



## Vaccination – benefits and pitfalls

By vets Candice Popham and Anna Gerrard from Westpoint Farm Vets

Animal health and welfare is a growing focus with active encouragement for improvement through disease control and potential eradication. Vaccination protocols alongside biosecurity remain a vital way of controlling and eventually eradicating viral disease on farms. In turn they improve animal welfare and efficiency of production by reducing incidence of disease or reducing clinical signs.

Vaccinations can also help reduce our dependence on antibiotics since prevention is better than cure! Vaccination leads to increased immunity against disease causing pathogens reducing the need for antimicrobial use – an important step to reducing the amount of antimicrobials used and therefore the potential resistance within the agricultural sector.

Many different types of vaccines exist and there is no 'one procedure fits all'. Different types of vaccines will stimulate different immune responses and duration of immunity; live vaccines contain the virus in its truest form and can cause a mild transient clinical infection so although its use in pregnant animals is routine on some farms, it is important to be aware of this risk when administering vaccine to this group of animals, unless the data sheet states it is safe. However the immune response generated by live and live attenuated vaccines is stronger and longer lasting than vaccines with inactivated virus DNA; although both vaccine types will promote an adequate immune response if administered to an individual capable of doing so.

As well as many potential benefits, it is important to discuss the potential pitfalls with vaccines. Vaccine efficacy can be affected by a number of reasons including the animal's physical and mental state which can affect the cow and her ability to fight infection. It is important of following the datasheet instructions when using vaccines, especially the first time a new vaccine is administered to a herd/flock. For example, incorrect timing of the primary vaccine course may reduce the antibody response decreasing length and quality of the immunity produced.

In order to produce a successful prolonged immune response to a vaccine the animal needs to be healthy with an adequate immune system. An animals' immune system can be affected by inadequate nutrition, illness, stress and age, with both the young and old being poorer at developing an immune response.

New-born calves receive antibody protection from colostrum which can persist up to 9 months depending on the type of antibodies. These maternally derived antibodies can affect the immune response the young animal produces, therefore when they wane the animal may not have adequate protection. It is also important to remember immune response to a vaccine can take up to 2-3 weeks so the animal may still be at risk of infections during period.

Although vaccine failure can be due to product failure, it is most often due to poor compliance surrounding specific requirements of each vaccine. It is important to remember that the dashboard of a land rover defender 90 is not going to maintain the same temperature as a fridge! Vaccines can be inactivated by incorrect handling, transport and storage if specific requirements aren't followed. Similarly incorrect methods of reconstitution, route of administration, and dosing intervals are often the primary reason for vaccine failure. For example administering vaccine by an incorrect route can decrease the quality of the immune response produced. Similarly if the interval between either the primary course or the booster is prolonged the immunity is also decreased. It is important to review and follow the instructions in the data sheet for each vaccine to ensure the vaccine does not become ineffective leading to vaccine failure and potential disease breakdowns in vaccinated herds/flocks.

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Vaccines are designed to cover the major serotypes of the virus they protect against, however there is always a risk that the serotype encountered is not covered in the vaccine. On top of this if the environmental challenge is too great the vaccine may not be wholly protective. Which again highlights the importance of biosecurity alongside a vaccination programme to ensure its effectiveness.

Vaccine protocols can be extremely useful if tailored to suit your farm. It is important to know your herd's disease status; by continuous sampling, testing and monitoring for disease as recommended by your vet in order to implement the best vaccine protocol. Continual re-evaluation of protocols and monitoring clinical cases should be carried out to ensure effectiveness is maintained within the herd.

Further information is available from your vet. You can contact Westpoint by calling the St Columb practice on 01637 889231 or visit [www.westpointfarmvets.co.uk](http://www.westpointfarmvets.co.uk)

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Anna works at the Westpoint Horsham practice following a stint at a mixed practice in Cornwall. During this time her interest in all aspects of farm animal medicine developed so she decided to join a vet practice focused only on farm work.

Candice Popham BVetMed MRCVS

Candice works with the team at Westpoint Launceston. Born and bred in Somerset she had a keen desire to return to work in the South West, particularly with the varied cattle and sheep work on offer in the area. Candice has a particular interest in pathology and infectious diseases.

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