select a different lying pattern. Trialing ideas is the only way.



The pigs will tend to sleep nearer the central passageway – away from the drinkers but in a possible draught.

Current air pattern.



One suggested for an alternative air pattern:
The pigs will now sleep under/near the outlet fans. The inlets are all on one wall – possibly the south wall –to reduce very cold air inlets. The water is then moved to the inlet side – where more draughts are likely. The feeders are more difficult to move and therefore have remained in their present position. Note the central passageway has been removed to allow the pigs more choice in sleeping area. This modification has allowed similar buildings to adopt wean to finish all-in/all-out.

Flooring
In general the stocking density appeared fine. It was a concern the amount of shed space unused (passageway), which with some modification to the designs could result in more pig space per building. I also think if future building work is undertaken, removing the center passageway will significantly reduce the cleaning effort for the building.

As part of the PMWS control strategies more attention of cleaning is required. As a final part of the cleaning I would encourage lime washing. Cleaning needs to be enhanced between batches.

While really part of biosecurity, enhance the rodent control measures by removing all equipment from the side of the pig buildings.

Feed

In at least one pen the pigs were over-fed. I would discuss with Grand Valley ideas on enhancing the feed to protect the immune system as much as possible. One young gilt presented with a clearly swollen vulva. The feed should be checked for mycotoxins. Gross examination of the feed revealed moldy corn.

	
Mould in the corn	Enlarged vulva in the grower female

Medicines

To achieve all-in/all-out syringes and needles must not be shared between batches. Therefore, instead of one syringe per farm, one per batch is required.

Stockmanship

In general the stockmanship of the farm looked fine. However, with PMWS, even the small lack of attention to detail, discussed above can result in serious problems. While observation windows were present, they were clearly not used.	

General conclusion

1. A team approach to the PMWS issue is required – this should include the breeder and all of the contract finishers.
2. All-in/all-out is essential – and a pig flow model is required
3. Attention to the small areas of stockmanship is required

Many thanks for inviting myself and Scott to the farm and for your hospitality. I look forward to hearing how your team meetings go. If I can be of any further assistance please contact me via Scott or by email at johncarr@iastate.edu.

Yours sincerely

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