Creating an effective vaccination team

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Poultry vaccination is a very common practice, from grandparents to broilers. It is unusual for commercial birds not to receive at least one vaccination during their lives. Each vaccination should follow the correct procedure whether through drinking water, injection, spray and wing-stab. Although some procedures involve individual handling of the birds, they are simple for poultry workers to carry out.

Vaccination is an art

Even with a simple vaccination technique, using the correct vaccine on a healthy flock, attention still needs to be paid to many critical points to obtain the full benefits of vaccination. I will just highlight the main ones I consider important – which are not always mentioned in vaccination articles!

From door-to-door

At the outset, the vaccine should be properly transported and stored, from the vaccine distributors to the farm storage facility.

On the farm

Visiting farms while the vaccine is being administered is a good time to observe the behaviour of the vaccination team. When the vaccine needs to be applied individually, it is not uncommon for the vaccinators to be proud of the numbers of birds vaccinated per hour, believing that the higher the number the better. WRONG! This can mean that a lot of birds are not receiving the proper dose or some birds are being missed.

Vaccine application by the wing web method.

The aim of vaccination is to protect as many birds as possible – it is not a race!

Patience is a key factor. If the vaccine is an eye-drop, the operator needs to wait until the bird absorbs the vaccine completely. If the vaccine is injected, then he or she needs to be sure that the needle is not taken out before the whole dose is applied in the proper position, so that it is injected into the correct tissue.

People

The greatest challenge in ensuring correct vaccination probably involves people. After all, it is people, who will prepare the vaccine and people who will give it. To ensure that they do a proper job, we need to prepare them to do it as a truly professional vaccinator. If their knowledge about immunity and diseases control is insufficient we should start by giving them an explanation about it. Why vaccinate? What is the vaccine? Why do we need to do it this way or that way? What is the role of the immune system?

Such explanations can make a lot of difference, because the vaccination team will then know why it is important. In some ways, treatment is easier. You have a sick flock – treat – heal – recovered flock! Vaccine is invisible, and as with any other preventive system, is difficult to know if it is working or not, if you do not see any problems.

Mass vaccination

Mass vaccination generally involves live vaccines. They can be applied as a spray, aerosol or in the drinking water. Here the key is live vaccine. It is important to assure that the vaccine is still alive until the end of the vaccination process and that each individual will have received at least one dose.

Some vaccines are very resistant to environmental conditions, such as Gumboro (IBD) and chicken anaemia (CAV) vaccines. Some are intermediate, such as vaccines against Newcastle disease (ND). However, there is one vaccine in particular that is really delicate; it is infectious bronchitis (IB) vaccine.

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Vaccine application by spray.

Vaccine application by eye-drop.

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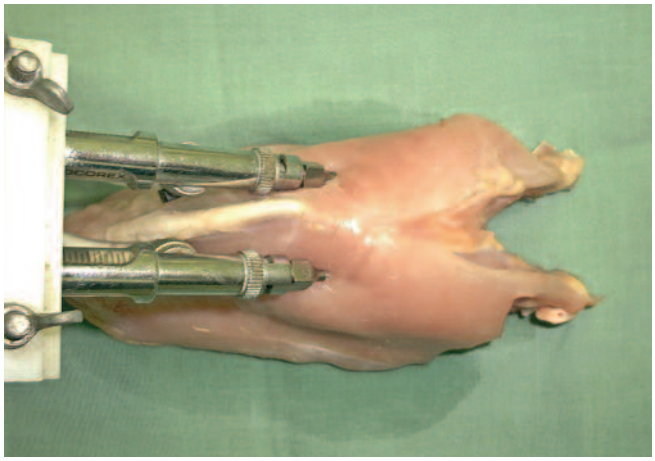
Because IB is so complicated, it needs special care to ensure its efficacy. In a revealing presentation Dr de Wit from the Animal Health Service, Deventer, the Netherlands, showed that birds vaccinated on farms via sprays or drinking water had protection ranging from 0 (zero) to 85%! In contrast, birds vaccinated individually at a laboratory were shown to have between 89 and 100% protection.

To control infectious diseases in a captive population, we need at least 85% protection. Otherwise the virus will find enough susceptible birds to multiply and enhance its population. The result will be symptoms of the disease and, possibly, reversion of virulence of the vaccine. To avoid that, it is important to pay attention to the instructions regarding the vaccination procedure.

Drinking water

For any live vaccine, it is imperative to use vaccine stabiliser. The stabiliser should be mixed first in the water and then the vaccine should be mixed in. As a rule of thumb, the birds should drink all of the water containing the vaccine within two hours. If it is less, it is likely that the bigger birds will have taken more water (and more than one dose of the vaccine) while the smaller birds will have received less than one dose. If the time span is longer, there can be a problem with a reduction of the vaccine titre.



Vaccine application by intra-muscular injection.

Here again, the IB virus does not survive in many conditions, and can be affected by water with disinfectant residuals or a high mineral content. Even with good conditions the titre drops fast. To ensure a better vaccination distribution among the birds, it is advisable to prepare 50% of the vaccine in 60-70% of the total volume of water then give the vaccine. When the birds have finished drinking this first solution prepare the other 50% of the vaccine with the remaining volume of water. Ensure that the drinking time will be between two and three hours.

Spray

Spray vaccination is a good procedure; it is easier to fulfil the requirements to ensure the vaccine's survival. Normally, any problems are related to reactions. The idea with spray vaccination is to wet the bird's feathers. They will then clean the feathers and, in the process, will become vaccinated. With this in mind, the spray needs to have very coarse droplets – not aerosol.

Aerosol is another technique, where the birds inhale the vaccine.

To achieve good results with spray, be sure that the drop is heavy and therefore goes down, not up. You can check this by using a dark background. During the vaccination, close the curtains and stop the ventilation.

After the vaccination, immediately open the curtains or turn on the ventilator to assure that the fine drops are removed. The use of aerosol instead of a coarse spray can cause severe vaccination reactions.

Spray vaccination should be avoided when the litter is too dry, with a lot of dust in the air, or the air conditions are bad. If the air is dry, but there is no dust, the use of glycerin (up to 2 ml/l of water) is recommended. This will keep the droplets heavier, even in extreme conditions.

Vaccine residues.

● **Parenteral vaccination**

Vaccines that need to be injected can be both, live or killed.

• **Live vaccines**

For live vaccines, the care is the same as for mass vaccination to ensure survival of the vaccine. Some live vaccines such as pox and Marek's need to be injected, otherwise they will not work. (Marek's requires a separate explanation because the procedure is long.) Pox vaccine, in general, is given by the wing web method.

The key here is to homogenate, from time to time, by swaying the vial with the vaccine to avoid sedimentation. The needles only should be dipped into the vaccine and the vial should be kept cool during the vaccination.

• **Killed vaccines**

Oil or gel adjuvants are regular presentations for killed vaccines. They need to be injected intra-muscularly (breast or leg muscles) or subcutaneously (neck).

The injection site makes no difference to the protection provided, and while some papers can show some differences, these are not important from the practical point of view. The choice will be based on type of birds, age, regulations and personal experiences.

The neck injection can cause torticollis, or swollen head, if the injection is given too high (closer to the head), if the needle touches the muscles or bones or if the vaccine is applied intra-dermal. To avoid it, the needle should always be pointed towards the body and inserted in the lower part of the neck, while feeling that the needle has free movement.

Breast injection, using a short needle, the better position is at an angle of 45°, avoiding the liver and other tissues.

All killed vaccines must be heated before injection to avoid extra local reaction and pain. For bacterins, such as salmonella and pasteurella, the temperature should be as high as the bird's body temperature (around 42°C). Heating before use does not harm the vaccine, but the vaccine should never be put back into the refrigerator.

To check the effectiveness of vaccination (missing birds, locality of injection, distribution of the vaccine in the tissue) open dead or discarded birds. These will give important information regarding the quality of the vaccination.

Conclusion

Vaccines have been developed to give protection against many infectious diseases.

Unfortunately, simply giving the birds a good product will not guarantee the response against the infection or disease.

But paying attention to detail in the correct vaccination procedures will enhance not only the efficacy of the vaccine, but also the vaccination coverage, resulting in less adverse reaction.

The vaccine is not a virus or bacteria filter, it is a biological tool, based on the immune response of the bird. If the bird is not healthy, or the vaccine is inappropriate, instead of a protection, we are likely to see disease.

For this reason, it is always advisable to consult a vaccine specialist in order to achieve the vaccination results you are looking for. ■