

# Hatching egg quality – the hatchery manager’s nightmare

by Steve Tweed, hatchery specialist, Cobb world technical support team.

One of the biggest problems for a hatchery is receiving contaminated eggs which will eventually infect the day-old chick and affect performance as a broiler or breeder.

The hatchery may receive what appears to be a clean shell surface egg, free from faecal material – but what has happened to that egg as soon as it’s been laid in the nest box on the breeder farm?

On many occasions I have carried out a hatchery embryonic breakout survey only to find that the eggs are very heavily contaminated. Checking the hatchery quality assurance program, the disinfectant procedures and application of chemical products appears not to be at fault.

Whenever there is an issue with chick quality with higher than normal seven-day mortality, it is the hatchery that gets the brunt of customer complaints – never the source of infection which in some cases is the breeder flock farm. The obvious place to evaluate the procedures is the breeder flock farm for hatching egg collection, sanitation and storage facilities. Egg transportation from the farm to the hatchery can also be a major issue.

Today with increased labour costs many breeder flock farms are changing from indi-



**Manual nest box egg collection.**

vidual hand collection to automatic systems, either individual nests or communal nests which are widely used with eggs rolling on to a conveyor belt and going to one central point for grading and packing.

Personally I have no problems with this method of nest boxes, but the system must be managed, serviced and maintained by the breeder flock personnel.

On a recent hatchery audit the hatching eggs were contaminated. I requested to visit their breeder farms, only to be confronted with a badly managed system:

- Eggs were lodged on the plastic matting and had not rolled down on to the conveyor as the belt was positioned higher than the matting. How long had the eggs been in this position – one day, seven days or 10 days? Who knows?
- The nest box matting had become encrusted with faeces and no attempt made to remove the mats to be cleaned.
- I found holes in the plastic matting where eggs had been laid and just lodged on the damaged mat. The question again, for how long had the eggs been in this position?
- The automatic frame which removes and prevents broody birds from entering the nest box at the end of the day was not working. This allowed birds to remain in the nest box overnight, contaminating the floor matting.
- The dust trays beneath the nest boxes were so full of debris that this was covering the whole plastic matting. Just as if the eggs were being laid on floor litter.
- The conveyor belt system was dirty, dusty and contaminated with broken egg yolk.
- Egg collection was only once a day.
- Too many eggs were broken and soiled in the nest box with egg yolk.
- One farm manager mentioned that he had not thought to look underneath the plastic flaps inside the nest box at the condition of the matting.
- Some poultry farmers, especially in

**Typical automatic nest box system.**





**Eggs unable to roll on to the conveyor belt and a faecally contaminated nest box mat.**



mainland Europe, look upon flock farming as additional income to their main occupation with not enough attention to detail in egg collection, handling and storage.

With breeder sheds using a chain conveyor system for moving eggs from one shed to another and finally into the egg grading and packing room, the eggs had bounced around so much that up to 20% had micro or hair cracks on the shell surface. This is an ideal source for egg contamination, especially aspergillus infections.

What amazes me is that a large majority of flock farm managers and their staff had never visited their supply hatchery, either to watch their eggs being transferred from the setter tray to the hatcher basket or observe the source flock being pulled, processed and prepared for dispatch to the customer.

When it comes to explaining what is a typical contaminated egg, most hatching egg breeder flock personnel have no idea. The most common contaminated eggs are a bacterial substance oozing through the pores of the shell.

Once disturbed by the setter turning mechanism they generally explode distributing bacteria debris over clean eggs.

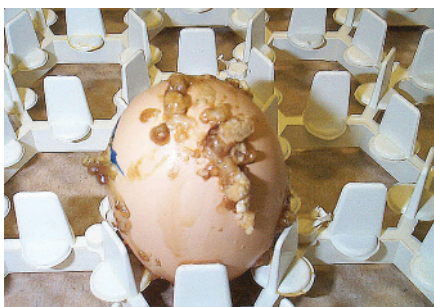
In some cases there is no indication that the egg is contaminated until it literally explodes, spreading the bacterial debris over clean and newly hatched chicks.

Once the eggs are ready to be transferred from the setter to the hatchery basket, this is probably the area where the eggs will explode the most.

Over the years and on many occasions where there have been problems with contaminated eggs, this was generally during early autumn and winter months.

Then eggs would be laid in conventional

### **Contaminated egg ready to explode in the incubator.**



nest boxes and transported from each breeder shed on trolleys open to the elements with cold winds cooling the eggs too quickly to a central egg store. I would contact the breeder flock farmer to explain the issues and generally they would try to rectify the problem.

When the flock farmer did not take seriously enough a problem with the hatching eggs, I would invite them to the hatchery and ask them to watch their eggs being transferred from the setter tray to the hatcher basket. I would ask them to stand as closely as possible to the transfer table or turning mechanism.

All too often the hatchery personnel get covered in the smelly bacterial substance when the eggs explode and continually need to change clothing. Once the substance gets on to the hands or other areas of the skin, the smell is difficult to disperse.

By getting the flock farmer to stand and watch their eggs being transferred and then getting covered in a bacterial soup, they will soon realise they need to get back to basics and manage their egg collections systems correctly. The old conventional eggs nest box systems were good as the farm personnel would be able to visually see the condition of the nest box and litter. If there was faecal soiling, this would be removed and fresh litter added.

## **Conclusions and solutions**

### **Automatic nest boxes:**

- The internal compartments of automatic egg nest boxes system should be checked daily.
- There should be a supply of spare matting used to replace badly soiled areas. The soiled matting should be removed, cleaned, disinfected and dried ready for use again.
- Any anti brooding systems should be checked to ensure they are working correctly.
- Check daily that any eggs are rolling away correctly on to the conveyor belt system.
- If eggs are going to be sanitised, the process should be carried out as soon as the egg has been laid and when still warm. Once the egg cools down any bacteria on the shell surface is absorbed. No matter how many times fumigation takes place, once the egg gets contaminated it is too late.

- The nest box conveyor belt system should be kept clean, tidy and free from dust.

- Chain conveyor belts should be monitored to check if the system is causing cracked eggs.

- Collect the eggs as many times as possible, especially in hot climates.

### **Manual nest boxes:**

- The nest box litter should be replaced when soiled with faecal material or broken eggs.

- Floor eggs should not be placed in the nest box. A clean floor egg is a contaminated egg and should be classed as a floor egg.

Ideally floor or dirty eggs should not be used for hatching. If it is a company policy to use clean floor eggs, these eggs should be marked and identified so the hatchery personnel can manage them through the incubation process. In this case suspect hatching eggs would be placed on the bottom of the setter trolley so if they explode they will not contaminate clean eggs. In some cases dedicated setters are received for floor eggs. If eggs are moved around the farm to the central egg store, the trolley should be protected from the prevailing winds and sunlight.

There are other factors, too, which cause contaminated eggs such as egg shell quality, incorrect storage temperatures, sweating, incorrect sanitation and wet sanitation where the disinfection becomes a bacterial soup. The cooperation of the breeder farms to produce good, clean, freshly laid hatching eggs will enable the hatchery to supply first quality chicks to the customer with very low seven day mortality and good broiler/breeder performance. ■

### **Clean egg just laid but contaminated by floor litter.**

