

PCVD - From pathogenesis to Part 4. Cost and benefit of PC

First results of research into vaccination against Porcine Circovirus Associated Disease (PCVD) indicate that this devastating disease can be controlled by administering circovirus (or PCV2) vaccines. Trials in the UK and Germany emphasise losses for producers when nothing is done.

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With the positive opinion from the EU's medicines agency for the first PCV2 piglet vaccine's approval in Europe, at last we can see the light at the end of the tunnel for controlling fully, this most terrible disease in Europe.

The UK has possibly been one of the most badly affected countries in the EU and still suffers from Porcine Circovirus Associated Diseases (PCVD) in all its forms. As the disease spread through the country from 1999, in the acute phase there was a high mortality that subsided to a more



PMWS associated mortality caused by PCV2 epidemic in North America (picture of a farm in Canada).

chronic phase, according to data by the British Pig Executive in 2006.

On a national herd basis, there was a relatively small effect on sow performance and the number of piglets reared per sow per year dropped from 22 to 21.5. Interestingly, in this more acute phase there was a coincidental increase in sow mortality, suggesting the disease also had an effect on non-immune sows or gilts. The major effects were seen in the growing period initially, where the

average mortality increased from 2.4% to a peak of 7.3% (+4.9%) in 2003 but this has returned to nearly 3%.

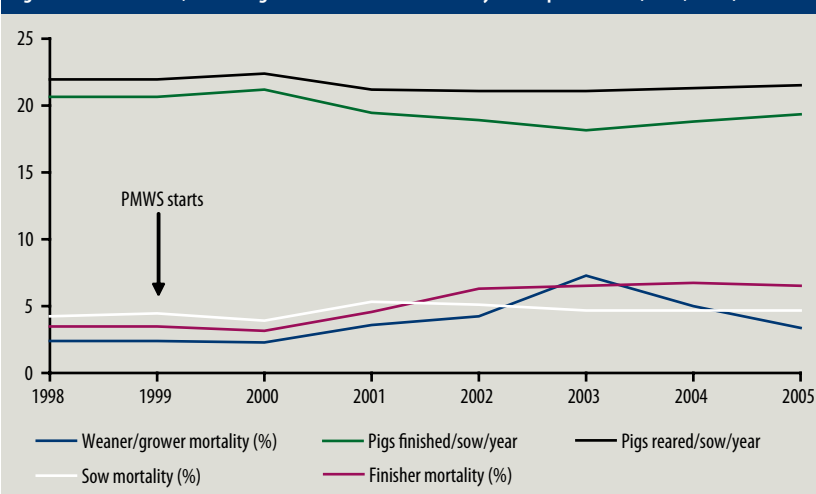
The trend generally in Europe is for PCVD to occur later now, possibly in the back end of the grower stage but mainly in the finisher stage.

United Kingdom

In a recent UK study, vaccinating* against PCVD resulted in a dramatic reduction in mortality associated with PMWS from 14.3% to 4.6% (see *Figure 2*), in pigs that had been vaccinated at three weeks of age. The viraemia (the virus circulating in the blood) and mortality started at six weeks of age and peaked at nine weeks. The surviving pigs also put on an extra 6.8 kg live-weight in comparison with the unvaccinated controls during the 20 week trial period. The farm generally was high health and did not have Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) or enzootic pneumonia (EP). As the control and vaccinated pigs were kept in the same pens, a calculation for feed conversion efficiency (FCE) could not be made.

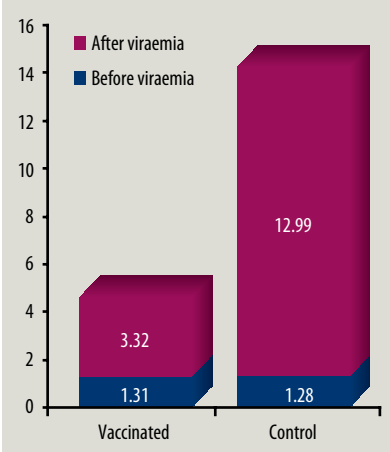
If the production figures from this trial

Figure 1. Effect of sow, weaner/grower and finisher mortality on UK production (BPEX, 2006)



protection V2 piglet vaccines

Figure 2. Mortality in vaccinated and placebo controls before and after the onset of viraemia at six weeks of age in the UK.



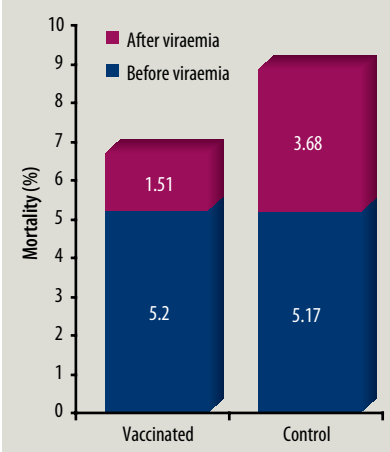
are put into a model and making an adjustment for FCE based on +0.06/1% additional mortality, the cost of PCV2 in this trial would be €17.78 per pig produced, before the cost of vaccination.

Germany

In a second very recent European study in Germany, published in 2008, there was a very different clinical picture with the herd infected with both PRRS and EP and thought to be more typical of what is seen on continental Europe. The viraemia started much later at 15 weeks of age and peaked at 20 weeks of age, five weeks before slaughter. The mortality picture before the viraemia was almost identical, but once the PCV2 virus started to multiply the clinical picture deteriorated in the controls, especially associated with increased respiratory disease and the mortality also increased (see Figure 3).

There was only a 2% difference in mortality but these were large and therefore more valuable pigs. The growth rate deteriorated also in the

Figure 3. Mortality in vaccinated and placebo controls before and after the onset of viraemia at 15 weeks of age in Germany.



later stages. The control pigs took on average another 5.6 days to reach slaughterweight (164.8 days vaccinates to 170.4 days controls) but their carcass weight was also 2.37 kg lighter than the vaccinated pigs (92.27 kg vaccinates to 89.89 kg controls). This represents an additional four days saving in days to slaughter (total 9.6 days) or a total equivalent of liveweight gain of approximately 7.6 kg/pig.

Unfortunately, the feed conversion efficiency (FCE) could not be recorded in this trial.

If these figures are put into the model and include the slaughter weight data and adjustment for FCE, even this late stage infection results in a €5.8/pig reduction in margin, not including vaccination costs.

Using the model to approximately estimate the cost of PCV2 disease in finishers only (35-100 kg) based on additional mortality, but making adjustments for reduction in growth (-1 kg/pig/ 1% additional mortality) and FCE (+0.06/ 1% additional mortality), the

following simple cost-calculator graph can be drawn (see Figure 4).

Variables

Depending on the timing and level of disease, growth differences can vary. If pig mortality strikes later, economic losses are likely to be higher because the animals had already a high level of investment.

A recent comment from a farmer in Ireland, who recently started using the vaccine under special licence, sums up what might be the situation that can be found in the rest of Europe, "I didn't really know how bad the PCV2 problem was on my farm, until I started vaccinating for it." **PP**

* The vaccine used in both trials is *Ingelvac Circoflex®*, manufactured by German animal health company *Boehringer Ingelheim*. The product received CVMP approval in December 2007 and a full marketing authorisation can be expected in the very near future. This adds to registrations in the US and Canada, where positive results have been described in preventing the epidemic that swept through them in the last couple of years.

Figure 4. Simple cost-calculator graph for the average cost of a PCV2 infection in finishing pigs based on additional mortality before it struck.

