

Talkshop November 2016

This year saw the return of the annual George Veterinary Group Pig Fair at Exeter and Wincanton racecourses on the 4th and 5th October. Both days were a resounding success, with positive feedback from attendees that it was one of the best to date. Thank you to all those that attended, and to all our sponsors.

One of the elements of focus was novel vaccination strategies. With changes in current antibiotic usage and the pressure on the industry to reduce our overall consumption, this is an area we are looking to utilise more. Below is an outline of how these vaccines can be included in farm health management programmes.

Firstly, why do we need new types of vaccines? Pathogens such as bacteria constantly evolve and because of this, commercial vaccines (which may be specific to only one strain of a pathogen) may not always remain as effective in control clinical disease. Therefore new vaccines need to be developed to tackle emerging strains, and enable reduction in the need for antibiotics.

Oral Vaccination

Oral vaccines are one of the tools vets and producers have to protect pig health against the background of reduced antibiotic usage in-feed. One distinct advantage is that they can give protection throughout the life of the finishing pig, whereas antibiotics are usually only effective during and shortly after treatment. All vaccines have the benefit of allowing us to tailor the control program on-farm depending on timing of exposure to disease challenges. This means we can identify when a disease (challenge) occurs, and mitigate this by vaccinating in advance. An example of an oral vaccine is a product called Enterisol™, which contains a modified live strain of the causative agent, the bacteria *Lawsonia intracellularis* responsible for ileitis. This disease affects the pigs' lower intestinal tract causing diarrhoea, reduced growth, poorer food conversion and, impacts on overall performance. It can be used in pigs three weeks of age and older. When delivered via the drinking water ideally this should involve a water proportioner for example a Dosatron™ or a Select Doser™. Water proportioners allow for an accurate dose to be delivered to all animals over a desired period of time- the vaccination window- usually 4-6 hours. The amount of water drunk per pig needs to be recorded or estimated in advance of vaccination to accurately introduce the vaccine in the water system and that is why the use of a pump system for administration is invaluable. This is preferable to pouring the vaccine straight into header tanks because the amount delivered may be less accurate, and may be affected by sediment or previous treatments administered via this route.

Oral vaccines are modified live vaccines; therefore in the presence of antibiotics they will be inactivated. For this reason we must give these vaccines at specific times when medication regimes on farm have stopped or there is a medication free window.

When a vaccination program cannot be administered far enough in advance of the challenge point, due, for example, to the age of the pig, a technique called 'embedding' is used. Embedding is a scientifically tested technique where a course of in-water antibiotics is given post vaccination, to reduce 'wild challenge'. For

example, when a pig is challenged by *Lawsonia intracellularis* in its environment, we use embedding to target the wild pathogen to allow the pig to respond fully to the Enterisol™ vaccine.

Embedding is not essential as part of an oral vaccination program, however the clinical disease picture on-farm may require its use, which is something to be discussed with the unit vet when setting up the vaccination strategy.

The data sheet states that these types of vaccine can be administered by individual oral dosing or via the water, a major benefit of which is that they allow for a level of flexibility. For example, from farms where we see clinical disease such as salmonella occurring at the same time as ileitis, and where we have performed diagnostic tests and post mortem examinations to define the problem, the similarity in method of administration has enabled combination of different oral vaccines specific to the disease picture present on that particular unit. This is only when we have justification to do so, and is tailored to the farm in question.

Autogenous vaccines

Autogenous vaccines are vaccines generated from bacterial pathogens, which have been isolated from pigs suffering from a particular disease (eg. Streptococcal meningitis) on a specific farm. This is a very specialist area and only very few laboratories have the expertise to isolate and then manufacture these autogenous vaccines. Normally they are only developed if a commercial vaccine is not available or if the commercial vaccine does not cover a new strain of pathogen. Selecting an animal showing the typical clinical signs on farm, and correctly isolating the pathogen are critical for a successful vaccine to be made. Autogenous vaccines need to be approved by the Veterinary Medicines Directorate (VMD), and each batch needs to be safety checked by administering to a small group of pigs before the batch can be supplied. There is therefore an extended lead time and autogenous vaccines are not a quick fix, they will take at least three months to manufacture after pathogen isolation. To date we have used autogenous vaccines for a variety of diseases including Erysipelas, Streptococcal meningitis, Mycoplasmal arthritis, Glässer's disease (*Haemophilus parasuis*) and *Actinobacillus pleuropneumoniae* (APP).

One example where we are using an autogenous vaccine successfully is an 800 sow breeder-feeder unit. This farm was experiencing an ongoing problem with Mycoplasmal arthritis, caused by *M. hyosynoviae* that was poorly controlled with in-feed medication and injectables. Since the use of the autogenous vaccine (successfully isolated from a pig showing typical signs) the farms' use of injectable antibiotics fell to 10% of its previous level and introduction of the vaccine has allowed removal of all in-feed medication in the grower phase.

In summary, vaccination strategies are crucial for the continual protection of pigs from disease, especially with the ongoing pressure to reduce our antibiotic usage as an industry. Autogenous vaccines have the ability to target a specific problem on-farm, and water vaccines allow a tailor made vaccination programme to be put in place, which can give lifelong protection to the pig.



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