

Vaccination control strategies to counter PRRS in Thailand

Around the world Porcine Reproductive and Respiratory Syndrome (PRRS) continues to have a serious economic impact on pig production. Asia is no exception and International Pig Topics recently spent some time with leading Thai pig veterinarian, Dr Winai, to find out how highly pathogenic PRRS has hit producers in that country and effectively been countered by vaccination strategies.

Western Thailand has a high pig density and, historically, the detection of traditional PRRS was first made by seeing positive sera in 1989-90. Clinically, the first outbreaks were not that serious and were just attributed to 'a virus' and the clinical effects (of secondary bacterial infections) were controlled by antibiotics.

Then in 1994 a disease was seen on a large unit and antibiotics did not work. Samples were sent to the laboratory and PRRS was confirmed. This outbreak was typified by high mortality and serious numbers of late term abortions. Over the next six years this disease spread with many herds showing clinical signs that were dominated by late term abortions, mummifications, stillbirths and sow mortality.

In the fattening herds mortalities of 20-30% were seen with a high involvement of other viral diseases, *Streptococcus suis* and respiratory bacterial problems. In 2005 the first vaccines became officially available. However, at this time, many Thai veterinarians were against vaccination.

Unique opportunity

Following the official authorisation of PRRS vaccine, Boehringer Ingelheim launched their Ingelvac PRRS MLV. Initially Thai veterinarians were sceptical but, by 2008, many had changed their position and were achieving good results on PRRS farms with vaccination. However, then they had another issue – several vaccines were now available so which one should they use? They needed to know which strain(s) of PRRS was active on the farm.

Ingelvac PRRS MLV was based on a PRRS strain from the USA and as the field PRRS virus was a US strain this vaccine was preferred to ones based on a European strain.



Just as the situation was beginning to stabilise, the Thai industry was dealt a major blow with the arrival of a Chinese strain of highly pathogenic PRRS.

The vaccine containing the US strain of PRRS was again preferred. Initially all sows and boars were vaccinated and given a booster dose four weeks later and then a repeater booster every three months. Gilts coming into the herd received three doses of the vaccine prior to mating.

Sometimes, in the presence of a high viral challenge in a herd that had not been fully stabilised, piglets were vaccinated at two weeks of age. If the herd was more stabilised a shot at three to five weeks was sometimes given.

Some farmers transferred pigs at nine weeks of age and, if this involved a movement into a highly dense pig area these animals were given protection with a two shot regimen, the second of which was given on transfer.

This approach tended to stabilise herds unless there were other major problems present. In such herds the main problems seen were water or foodborne *E. coli*, multi-age sites with high viral challenge loads

and mycotoxins, especially zearalenone or fumonisins.

Also implicated were pig flow problems, especially the bringing in of gilts without isolation and acclimatisation. A common fault in Thailand is to take new gilts straight into the mating barn.

Isolation and acclimatisation

Isolation and acclimatisation is not just for PRRS but for a host of other diseases including foot and mouth disease, porcine epidemic diarrhoea (PED) and *Actinobacillus* infection.

In general, if PED is present there will be real difficulties encountered when one tries to stabilise the PRRS and any stress can result in virus being shed from the sows to the piglets.

In such potential situations it is best to define which other porcine pathogens are present at the outset. When bacteria such as *E. coli* are implicated the use of antibiotics such as amoxycillin or colistin is recommended and it has also been found that

Continued on page 8

Continued from page 7

paracetamol given to pregnant sows reduces fever and lessens the probability of abortions.

PED plus PRRS is bad enough with 30-40% mortality in young pigs but transmissible gastroenteritis plus PRRS with mortalities up to 100% is even worse!

Use of PRRS vaccination improves performance, but this can vary in degree between farms.

The Chinese PRRS first spread to Vietnam then through Laos to northeast Thailand. Its clinical signs could easily be confused with swine fever with high body temperature and cutaneous cyanosis (skin purpling) with high mortality amongst breeding, nursery and fat-

tening pigs. The disease went chronic and quite quickly was in all the pig producing areas of Thailand, spread there by the transportation of pigs.

The Boehringer Ingelvac PRRS MLV vaccine gave good protection.

Complete programme

Controlling PRRS in Thailand today is not just a case of vaccination. Choosing the right vaccine and an appropriate vaccination programme are critical and the herd's veterinarian is important in this task. He needs to know what strain(s) of PRRS is active on the farm and the area the farm is located in as

well as what other porcine pathogens and diseases are present and impacting on the overall disease picture.

Other factors that need serious consideration include the level of biosecurity on the farm, the prevalence and impact of PRRS on the farm/herd, the PRRS situation on neighbouring farms, whether different PRRS strains are present and the current PRRS vaccination approach.

Then a control strategy for PRRS and the other diseases/pathogens needs to be drawn up. This may well involve other vaccinations, medication if bacterial pathogens are active, biosecurity procedures, stress minimisation and on-farm management practices.

PRRS vaccines are not cheap but if correctly administered as part of a well thought out programme they can be a very sound investment that gives a good return.

If other pathogens are present Boehringer Ingelheim's 3FLEX concept, offering the unique opportunity to protect the pigs with one shot around weaning against the major pathogens PRRS, PCV2 and M. hyopneumoniae can be considered as part of a control strategy. ■

Key facts about PRRS

- First seen as severe outbreaks of respiratory disease, reproductive losses, reduced growth rate and mortality in the late 1980s in the USA, in 1988 in Japan and 1991 in Taiwan.
- In the early 1990s it spread across Europe.
- Causative virus isolated in 1991 and the term 'porcine reproductive and respiratory syndrome' or PRRS adopted.
- Two viral types – originally Type 1 in Europe and Type 2 in North America. Now both have a global distribution.
- Virus can be shed in semen.
- PRRS virus produces a chronic, persistent infection in pigs.
- PRRS virus circulates indefinitely within an infected herd and the epidemiology is based on persistence in carrier animal that infects susceptible animals (new borns, purchases or lost immunity).
- Transplacental transmission in viraemic sows results in foetal deaths or weak infected piglets being born.
- Chinese outbreak in the summer of 2006 affected over two million pigs.
- Key component of prevention is to stop PRRS virus entering negative herds.
- Vaccination can produce protective immunity.