Using vaccines as part of your herd health plan

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Vaccines are an extremely useful tool to ensure that the majority of animals become immune to an infectious agent before the risk of a disease outbreak. Vaccines take time to provide a sufficient protective cover so ideally farmers should plan to use them well in advance of when their animals need protection. In some instances, vaccination does not prevent infection but decreases the severity of clinical disease if an animal becomes infected and/or decreases shedding of infectious organisms.

Two vaccine types exist. The first type is called inactivated vaccines (also known as killed or dead vaccines). These contain the disease organism or a toxin produced by the organism that has been inactivated during product manufacture. Live vaccines are the second type of vaccine and they contain the live organism that is closely related to the disease-causing agent. It is either a non-harmful strain, or a strain that has been weakened or modified so that it can no longer cause disease.

When a vaccine is given to an animal it stimulates the animal's immune system leading to the production of special proteins called antibodies. These antibodies help the animal's immune system recognise the infectious agent if or when the animal is exposed to it. So once an animal is vaccinated, if the animal comes into contact with the infectious agent, the immune system responds and provides sufficient protection so that the animal develops reduced or no clinical signs and poses less of a risk for spread of infection within the herd.

Many vaccines (particularly inactivated ones) require a primary course of two doses at recommended intervals (check the label for the exact interval) before protection is complete e.g. clostridial vaccines and animals are not fully protected until they have received the two doses. However, some vaccines may be used in the face

of a disease outbreak to decrease the severity of clinical signs e.g. live IBR marker vaccines given intranasally. While some vaccines are licenced to be given at the same time, in general giving multiple vaccines at one time should be discussed with your veterinary practitioner on a case by-case basis to determine whether this is appropriate.

Recording details of vaccine use is extremely important for several reasons. Firstly, it will ensure booster doses are given at the correct time. It also provides useful information when assessing your herd health programme annually. Finally, records provide valuable information, should a 'vaccine breakdown' be suspected. Remember that even the most efficient vaccines are not 100% effective in preventing disease. Vaccines depend on the animal's immune response to ensure good protection against a particular disease. In any group of animals, a small number of individuals may fail to respond to vaccination as a result of a reduced immune response. A satisfactory immune response will only be achieved when animals are healthy and not under stress as this can temporarily decrease the animal's immune response potentially affecting vaccine efficacy.

Herdowners should contact their veterinary practitioner to discuss which vaccines they should incorporate into their herd health plan. Each herd is unique and may be exposed to different disease risks so it is essential to develop a vaccination plan that suits your herd and use vaccines strategically. It is important to remember that vaccination is only one part of disease prevention and cannot compensate for poor management or insufficient attention to biosecurity.

If some diseases have historically been a problem on your farm, review these with your veterinary surgeon. For example, if calf scour is a problem on your farm discuss the likely causes and what can be done to prevent it. This may involve vaccinating the cow at least 3 weeks before her due date. Vaccination is one tool used to manage calf scours and not a silver bullet. If other management procedures are not in place, such as hygiene, housing, colostrum management then you will have poor success in controlling calf scour through a dam vaccination programme. A calf is born without antibodies and depends on their absorption from colostrum (first milk after calving) to gain immunity until they develop their own immunity at 3 to 4 weeks of age. The ability of the calf to absorb antibodies decreases every hour from birth and stops when the calf is 24 hours old. The simple rule is to use colostrum, from the first milking, for the first feed, within 2 hours of birth and give at least 3 litres (1-2-3 of colostrum).