International Pig Topics

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ESPHM 12th EUROPEAN SYMPOSIUM OF PORCINE HEALTH MANAGEMENT

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Vaccinology IV

Vaccination efficacy

There are several factors that can have a negative influence on the efficacy of a vaccination. When storage and handling are excluded, the next factor of importance is the animal itself. Vaccination mimics natural infection. It is true for the majority of vaccines that both protective antibodies and protective immune cells are formed after natural infection and after vaccination.

A certain class of protective antibodies is especially important – the so-called neutralising antibodies. As the word says the purpose of these antibodies is to neutralise the invading bacteria or viruses and thereby protect the animal from infection. This is a desired effect. However, when the invading bacteria or virus is a vaccine strain, then this is an undesired effect because the neutralised bacteria or virus will not stimulate the immune system.

So now there is a dilemma. Antibodies are needed but, as explained above, this is not always the case. Next to this dilemma is the fact that the young piglets are getting antibodies for free from their mother. This is important as it is the earliest protection that a piglet can get. The more colostrum a piglet gets and the earlier they receive it, the better. So how do we deal with this dilemma?

Firstly, the vaccination scheme on a farm should be well designed. Then, for every individual vaccine, possible interference with antibodies should be assessed. When interference is reported, vaccination timing becomes important. The golden rule used for vaccination timing is: As Late as Possible and As Early as Required. As early as required relates to the moment when natural infection is known to occur based on the farm's history.

Ideally, the vaccination scheme should be completed two weeks before the infection starts. Diagnostic investigations and herd sero-profiling will not only show the window of vaccination but also if the vaccine was able to elicit an immune response.

Conclusion

Antibodies are important for defence but can also neutralise vaccines. Information on possible interference of antibodies with vaccination can be found in literature. When interference is expected, vaccination timing becomes important for an optimal result.