Applying coccidiosis vaccines within the hatchery

Coccidiosis has long been a major disease facing poultry producers, with outbreaks significantly impacting bird health and performance. It remains one of the most economically significant diseases in poultry production, estimated to cost the UK industry in excess of £99 million per year.

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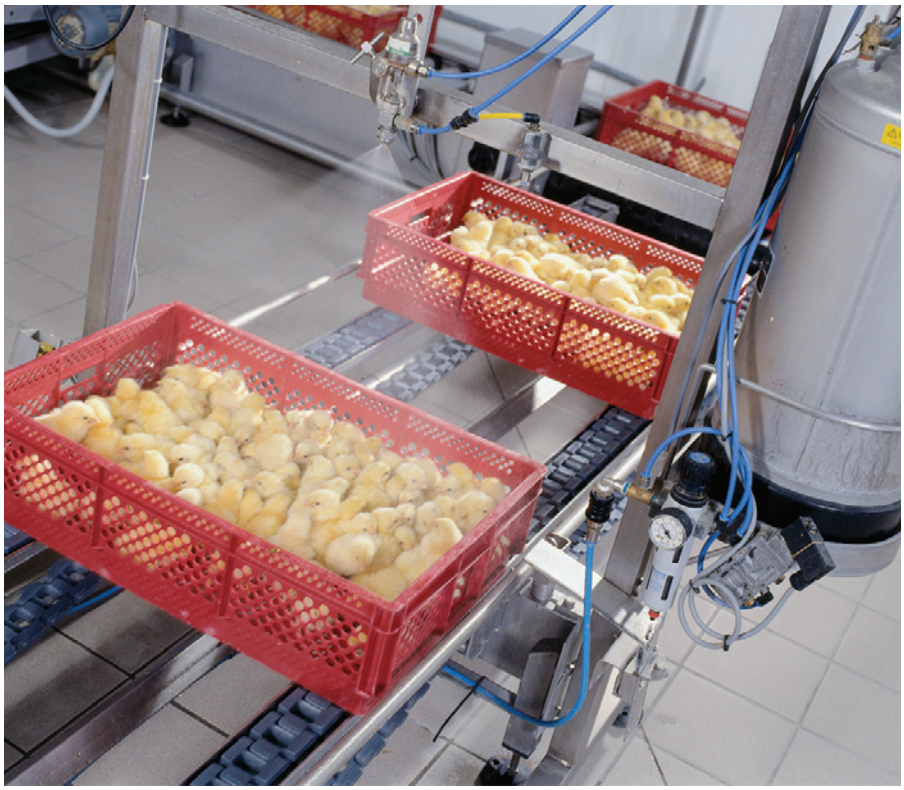

Being a disease that is likely endemic on most poultry farms, it is essential chicks are protected as early in life as possible. When looking at vaccinating against the disease, many producers are now turning to hatchery vaccination of day-old chicks to encourage early immunity and for the convenience.

Application techniques

With regard to commercial layer and broiler breeder flocks, protecting young birds through vaccination is a valuable investment, as it provides lifetime immunity against coccidiosis.

When it comes to in-hatchery vaccination against coccidiosis, this can be applied to chicks as a coarse spray, being mixed with either a water-based diluent or gel solvent.

If producers vaccinate using a water-based spray, I would recommend using a dye. This helps to enhance preening and also makes it easy for those applying the vaccine to assess the coverage. If no dye is used, it is often difficult to notice whether one of the spray nozzles has got blocked up leading to poor coverage.

For those who use a solvent-based spray, one option is to use Paracox with solvent for spray-on-chickens, which is a unique product to MSD Animal Health. This is a bright red substance which can be sprayed using traditional equipment found in most hatcheries.

This high viscosity gel turns into a liquid once sprayed, converting back into a gel as soon as it reaches the chicks. The gel droplets then cling to the feathers for a longer period than a water-based spray which helps to enhance preening. Trials have also confirmed this, showing that using this solvent for spray-on-chickens rather than a water-based spray can increase Paracox vaccine uptake by up to 35%.

One very important thing to note is that light enhances preening and vaccine uptake. So once the chicks have been vaccinated in the hatchery, they should be placed in a well-lit area for 10-15 minutes post vaccination.

Using equipment, for example the Spraycox III, will help to achieve a good covering of vaccine when using a solvent or water-based spray vaccine. It is a very straightforward machine that uses a constant pressure system. This ensures that all the chicks that pass under the machine get an even and correct dose of the vaccine. This in turn promotes the best possible vaccine uptake.

Once you have determined which administration technique you plan to use in the hatchery, it is important to then consider other factors which can affect vaccine efficacy. These include making sure vaccines are stored and administered correctly.

Vaccination storage

Firstly, it is important to check whether vaccines need to be refrigerated. This information can be found on the product SPC sheet. Once you have identified the correct requirements, make sure you check and record fridge temperatures at least twice a day before the vaccine arrives, and while it is being stored, to ensure the vaccine remains within the specified temperature range.

I would always recommend that hatcheries have a dedicated vaccine preparation room, ideally with positive air pressure so that no dust from the hatchery gets drawn into the vaccination room. This will help to prevent

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contamination. The room should be free from clutter, so ideally just a table for making up the vaccines, sink and vaccine fridge, so that it is easy to clean down.

Mixing the vaccine

If the coccidiosis vaccine is being applied as a coarse spray, you will need to add water. Ordinary tap water contains chlorine which could reduce the vaccine efficacy, so it is essential to use distilled or de-ionised water. Water temperature should be around 10-15˚C, with a pH between 6.0-7.5.

Once ready to move the mixed vaccine to the administration area, I would recommend moving it in a sealed container to stop contamination from air particles. Once it has been placed in the vaccine vessel, whether that is a pressure vessel or a gravity fed vessel, it is then ready to use.

Maintaining your vaccinating machine is equally important, so check this every time you start any vaccine applications to assess whether it is working correctly.

Things to check include the volume of output that the nozzles are giving, which is a set amount dictated by the machine used. This should cover at least 95% of the chicks. If it is not achieving this, calibrations will need to be made.

One of the most common problems we find when looking at vaccination coverage is air getting into the vaccinating system, so it is worth checking for this if you are not getting the volume you are expecting.

Constantly monitor the vaccine device once you start vaccinating, this will be easier to check if you are using a dye, or coloured solvent, as it is easy to spot the spray pattern.

Depending on what vaccine you are using, check the recommendations which will specify how much time you have available from mixing the vaccine to final application. Often the vaccine will need to be administered within two hours, so do not mix enough to do the whole day; mix enough for around an hour and then come back.

Hygiene

As day-old chicks will not have established immune systems, hygiene is extremely important to reduce the risk of contamination from equipment or the environment.

Before vaccination begins, equipment should be flushed through with clean de-ionised water. Again, remember not to use a chlorine or alcohol-based product as this could potentially destroy the vaccine.

Cleaning down equipment after use is also critical to prevent harmful bacteria residing in the vaccine lines. All manufacturers will have an SOP for cleaning down their machines, so make sure these are referred to.

The most common issues I see in hatcheries are blocked or partially blocked nozzles. Blocked nozzles will mean you are not getting coverage on part, or all, of the basket and some of the chicks will remain unprotected.

Make sure you regularly service equipment according to the manufacturer's recommendation, and change any plastic pipe work once a month. it is relatively inexpensive to do this and these areas could harbour disease so it is well worth the time.

Overall, make sure general cleanliness in the hatchery is excellent. A lot of vaccine equipment needs to be cleaned by hand rather than pressure washed, so again follow the manufacturer's guidelines. Also, make sure you have got spare parts for spray devices in stock to avoid delays caused by breakdowns.

Although vaccination storage, administration and cleanliness may seem simple, it is crucial these elements are not forgotten about as it could render vaccines ineffective. This could present huge financial costs and may leave chicks unprotected.

Drawing up simple checklists can serve as useful reminders to make sure these elements become part of the usual daily routine. ■