HATCHERY/BREEDER TIP...

IMPORTANCE OF BREEDER HOUSE MANAGEMENT PRACTICES

Concerns about the microbiological quality of food products are becoming more and more important in all areas of animal production. The production of hatching eggs by broiler breeders is no exception. Young animals in any animal production system are generally more susceptible to infection. When handling breeder chicks, the stress of hatching, sexing, sorting, dubbing, trimming, vaccinating or any other practice at the hatchery enhances the potential for infection. Most of the time these practices are necessary prior to shipment, which is also stressful to the chicks. Subsequently, stress can hinder the effectiveness of the immune system rendering an animal more susceptible to infection.

It is typical in the commercial industry for a large number of breeders to be raised in a relatively small area. This enhances the potential for the spread of bacterial contamination throughout the flock. The susceptibility of the birds can be magnified when poor management of the ventilation and watering systems lead to wet litter conditions. Wet, moist litter provides optimum conditions for bacterial growth which leads to poor bird health and poor production. In breeder houses, these wet spots are sometimes common under waterers and under the slat areas. Although birds do not have direct access to the wet litter under slats, insects or rodents do and can spread the bacteria from those areas to the rest of the house. In the US, birds are traditionally raised in houses with dirt floors as their base, and as a rule, dirt cannot be sanitized. The combination of these factors provides many opportunities for contamination and poor bird performance.

Other factors which can provide opportunities for the spread and growth of harmful organisms are related to the housing conditions in which broiler breeders are raised. Moisture is often added to the environment to cool the birds. While this is necessary, excess moisture can enhance the potential for pathogen growth. The fans and shutters used with the cooling and ventilation systems are often difficult to clean, sometimes neglected, and not thoroughly cleaned nor disinfected between flocks. Many producers are still using bell-type drinkers which, if not cleaned often and properly, can hold contaminated water which can then be easily spread throughout the house as it is consumed. In the breeder house, slatted floors, nest boxes, nest pads and egg collection belts all provide areas for contamination to occur as they create many 'hidden areas'. However, the use of these systems reduces the contact of both birds and hatching eggs with fecal material.

The end product of a breeder grower is to produce clean, hatchable eggs that can be delivered to the hatchery. The biology of the hatching eggs is such that essentially all the nutrients to support embryonic growth during incubation are present in the egg at the time of lay. The problem lies in that this 'ideal environment' for embryonic growth is also ideal to support bacterial growth within the egg if contamination occurs. If eggs leave the breeder farm contaminated, that contamination can then be spread throughout the hatchery in the setters and hatchers to produce poor quality chicks.

Many of these factors which encourage the spread of bacterial contaminants in the poultry industry provide challenges for producers. The breeder house

The breeder flock is just one step in the entire production system, but a critical step in that it amplifies the number of birds which 'go through the system'. For example, one house of 8,000 to 9,000 broiler breeder hens could produce approximately 1.4 to 1.5 million hatching eggs. Of these eggs about 1.25 million broiler chicks could be produced during the life of the flock. Given that most contract farms will consist of two to four breeder houses, between 2.5 and five million broiler chicks may be affected by the management on one breeder farm. This does not account for mixing of the eggs and potential cross contamination once the eggs arrive at the hatchery and are placed in setters and hatchers.
If a breeder flock is neglected and contamination occurs, bacteria are spread from bird to bird within a flock and may be deposited on the egg. This bacteria can then be taken to the hatchery, spread to other eggs, and transmitted to the newly hatched chicks. The amplification factor and the affect upon other flocks can be tremendous. One potential solution to the production of clean hatching eggs is the use of mechanical sanitation of eggs before they leave the breeder farm. It is quite likely that this method of cleaning hatching eggs will become commonplace in breeder houses in the future. Tests have shown that 99.9% clean eggs can be delivered to the hatchery when eggs are properly sanitized.

In order for any microbiological control program to be effective, the daily activities must be customized to fit that producer's daily management program. All parties involved in any way with the production and handling of the birds and the hatching eggs produced must be educated and must comply with the daily routine.

**On-farm management practices**

There are several key points that must be considered when preparing a plan to control bacterial contaminants in hatching eggs.

1) Obtain clean parent stock as chicks and keep them clean. Obtain a guarantee on the health of the chicks delivered. Most primary breeders will provide this. If one is not provided, request one from the supplier. Chick box liners should also be tested upon arrival. In addition to the chicks selected by the breeder for testing, randomly select and submit to a lab a few additional chicks. The importance of starting off with clean, healthy chicks cannot be overemphasized. Improved conditions from this point on will more effectively produce top quality chicks from day one.

2) Develop and strictly implement a strict biosecurity program. This is critical to the success of a breeder program. Implementation and follow-through is much more important than the actual development of a program. Most companies have biosecurity programs in place; they just need to be followed religiously.

3) Monitor feed, feed ingredients, and feeding equipment regularly. Feed can be a source of contamination of an otherwise clean flock and should be addressed. Feed spills will contribute to other problems with insects and vermin and should be corrected and cleaned up immediately. Feed spills from the hen feeders that fill up areas under the slats present problems with pests and eventually cause disease or health problems.

4) Provide clean shavings, litter and slats. These are especially important if floor and slat eggs are a problem. However, even without a floor egg problem, an otherwise clean hen 'dusting' in wet, filthy litter, then sitting in a 'clean' nest or on a 'clean' nest pad to lay an egg does not contribute to the production of clean hatching eggs.

5) Provide clean nest boxes, nest pads and egg belts. These should be offered at the onset of production, but these efforts can be quickly wasted early in production if litter conditions are not monitored. Cleaning and disinfecting egg collection belts often is important in controlling the spread of contamination in hatching eggs. This is particularly true if rodents are a problem as they will use the belts as 'runways' and 'hideouts' during the evening hours. The buildup of fecal material will also greatly contribute to contamination of eggs during egg gathering and between times when eggs may sit on the belts for extended periods of time. With conventional nests, always provide ample fresh, clean nesting material.

6) Monitor water quality and watering equipment. Contaminated water can both reduce the performance of the birds and create a source for the entrance of bacterial contaminants into the breeder house. It is important to sample both the wells and water from the lines to ensure the cleanliness of the drinking water. Knowing the water is contaminated is only half the battle; knowing the source of the contamination is also necessary.

7) Educate all employees and any others involved in any way with the production and handling of hatching eggs. Factors such as washing hands between mortality pick-up and egg handling should not be overlooked. If everyone is not familiar with the protocol and the importance of providing clean hatching eggs, a program will not run as designed.

**Summary**

Overall health of the birds is transmitted to the bottom line income. If management practices are slack and corners are cut to try and 'get by' with breeders, the negative effects may not be realized immediately but will become more evident as the birds age. This situation is more severe with breeders than broilers because of the length of time the breeders are on the farm. An unhealthy, and overly stressed bird will not produce to its genetic potential. The genetics of the breeders today are better than they have ever been, but the potential will never be obtained if on-farm management practices are not strictly adhered to day in and day out.

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“Your local County Extension Agent is a source of more information on this subject.”