Focusing on healthy day-olds

When it comes to chick quality a key part of our definition of 'quality' relates to the health of the chick. In essence this has two components. The first relates to the chick at the time it hatches and the second relates to its later life.

At the time of hatching, or more precisely pulling because the chick can become infected in the hatcher between hatching and pulling, the chick should be fit and healthy. This means entities such as yolk sac infection, omphalitis, navel infection, aspergillus infection and the like should not be present.

As far as later life is concerned the chick should be free of micro-organisms that can cause problems, such as salmonella and mycoplasma, and certain viruses, such as leucosis.

Egg contamination

The former entities typically arise from contamination of the egg at any point from laying to setting, or even the resulting chick, whereas the latter entities, which are going to affect our birds in later life, arise from infection of the source breeder flock(s) on the breeder farm(s).

Thus, our approach to controlling these two entities will vary and this is what this article will focus on.

Let us start by considering those entities, such as salmonella and mycoplasma which are going to affect the bird in later life. If the breeder farm of origin is free from these agents then the birds and the eggs they produce will be. If we put disease free eggs into the hatchery we are well on our way to producing disease free chicks.

To produce disease free eggs we need to start with a breeder flock which is free of the diseases in question and to then keep that status.

Disease free start

Thus, for a parent stock farm the supplying grandparent farm needs to be free of the micro-organisms in question and we need to be assured of this status.

For micro-organisms such as mycoplasma and salmonella blood tests are available and are widely used but these have two limitations that we need to reflect on.

Firstly, blood tests detect antibodies and these take two to three weeks to develop in a bird, so, in reality, a blood test is informing us of the situation in the flock two to three weeks previously.

Thus, even if we are blood testing a flock every four weeks we will have a situation in which just before a blood test there will be six to seven weeks worth of eggs in the system whose status we can not be 100% certain about.

Time and cost constraints

In addition, we can not be 100% certain about the status of a flock unless we literally test 100% of the birds because infection often literally starts in just one or two birds.

Needless to say, a 100% blood test every four weeks is not practical at commercial breeder level in terms of time and cost.

Thus, we define the number of bloods to be tested in terms of either a 95 or 99% confidence limit. On commercial breeder farms the former is usually the norm.

In simple, non-statistical terms with a 95% confidence limit we are 95% confident of finding a positive or, to put it another way, there could be up to five positive birds per 100 that the sampling fails to pick up.

In a breeder flock of 10,000 this equates to a scenario where we could have 500 positive birds but still have a negative blood test result. In reality this is not the case because for this to occur every one of these birds would have to fall into that part of the flock that was not bled and the probability of this is remote.

It is possible to have 10 or 20 birds in such a flock and fail to bleed any of them and, in such a scenario, our blood test would be negative but our flock, in reality, would be infected and could produce infected chicks.

For this reason, it is always prudent to never guarantee the status of the chicks that you sell but to advise the purchaser of the testing regime used and the results obtained to date and let him interpret those results accordingly. If you guarantee a flock to be 'negative' and it is, in fact, in the early stages of infection then legally you are standing on proverbial 'thin ice'!

Biosecurity at the edge of a breeder farm ensures external vehicles never enter the site.

Avoiding reinfection

Once we have satisfied ourselves about the status of our breeder flock, we then need to do all we can to ensure that it does not subsequently become infected.

To do this we need to understand the modes of spread of the micro-organisms involved and do all we can to ensure that those routes of infection can not bring infection on to our farm. These vary by micro-organism. For example, salmonella can quite easily enter a breeder flock via contaminated food or water but these routes are not likely for mycoplasma.

Thus, for example, if salmonella control is an issue we will need to focus on the feed mill and what it is doing to remove the salmonella risk and we need to be happy that we are doing all we can to keep our water supply salmonella free, for example, by chlorination.

Bacterial infections

So much for disease entities in later life. Now let us consider those entities that can be seen in the day-old chick or in it in its first few days of life.

These are invariably bacterial infections that have their origins in contaminated or dirty eggs or by infection of the chick at, or after, hatching.

To minimise these we have to do two things. Firstly, we need to focus on producing and sending to the hatchery top quality, clean hatching eggs. Secondly, we need to ensure that we are not producing chicks that are more prone to infection

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such as those with poorly healed navels.

The premise that we can clean eggs is not a very good one – it is far better that our hatching eggs have been clean from the outset.

This is because dirt can get into the pores of the eggshell and no amount of cleaning or washing will remove this dirt. Ironically, it is this very dirt that is most likely to provide the bacteria which penetrate into the egg and contaminate its contents or which are protected from key control processes such as fumigation or fogging.

Thus, egg hygiene is the responsibility of the breeder farm just as much, if not more so, than it is the responsibility of the hatchery.

More attention needed

Egg hygiene, especially on the breeder farm is something that does not always receive the attention it should. Why not make one of your QA or technical team responsible for this important aspect of management and let them undertake regular hatching egg hygiene audits on farm.

When we do such an audit we need to literally follow the egg from the hen's vent to the incubators and look for the opportunities there are for contamination and then make recommendations on how these should be rectified.

This starts in the nest box. Firstly, ask the obvious question – 'are all eggs laid here or is there a floor egg problem?' Check to see there are the correct number of nest boxes for the number of hens – it is surprising how often there are not!

If there is a floor egg problem try and find out why and give advice on how to correct it or at least reduce it.

Then consider the management of the nest box and its contents. Are they clean? Are they dry? Are they changed frequently enough?

The next thing to do is to closely check the egg collection process. If it is done manually is it actually done at the times and as frequently as it should? Does the egg collector collect clean eggs before floor eggs? Does the egg collector wash/sanitise his hands before collecting eggs? Is this done every time?

It is no good just asking questions. See that the resources are available in the lobby! If the water heater is broken, if there are no paper towels, if the dispenser contains no soap solution or alcohol gel, it is likely that hands are not being cleaned as well as they should be!

Are the eggs being placed on clean egg flats or setter trays? How are these stored before they are used? Are they stored in a dusty environment?

Then we need to consider how effective on farm egg grading is.

. . . and one wonders how salmonella gets into poultry feed!

Unfortunately, if we take five people and ask them what a dirty egg is we will have five different cut off points between clean and dirty!

So, we need to bring a standardisation into our definition of a dirty egg and, if we do not regularly check that this is being adhered to, the variability in judgement that we are trying to eliminate will rapidly return!

Hygiene is not just about visible cleanliness, it is also about keeping eggs dry and here storage temperature is important. We must ensure that we do not create scenarios in which eggs sweat, because this will facilitate the ingress of bacteria into the eggs' contents.

Auditor's responsibility

When auditing we must remember our responsibility is to the company as a whole. It may well be that the breeder farms do not like a particular recommendation because it makes more work for them or adversely affects their costings or even the number of eggs they send to the hatchery.

So be it! If the breeder division loses out but the company benefits, the benefit to the company as a whole must rule the day!

Egg hygiene audits do not stop on the farm. We need to consider how the egg is transported to the hatchery and then how it is stored in the hatchery. Here again temperature is an issue.

It is an interesting exercise to put a temperature logger on a tray of eggs as they are collected on the farm and leave it there until those eggs actually go into an incubator. If you do this you may well be very surprise about the temperature fluctuations that those eggs have been subjected to!

A maternity ward

The hatchery should be a clean place as, effectively, it is a maternity ward for millions of chicks a year or even per month or per week!

Dirt attracts and harbours bacteria. Dirt gives bacteria the wherewithal to grow and multiply and a dirty environment will present a greater bacterial risk to hatching eggs than a clean one.

This being the case, our objective is to maintain high hygiene standards in the hatchery which is effectively the final stage of our hatching egg hygiene audit.

We need to satisfy ourselves that everything our hatching eggs will come into contact with are clean, be they hands, trays, suction cups on transfer machines.

So, when it comes to producing healthy day-old chicks it is not rocket science! The skill is to focus on the basics and, in so doing, pay attention to detail.

The problem is that many of the tasks that need to be successfully completed to achieve this rely on staff and herein lies the cause of many problems.

Staff are human

Staff are human and if we, as managers, are not careful they take their eye off the job and standards slip. When we are talking about the production of healthy day-olds such slips in standards can have serious consequences.

Thus, much of the management of the production of healthy day-old chicks comes back to staff and the quality of the job they do and their attention to detail.

This opens up totally different discussions and puts an interesting dimension on to a variety of staff related issues. ■