SYMPTOMS POINT TO PRRS VIRUS INFECTION

Duncan Berkshire (MA VetMB MSc CertPM MRCVS), from XL Vet's Bishopton Veterinary Group, examines yet another complicated health issue and offers some advice on how to best tackle – and prevent – the problem

QUESTION:
Recently, on our indoor farrow-to-finish unit, we have seen an increase in pre-weaning mortality due to an increased number of overlays and the quality of piglets at birth has reduced. We've also seen an increase in post-weaning mortality and, in particular, an increase in meningitis in the weaners and coughing in the growers and finishers. What could be causing this?

ANSWER:
From the clinical signs that you are describing there are a few potential causes. The flare-up in clinical disease, in both the farrowing house and elsewhere on the unit, that affects pigs at different stages of production indicates viral involvement. This is likely to be due to infection with PRRS virus, the disease whose full name is porcine reproductive and respiratory syndrome, or also known as blue ear disease. Even if you are currently PRRS positive and vaccinating, clinical signs can still occur as the disease expression on farm changes.

The virus can infect pigs at different ages and so clinical signs will be seen in different production areas of the unit, as is the case in your herd. The virus suppresses the immune system and lowers a pig's resistance to other infections, so clinical signs can vary between units depending on what other infectious agents are present.

Any background sub-clinical disease that is seen occasionally, or at low levels, as is perhaps the case for the meningitis in the weaners, usually increases as the pigs' immune protection is lowered due to the damage caused by the virus. An increase in respiratory disease is usually seen with weaners and growers, and this is frequently made worse by secondary bacterial infections. Once infected, sows can show an increase in body temperature, becoming inappetant due to this, and have laboured breathing. If the sow is viraemic at farrowing (the virus is actively multiplying within her blood) it is likely that her piglets are also already infected.

NAÏVE PIGLETS

PRRS-affected pigs are weak and more likely to be laid on by the sow, increasing pre-weaning mortality. The sow's milk can contain the virus for between one and two days into lactation, so she can continue to pass the virus onto her piglets. Naïve piglets from other unaffected litters would become infected if they are fostered onto this sow and they will then show clinical signs themselves.

Although you have not mentioned it, it may be the case on your unit – infection with the virus can also increase the number of returns on farm.

This is because the virus multiplies in rapidly dividing cells within the body, meaning that, although conception itself does not appear to be affected, the rapidly dividing cells in a growing foetus can be affected around the time of implantation leading to resorption.

This increases the number of irregular returns in the herd. If the infection of the foetuses occurs later on during pregnancy, after the skin and skeleton have formed at between 30 and 35 days, an increase in mummified piglets and stillbirths can be the result.

If adult boars are present and are infected, they can become listless with high body temperatures and this will affect sperm development. This, and the viral insult on the sperm themselves, causes semen quality to lower. It will take up to six weeks after they have recovered for undamaged semen to be produced and for normal fertility to return.

Although this disease is also known as blue ear it is not actually that common to see infected pigs with blue ears. In fact, only between 1% and 2% of pigs show this clinical sign. When it does occur, it is due to the body decreasing blood flow to the skin so that it can be directed to vital organs, such as the brain and kidneys, which it does during times of severe infection.

Clinical signs are more severe when a unit has no or little immunity to the virus. Herds do build up an immunity to PRRS virus and, once this has occurred, PRRS may only result in sub-clinical disease symptoms, such as decreased growth.

There are different strains of PRRS virus and it is possible for a herd to become infected with a new strain in an already PRRS-positive herd, which results in clinical signs in the pigs.

I would recommend that you contact your vet regarding the clinical signs you are seeing and to discuss investigations to diagnose if there has been a PRRS breakdown or flare-up here. If you already have PRRS virus circulating on your unit, it is possible that a new strain of the virus has been introduced to the herd.

Duncan Berkshire

To diagnose PRRS, post mortems can be carried out on freshly dead or euthanased pigs, where lung lesions can indicate if a viral infection is present. Samples will be harvested and can be tested for either PRRS antibody, to see if the pig has been exposed to the virus, or tested for the virus itself. Blood samples can also be taken for virus or antibody testing but, because antibodies to the infection take a minimum of between four and seven days to appear, these samples need to be timed accurately to allow them to be interpreted correctly.

As PRRS is caused by a virus, antibiotics are not effective against the disease itself. Antibiotics are often used, though, to control secondary bacterial infections that can flare up on the back of the effects on the immune system. Discussion with your vet and assessment of the different health problems usually seen on your farm will aid in the selection of the most appropriate antibiotic. This may be administered for a period of time and in-feed or water medication may be the most effective option.

At farrowing, severely affected sows can be treated with a broad-spectrum antibiotic for secondary infections, and an anti-inflammatory to decrease the sow's temperature and so encourage her to eat. Affected piglets will require a considerable amount of nursing and treatment should be provided for them as required.

DETAILED DISCUSSION

Whether this is a PRRS breakdown on farm or the introduction of a new strain of the virus on a unit that already has PRRS virus circulating, detailed discussion with your vet may help identify how the PRRS virus, if confirmed, entered the herd.

The virus can be transmitted between pigs by nose-to-nose contact, local area airborne spread, via infected semen, and also infected faeces – this mode of spread is often on clothing, boots and vehicles. You may be a closed herd, but if you are open and buy stock into a quarantine facility, both the incoming stock and the biosecurity of the quarantine facility will need examination.

This disease is commonly spread between units by carrier pigs that are usually shedding the infectious virus but not showing clinical signs themselves.

There is also evidence to suggest that transmission by air does occur, particularly when temperatures are low and during dull days with high humidity.

It is important to bear in mind that PRRS virus can be spread by contaminated needles, so it is advised to change needles regularly when treating animals, and particularly after injecting an affected litter or group to reduce the viral spread.

Rooms where affected pigs have been will need to be thoroughly cleaned and disinfected before the next group of pigs arrive – ideally these rooms need to be run as 'all in, all out'.

The virus can survive for up to a month out of the pigs, although it is killed by higher temperatures, drying and also by making the environment more acidic.

For long-term control, there are commercial vaccines available that contain either a live modified PRRS virus or a dead PRRS virus. Both are used to increase immunity to these strains of the infection. These vaccines are licensed in both breeding and growing pigs. Your vet may either incorporate these vaccines into your current vaccination protocol, or they may change when they are administered to better match when clinical signs are being seen and so increase pig immunity during these time periods.

Ask the vet...

Email your animal health questions to sophie.throup@xlvets.co.uk