

PIG HEALTH ISSUES OF CONCERN IN WESTERN EUROPE

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NOTIFIABLE DISEASES

1.- Classical Swine Fever (CSF).

CSF is endemic in parts of Germany (Lower Saxony) and Italy as it is established in the wild boar populations. This causes recurring infections and new outbreaks in high-risk areas. The strains are generally considered to be mild with slow spread. Currently farmers are not permitted to move pigs within the infected area of Lower Saxony and there is a ban on exportation of pigs from Germany. This causes problems for farmers in general and for breeding companies. There are also differences in interpretation of the regulations between countries and this can cause confusion.

There is concern over the possible extension of CSF into currently unaffected areas and neighbouring countries. The acquisition of new EU member states is another concern for control of notifiable diseases, for example, both CSF and rabies are endemic in the Baltic countries. The robustness of disease control policies and laboratory testing facilities in the new member states have been under scrutiny. The EU has invested considerable sums of money to support improvements in veterinary disease surveillance and laboratory diagnosis. Some of the new member states border with countries where observance of notifiable disease control measures is poor, such as Turkey.

The wild boar population growing in many European countries. They are used for hunting in some countries but not in others. Generally there is a decline in the popularity of hunting wild boar and this has allowed numbers to increase. There are difficulties with control of notifiable diseases once in the wild boar population. There is also mixing of wild boar with domestic pigs in outdoor production systems. The wild boar are attracted to available feed and also gilts in season. Any pigs in the wild (wild boar or escaped domestic pigs) are very difficult to control as they escape into wooded areas and become elusive. There is public objection to large-scale measures for controlling wild pigs. However, the pig industry in the UK is concerned over the possible loss of the national Trichinella-free derogation.

2.- Foot and Mouth disease (FMD) and Swine Vesicular Disease (SVD)

FMD is endemic in parts of the Middle East, Asia and Turkey. The disease detection and strain typing procedures are variable and in many instances the strains involved are unknown. There are significant problems with the illegal trade of animals and meat into the EU. The origins of infections are very difficult to detect and often remains unknown. SVD is present in Italy and Spain requiring testing before pigs move from one region to another.

3.- Aujeszky's disease (AD).

The UK, Germany and Scandinavian countries (Denmark etc..) are free from AD. Within the EU there are broad plans for AD eradication and countries are at different stage. Netherlands is free and vaccinated, France is free in some areas but other parts are affected. Spain is planning an eradication programme. Currently all official eradication programmes have to be approved by Brussels. One interesting thing is that the clinical signs of Aujeszky's disease are quite different from text book descriptions. Clinically it is similar to swine 'flu so it might go unrecognised unless veterinarians are aware of this.

4.- Avian influenza H5N1

There is concern over the steady spread of AI-H5N1 across central and western Europe. This strain has been recently confirmed in a migratory swan in Scotland. Pigs are seen as a potential mixing vessel for avian influenza strains. If two or more strains are present in the same animal and the infections mix, there is the potential for viral mutation and evolution of a new strain with receptors acquired from both of the original viruses. In this way, the new strain acquires receptors suitable for human infection. The new virus will be of increased virulence to humans and with a naïve population, human to human spread of infection would occur readily resulting in a

pandemic. The best means of control is to have all pigs indoors and the buildings bird-proofed. However, in the UK approximately 25% of pig production is outdoors with no buildings suitable for housing large numbers of dry sows and no indoor farrowing accommodation. Therefore, farmers are having to think hard about contingency plans and how they could address the government requirements for housing pigs if an Avian Influenza outbreak occurred in the region. More commonly, the usual strains of human and swine influenza viruses pass from pigs to people and *vice versa* causing zoonotic illness.

5.- Who pays for control of notifiable disease outbreaks?

This is currently an issue of debate in Europe. In the UK, the government wants the costs to be met by the agricultural industry especially after the 2001 FMD outbreak which proved so very costly for the government. Currently there are three options namely, (1) a government-controlled scheme funded by a levy from farmers, (2) an industry-controlled scheme and (3) an insurance-covered scheme. The agricultural industry wants at the very least, some form of cost-sharing by government. The insurance industry has indicated that it is not interested in covering this sort of risk and the agricultural industry has little confidence that insurance companies would pay out reliably. Currently there are three potential models up for discussion in the UK.

1. A centralised representative industry body – contract with Government

- ◆ industry owned and controlled
- ◆ contributions from industry into fund ‘up front’.
- ◆ Funds used to incentivise ‘on farm’ biosecurity and risk reduction
- ◆ Diseases to receive cover decided by industry body
- ◆ Costs paid by fund

2. Non-departmental public body (NDPB) established to administer Animal Disease Fund

- ◆ Government and industry both represented in NDPB
- ◆ Statutory disease levy
- ◆ Funding from industry and Government according to formula set out in statute
- ◆ Costs met by fund
- ◆ NDPB no formal role in disease control policy
- ◆ Diseases to receive cover decided by government

3. Not for profit company established jointly by Government and industry

- ◆ Industry contribution collected by statutory disease control levy
- ◆ Government meets agreed shareholder contribution
- ◆ Costs covered by fund
- ◆ Diseases to receive cover determined by company
- ◆ Key player in deciding disease control policy

PMWS

Concern over PMWS is still high on the agenda in EU countries although the effects of the disease have become less over time. There are two possibilities, 1) herds have gradually established immunity to the causal agent or 2) farmers are applying better disease control measures. Although some farmers have worked very hard to improve management standards and reduce the stress effects on the pigs others have not introduced any such changes. In all farms, the post-weaning mortality rates have gradually reduced irrespective of whether they have introduced management changes. Therefore the immunity theory is thought to be the explanation for the improvement.

The cause of PMWS is still the subject of many debates. Some scientists still believe that the syndrome is wholly attributable to PCV2. However, the wider view among veterinary surgeons is that PCV2 is not the whole story, but that some other viral infection initiates the problem and PCV2 becomes involved as a secondary agent. A PCV2 vaccine is available in some EU countries and there are reports of improvement (reduced mortality) in herds since they started using the vaccine. However, this could be due to the natural course of the disease/immunity development rather than directly attributable to vaccinal protection. In UK, there has been a steady improvement noted in the absence of vaccination (vaccine still not licensed in the UK). Post-weaning mortality rates are generally approximately 5 – 6% but farmers want to return to their previous levels of 2 – 3%. ‘Minimal disease’ herds have regained their pre-PMWS mortality levels. The impact for these herds has been far less throughout the ‘peak’ PMWS times which emphasises the importance of a high health status (PRRS-free, *Mycoplasma hyopneumoniae*-free).

The only other observation is that there is a slight change in disease pattern. A ‘wasting syndrome’ is seen in some units in older finishing pigs (50 – 80 kg) and the features are consistent with PMWS. The reason for this pattern is not understood. It appears that the clinical syndrome is now delayed in some farms that have already had typical PMWS problems in younger pigs for 2 – 3 years.

PDNS

It is still uncertain how PDNS relates to PMWS. There is wide agreement that it is an immune-complex disorder associated with deposition of immune complexes in the glomeruli. The high number of cases that can occur in association with PMWS (although in older pigs) suggests that the disruption in immune function in PMWS plays a significant role. Can it be a 'piggy-back' condition arising due to inability of the mononuclear cell/phagocytic system to remove circulating immune complexes from the blood? There are instances of PDNS cases occurring independently of PMWS, ie, apparently primary PDNS cases. In these pigs there is usually some form of chronic bacterial infection suggesting that high levels of immune complexes may form due to 'hyper-immunisation', similar to cases of serum sickness or vaccinal hyper-reactivity.

HEALTH IMPROVEMENT AND MONITORING

The importance of good health is being promoted to all farmers by pig industry groups. Many farmers are already converted but others still refuse to acknowledge that there are problems in their pigs. To this end, the industries in many countries have organised pig health monitoring schemes based on slaughter surveillance. In the UK there is the British Pig Health Scheme which is run along the same lines as the scheme in Denmark. Batches of pigs from all farms are inspected quarterly in the abattoir in respect of pneumonia, pleurisy, pericarditis, white spot livers, mange and atrophic rhinitis. By providing data for individual farmers and comparing the figures to national averages farmers can compare their health performance in respect of late finishing pigs. The data is also useful for farmers to monitor progress in response to introducing disease control measures such as vaccination. Therefore this data is used for decision-support purposes.

The cost for the farmer is low (£100 per annum) as the scheme is supported by industry.

SALMONELLA MONITORING

Following lead set by Denmark many EU countries are now doing Salmonella serology monitoring on slaughter pigs using the 'meat juice ELISA'. Herds are screened at defined intervals and then allocated to different health status categories according to the percentage of pigs that are seropositive. The schemes were started to provide consumer assurance that pig industries were striving towards a Salmonella-free production chain. There is a demand from supermarkets and consumers for Salmonella-free produce.

Currently, farms in the highest categories (Levels 2 and 3) have to undertake measures to reduce the prevalence of Salmonella on farm. These include improving hygiene, bird-proofing buildings and using acid-additives in feed. These schemes are helping to reduce the prevalence of Salmonella but there are still improvements to be made. As from 2007/8 there will be a requirement to monitor breeding farms as well to try and reduce infection from the earliest stages of production.

Sweden was salmonella-free for quite a number of years but S.derby has since infected a few herds. Attempts were made to eradicate it by depopulating herds, cleaning and disinfection. This was successful in some farms but re-infection occurred in others.

CARCASE DISPOSAL

This is an increasing problem as several countries no longer permit burial of carcasses. On farm incinerators are used by big units but licensing regulations mean that it is becoming more difficult to maintain on-farm incinerators. Carcase disposal is mainly by lorries coming to units for collections. This can be a problem with biosecurity especially for farms that allow disposal lorries to enter units.

WASTE FEEDING

Waste feeding used to be a source of low-cost feed materials for pigs that had to be heat-treated before feeding. Since the last FMD outbreak in the UK (2001) waste feeding has been banned because of the high risks attached to this practice. Whey feeding is still permissible. Whey is a by-product of the cheese-making industry and is used as part of the diet by some farmers.

POLLUTION REGULATIONS

Due to concerns over high levels of copper and zinc getting spread on agricultural land in pig slurry, the permissible levels in pig feeds have been reduced. In the case of copper, farmers believe that it has adversely affected growth rates in finishing pigs (estimated increase of 5 – 7 days to finish pigs).

BAN OF ANTIMICROBIAL GROWTH PROMOTERS

An EU-wide ban on the use of antimicrobial growth promoters that came into force in January 2006. Earlier experience from Denmark has shown that there has been an increased use of therapeutic levels of antibiotics since the use of antimicrobial growth promoters was banned. It remains to be seen if the same thing happens in other European countries as it is too soon for the effects to be shown. There is debate over whether the ban will be better or worse for development of antimicrobial resistance in the long run. There is a scientific view that the use of antibiotics at higher levels puts more pressure on organisms to evolve ie promotes the development of resistance, as compared with use of antibiotics at lower levels.

WELFARE REGULATIONS

There are ongoing changes to welfare legislation in the EU. The use of sow stalls and tethers will be totally banned EU-wide within the next few years. A ban on tail docking is likely to be introduced soon.

This is likely to affect castration as well as this is also seen as a mutilation. Currently boars are not castrated in the UK but there is now a tendency to take pigs to heavier finishing weights (110 – 120kg) and this is causing some concern over boar taint. There may be calls to re-introduce boar castration.

There is also a possibility of legislation requiring all pigs to have access to substrate that they can chew on in their housing eg straw. This will create difficulties for some farmers as many buildings are slatted and substrate cannot be used with that slurry system.

DIAGNOSTICS

There is discussion among EU veterinarians about which are the best diagnostic methods for pig diseases. Although diagnostics continue to improve, there is an ongoing demand for more specific information. For example, traditionally, swine dysentery has been regarded as a virulent infection causing muco-haemorrhagic diarrhoea in pigs. However, it would appear that there are one or more variants of *B. hyodysenteriae* that are much less virulent, giving rise to mild colitis only in a low percentage of pigs.

The reason for the differences in virulence remains unknown. The culture characteristics of the variant strains are consistent with virulent strains of *B. hyodysenteriae*. This highlights the need for further work on the virulence determinants of *B. hyodysenteriae* and for better diagnostic methodologies to differentiate virulent from non-virulent strains. Although low virulence infections have very little adverse effect on the health of the pigs on the farms, the identification of *B. hyodysenteriae* has very serious implications for the farmers and breeding companies in question as it causes loss of health status and the loss of breeding stock and weaner sales. Similarly there is a need for better diagnostics to rapidly distinguish virulent from non-virulent isolates of *Actinobacillus pleuropneumoniae*.

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