International Pig Topics

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Swine influenza VII

Diagnosis of swine influenza

Diagnosis of influenza A virus in pigs needs laboratory support as the clinical signs are not pathognomonic and need to be differentiated from a number of respiratory diseases which clinically appear similar.

A definitive diagnosis can be made on the basis of:

- Virus isolation
- Detection of viral nucleic acids or proteins
- Demonstration of specific antibodies against influenza a virus

However, it should be noted that as there many strains of influenza A virus circulating in pigs it is important to characterise the strain(s) present and to appreciate the limitations of the different diagnostic tests that can be used.

Virus isolation proves the presence of viable virus in the sample being tested. Influenza A virus can be isolated in embryonated chicken eggs and various cell lines.

Polymerase chain reaction (PCR) can be used to detect the genetic material of viruses but it can not differentiate between viable and non-viable viruses. PCR tends to be used in diagnostic laboratories because of its sensitivity, speed, accuracy and scalability and has become the method of choice for diagnosing influenza A virus. There are several PCR based protocols available including commercial kits.

In pigs, influenza A virus infection causes lesions characterised by a cranioventral bronchopneumonia and variable interstitial pneumonia. Influenza A virus can be easily detected in fresh or frozen samples of tissue from these lesions by immunofluorescence in formalin fixed tissues by immunohistochemistry.

Detection of antibodies against influenza A virus confirm exposure to infection or vaccination and can also confirm the receipt or transfer of maternal immunity. Common serological tests include the haemagglutination inhibition test (HIT) and the enzyme linked immunosorbent assay (ELISA).

Differential diagnosis

This should include:

- PRRS
- PCV2
- Aujeszky's Disease
- Mycoplasma hyopneumoniae infection
- Erysipelas
- Haemophilus parasuis infection