Do we take biosecurity seriously?

If we look at the costs of disease, such as a Marek's disease outbreak in a broiler breeder flock that causes 20% cumulative mortality or Newcastle disease that causes a 50% egg drop, they can be very significant! However, should we look at this as a cost of disease or is it really the cost of our biosecurity system failing us?

The costs in these examples are high enough, but think of the costs to your company if highly pathogenic avian influenza strikes a farm or if Salmonella enteritidis percolates down your production system causing you to lose a major supermarket account!

Significant costs

The costs of biosecurity failures can be very significant and so it is well worth spending money, time and effort to ensure that your biosecurity system is as effective as it possibly can be. In this article we will consider how senior management should approach the issue of biosecurity.

First of all you need to define what you need to protect your flocks from. This is especially the case with salmonella where your position with regards to salmonella will be very much influenced by the requirements, or should I say the demands. of your customers. If they do not see salmonella as an issue then should it be an issue for you?

Biosecurity begins at the top so, if your board and directors are not 100% for biosecurity, do not be surprised if you see diseases.

Infectious negativity

If senior management are negative about biosecurity then this will be apparent, become infectious and ultimately affect everyone working in the business.

The board and the directors must define the company's position on biosecurity and then champion and promote that position.

In doing this they are also accepting the fact that there are some costs associated with biosecurity and, although the return on such spend is often hard to define in pure accountancy terms, they will accept this and make funds available.

Then the rest of the workforce needs to be motivated to 'think biosecurity' at all times. This will be achieved by their seniors championing the cause, educational material, such as leaflets and posters, being available and specific training inputs. Having decided that biosecurity is a priority the next step is to define the goals of biosecurity so that the workforce has targets to work towards.

These need to be realistic and tangible and ideally you should be able to define a current scenario and the scenario that you want to achieve in, say, two years time.

It is important not to give too long a time base to this deadline because if the deadline is too far in the future people do not take it seriously and do not get on with what needs to be done.

Even if your advisers say something is going to take five years, put in some intermediate targets so that people can focus on these and remain motivated by achieving them.

Impeding factors

When defining targets one must have a very clear picture of what the current situation is and the factors that could impede or totally prevent the achievement of goals.

For example, very old buildings might be impossible to totally clean or some farms in the company might be multi-age ones.

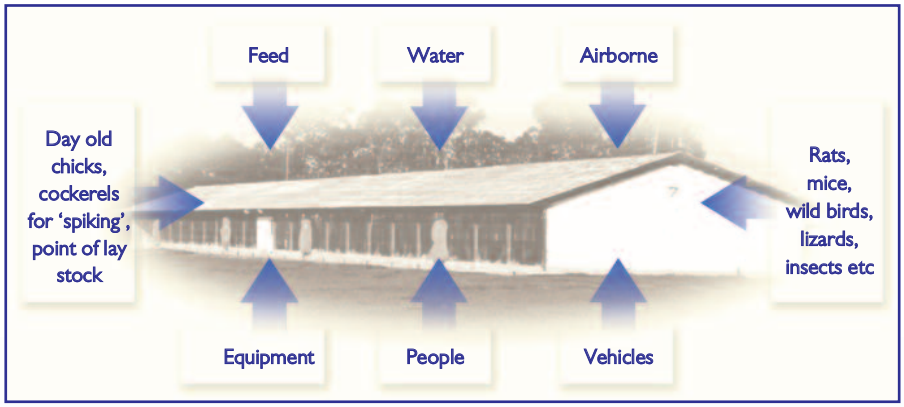

Fig. 1. Routes by which disease causing agents can enter the farm.

Factors such as these will result in modified goals or targets.

Then we need to define what we actually mean by 'biosecurity'. In pure terms biosecurity is what we do to keep disease out of the farm but other facets of farm management, such as hygiene, vaccination and preventive medication programmes, get caught up in a broader definition of biosecurity.

Define the scope

For this article let us consider biosecurity to be just keeping diseases, or more specifically disease causing agents such as viruses, bacteria and mycoplasma, out of the farm.

Ideally we should then define the scope of our biosecurity in terms of the disease causing agents that we want to keep out of the farm.

This is important because different agents can enter the farm by different routes and ultimately our biosecurity will be designed to block these routes of entry. Obviously by blocking a route of entry we are not just stopping the specific agent we have defined but we are blocking the entry of all agents that come in by that route. Typical routes of entry for disease causing agents are listed in Fig. 1.

When we know what we want to protect our farm from, our veterinary advisers can then advise us of the most likely routes by which they can enter the farm and we can then define our strategies for stopping such entries.

There is another approach and that is not to worry about the specific diseases but to just do everything possible to block all the routes by which an infectious agent can enter the farm.

It may be argued that this is a belt and braces approach, but the big thing in favour of such an approach is that it also protects you against a future new disease.

This is pertinent when you consider the number of new diseases that have come on to the scene over the last 20-30 years (Table 1).

When we look at how we are going to stop the entry of disease we can apply the HACCP approach of putting at least two controls in so that if one fails then the other should save the day.

A good example of this arises when we consider the water supply. The first thing we can do is to source our water from a relatively clean source such as the public supply or a bore hole rather than a dubious source such as a local river or lake. The second thing we can do is to chlorinate the water on farm.

Let us continue with this example to highlight how risks can and should be managed. In the case of water we need to know its status at its point of origin.

A good way of doing this is to quantify its load of Enterobacteriaeciae as this bacteria is a sensitive indicator of faecal contamination and many disease agents that can be in the water originate from faecal material.

Then we need to satisfy ourselves that the water can not be contaminated on its way to the farm. For example, is the water stored in storage tanks or header tanks that are without suitable covers?

- Salmonella enteritidis
- Hot Gumboro disease
- Highly pathogenic avian influenza
- Leucosis J type
- Avian pneumovirus
- Big liver spleen disease
- Ornithobacterium rhinotracheale
- Mycoplasma iowae
- EDS76

Table 1. Some of the new poultry disease agents of the last 20-30 years.

Finally, we need to evaluate the treatment process, such as chlorination, that the water is subjected to. Is enough chlorine being added? Is it being added to the correct volume of water? Is the chlorine doing the job

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we are expecting it to do? These are the type of questions that we should be seeking the right answers for.

It is all well and good doing these things but in this day and age we also need a system in place so that we can satisfy a third party that we have done what we said we would do and that what we did was appropriate to the situation. This brings us to the area that every farmer detests – paperwork and records.

Simple paperwork

At the end of the day we must keep paperwork simple and to the point so that staff will keep it up to date. Thus, as managers we need to analyse the situation to ensure that, although we are minimising paperwork, we are also recording everything that we need to.

If we are chlorinating water we need to know the volume of chlorine that was added and its batch number. We need to know the time at which it was added and who added it.

When it comes to checking the chlorine level our records need to show the day and time at which the test was done and who did it. In addition, we need to record the result. For all of these we must write something into a column – we must not just put a row of ticks on to the form or into the book!

But record keeping does not stop there. For something like chlorine level we also need to define an action level. This is the point at which the tester informs a senior manager or automatically initiates a predetermined corrective action if the chlorine drops below a predetermined level.

Remember a key part of any corrective action is a repeat test to confirm that the corrective action has had the desired effects.

The concept of confirming that what we are doing is achieving the desired effects is known as validation. This is increasing in importance in the food industry and so it will not be too long before we are being asked to adopt the concept into farm management and audits.

Validation essentially means that we have undertaken the work to show that a control measure that we actually have in place does work for us. To do this we need to evaluate the control process in a worse case scenario on the basis that if it works there it will work anywhere.

Worst case scenario

If we keep with our example of chlorination of water what is the worse case scenario?

Obviously volumes and measuring of volumes come into this scenario. We need to look at our situation and decide the worst case, for example, it might be under dosing with the chlorine by 20%. In which case we satisfy ourselves that chlorine administered at 80% of the recommended level will still do the job for us.

Another worst case scenario is one of a very high bacterial load plus organic debris in the water. So, in this instance we need to create this scenario in the laboratory and ensure that the chlorine still works.

In some parts of the world the chlorine might be stored at high temperatures, say 40°C. So we need to mimic this situation in the laboratory and confirm that the chlorine has not lost its effectiveness.

All of this is encompassed in validation and in the future you may well have to have documentation to prove that your key control processes in biosecurity have been validated. However, we can only validate something that has a measurable change, such as the elimination of bacteria by chlorination, the effectiveness of disinfectants in foot dips or vehicle washes, the fumigation of hatching eggs and the working of a UV light box.

In conclusion, biosecurity at breeder and hatchery level is protecting our livelihoods and the whole future of the business, so we can not afford to get it wrong.

Biosecurity is becoming more scientific and in the future various facets of it will be measured. Thus, validation is coming to the fore and this is a concept that we all need to take on board and develop in a farm and hatchery context. ■