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Special Biosecurity Ed. April 2015

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SPECIAL BIOSECURITY EDITION

MEETINGS & EVENTS:

Iowa Turkey Federation Summer Meeting
June 9-11, 2015

MTGA Summer Conference
June 17-19, 2015
Chase on the Lake Resort | Walker, MN

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During these trying times we've got your back

Robert L. Owen, V.M.D., Ph.D., DACPV

Everyday new reports come out from USDA about another flock in the upper Midwest going down with High Path Avian Influenza (HPAI). Protecting your biosecurity is always important to the staff at BVS but even more so during these trying times. We understand that we all must continue to conduct our businesses and supplying our customers the products that they need is important but it must be done with zero risk of breaching our customer's biosecurity.

To this end all of the members of the BVS sales and delivery teams have been encouraged to proactively and openly discuss the biosecurity plans and needs of each and every one of our customers. They have been encouraged to develop central delivery locations and if supplies have to be delivered to multiple areas that the delivery route be prioritized from low risk to high risk areas. We would prefer to limit on farm deliveries but if these are necessary we will look for guidance from the appropriate live production managers.

In addition to communicating with our customers, we have implemented the following biosecurity programs for our people, trucks, and warehouses.

continued on page 3

Biosecurity Update

Dr. Dale Lauer, Minnesota Board of Animal Health
Minnesota Poultry Diagnostic Lab
www.mn.gov/bah

BIOSECURITY – now is the time for you and your employees to implement your critical level biosecurity programs. Some important biosecurity practices to consider as part of your programs are:

1. Poultry should be kept away from areas in which they'd have access to or potentially share an environment with wild birds, especially waterfowl or shorebirds. Ideally they should be housed indoors.

2. Barn doors need to be closed at all times.

    a. Consider delaying total cleans of finishing farms during our high risk time period (now-May 15 or ice out). This is to protect you from accidentally dragging something onto your farm/into your barns as well as avoiding damaging thawing driveways which can create watering holes for migrating birds.

    b. Equipment (tillers, mortality carts, etc.) need to be inside barns now and not moved outside until May 15 or until ice out. Avoid moving equipment between barns as tires can't be cleaned well, especially when it's muddy outside.

3. Nothing can enter the barn unless it's been properly cleaned and disinfected. Equipment (spare parts, loading panels, etc.) need to be stored inside so that wild birds can't get to it. Trucks (poult trucks, shavings trucks, etc.) are not to driven into the barn.

4. Use barn specific coveralls and boots. These should be kept in the barn's entryway and changed into prior to entering the flock. Coveralls and boots should be removed and left in the entry. Do not wear them outside.

5. Eliminate standing water to prevent wild waterfowl from gathering on the farm property.

6. Address feed spills immediately to avoid attracting wild birds.

7. Eliminate unnecessary farm visits from anyone not essential.

For the most updated information on highly-pathogenic avian influenza (HPAI) response in Minnesota, please visit www.mnairesponse.info. There you will also find links to additional biosecurity information and USDA updates on HPAI in the U.S.

We've got your back, *continued from cover*

People:

1. No BVS employee is allowed to own or have contact with backyard poultry.

2. While it is not reasonable to prohibit risky outside activities such as waterfowl hunting, employees are required to discuss such activities with their supervisors to develop a suitable zero risk biosecurity plan.

3. All employees will be provided with suitable biosecurity clothing including boots, coveralls, head covering and gloves and encourage to use them if there is any question about the presence of a disease threat.

4. Delivery drivers are not permitted to enter any customer's poultry barns.

Trucks:

1. All trucks will be washed and disinfected inside and out with Virocid® daily. Virocid® is labeled for effectiveness against avian, swine and human influenza viruses

2. Trucks are equipped with portable foamers for disinfection of tires, footwear, and floor boards between deliveries.

3. Trucks are stocked with disposable coveralls and boots for drivers to use if the potential for disease challenge exists.

4. Trucks are stocked with shoe covers which drivers will don when exiting the truck and remove as they get back in the truck.

Warehouses:

We understand that it is necessary for customers to visit our warehouses to pick up supplies and drop off samples, but this represents an important cross over point and maintaining proper biosecurity is of paramount importance. For this reason we have adopted the following policies for our warehouses:

1. Each warehouse will establish a clearly marked pickup area. The area will be stocked with foot pans, boot brushes, boot spray disinfectant stations and shoe covers. It is important that customers disinfect their footwear upon arrival and departure from the area.

2. Customers visiting warehouses from high risk areas are asked to call ahead and upon arrival and we will load their order without them ever having to leave their vehicles.

3. Pickup areas will be foamed and disinfected frequently throughout the day.

Biosecurity is a shared responsibility. We believe that our biosecurity program sets the gold standard for the rest of industry. In addition, the range of biosecurity products that we offer to our customers for their programs is unmatched in the industry. If there are products that we don't offer that you feel are important in the success of your programs please let us know and we will be happy to try and fulfill your needs. More importantly if you believe that there is anything that we can do to improve our biosecurity programs please don't hesitate to let us know. The experts are telling us that HPAI may be with us for a long time so now is the time to buckle down and get it right.

Sincerely,

Robert L. Owen, V.M.D., Ph.D.
Director of Technical Services

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Who's Getting into Your Barn?

Tips for controlling barn access

By Chanelle Taylor[1], Dr. Michele Guerin[1], Dr. Gregory Bedecarrats[1], Sarah Thompson[2] and Dayna Sills[2]

[1] *UNIVERSITY OF GUELPH*
[2] *POULTRY INDUSTRY COUNCIL*

Keeping barns safe and secure is one of the best things you can do to keep the health and welfare of your birds in check. Once poultry facilities are contaminated by pathogens, such as bacteria and viruses, it can be extremely difficult and costly to correct. Therefore, it is imperative to **stop micro-organisms from entering the barn** in the first place.

"We want to make sure to keep whatever bacteria and viruses that are inside the barn area inside and anything that is outside, keep it outside," says Dr. Mike Petrik.

According to experts, the most effective ways to control access to your barn are to:

- **set up protective zones around the barn**
- clearly **identify** where those zones are **by using signs and/or barriers**
- **set up an enclosed area (or anteroom)** that:
  - 3 **can be kept clean**
  - 3 **serves as a buffer** zone between the exterior and interior of the barn
  - 3 **prevents the entry of unauthorized people and animals**

Biosecurity Matters

Farmers should also set up a protective zone around the barn with clearly identified access points.[1] This **"Restricted Access Zone" (RAZ)**, should be a highly restricted area that is tightly controlled. The RAZ should be within a "Controlled Access Zone" (CAZ), which encompasses the entire property where poultry are housed.[1]

Give employees, service personnel, and visitors clear directions about where to go and what to do when entering the CAZ and RAZ.[1]

The RAZ should also have **visual and physical barriers** (e.g., signs, doors, locks, etc.) to prevent easy entrance. It should be obvious to anyone entering the RAZ that these barriers surround areas where tightly controlled biosecurity protocols are in place and that they need to proceed with caution and look for instructions on how to enter appropriately.

"The farmer is the most common person to cross this barrier," says Dr. Mike Petrik, so it is critical that the farmer follows – and enforces – these protocols.

Instructions can be **posted in the anteroom** with readily **available booth and clothing**, as well as **hand washing stations** to maintain proper biosecurity. This anteroom will also prevent wild and domestic animals from entering the barn.[1]

Keeping it Consistent

Everyone who enters the barn (including family members, permanent or temporary employees, service personnel and visitors) must understand the importance of these barriers. Helping them understand why these are important, will help increase compliance and reduce the "overlooking" of procedures.[1]

Farmers should also strive to maintain a **logbook** inside the anteroom to monitor who is entering the barn, when they enter, and where they came from. This is crucial for tracking diseases in case of an outbreak.[1]

"**Many pathogens are brought into the barn on clothing, footwear, dirty equipment, and hands**," says Dr. Lloyd Weber. "Stations that contain barn-specific clothing where anyone entering the barn can change out of their street clothes into clothing that is only worn in the barn – to prevent the introduction of outside pathogens – should be set up and maintained."

Lastly, separate barn-specific footwear and clothing (including a hat) and effective hand sanitation reduce the possibility of carrying bacteria that can be harmful to humans, such as *Salmonella*, into the farmhouse. Barn-specific clothing and equipment (e.g., shovels, tools, writing materials, buckets) will also prevent pathogens from spreading from your barn to neighboring poultry farms[2], which will thereby reduce the risk of disease transmission and outbreaks on other farms.[3]

If you keep your procedures and instructions quick and easy, employees and visitors will do it, says Sandy Brock, a broiler hatching egg producer.

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3. Practical Biosecurity Video, Poultry Industry Council, http://www.youtube.com/watch?v=E6nKrr949CY.

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Shoe Cover 6 mil Blue

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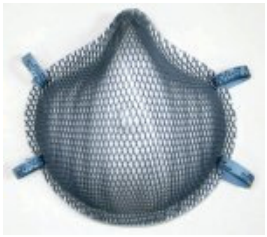

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Keeping the hatchery clean and disinfected

By Colin Russell, Consultant Microbiologist, Aviagen, UK

A hatchery is the very earliest stage in chickens' lives. Each type of contamination in this environment is a true threat to their health status. Hence, proper hygiene, disinfection and permanent monitoring in the hatchery are of paramount importance for an upcoming healthy flock.

While hatcheries have been in use within the poultry industry for many years, growing in size and complexity, many of the issues relating to hatchery hygiene have not changed. Our greater understanding of cause and effect and our ability to identify monitor and control disease causing agents has given us more robust methods to protect our chicks from infection but at the same time more challenges to overcome. Periodically even the best hatcheries will suffer from depressed hatch, higher first week mortality and a general reduction in chick quality. It is often attributed to *'E coli'*, 'Pseudomonas' or another microorganism used as a generic term for the condition. Post mortems of first week mortalities or culls often result in isolation of the above species and others from conditions such as omphalitis/yolk sac infection and inflamed/infected hock joints.

The first environment in a chicks life

If we consider the conditions we use in a laboratory to isolate these organisms and scale these up we have the same conditions as hatchers and setters provide, so perhaps the isolation of these organisms should not be a surprise. The real question should be, how do we prevent contamination of the hatchery initially, and how can we achieve microbiological control and prevent infection of the day old chick. Some of these microorganisms are of course true poultry pathogens: Aspergillus fumigatus, for instance, which will cause extensive lung infection and associated poor growth rate and high mortality in the day old chicks. Others, such as *E coli*, can act as a true pathogen but generally act as an opportunist pathogen. These organisms may infect the chick because they are present and are able to do so, not because they are obligate pathogens and need to colonise the chick to survive.

Hygiene programs

The growth of microorganisms can be represented graphically (*Figure 1*). This shows that bacteria in particular can multiply quickly with short generation times which, if unlimited, can result in one bacterium becoming over two million within seven hours. Obviously this growth rate does not normally occur outside the laboratory as growth conditions and nutrients are limiting, but a dirty hatchery following a hatch gives a good habitat for bacterial growth with adequate levels of moisture and nutrients in the form of chick fluff, egg debris, and other organic material. If left uncleaned, these areas provide a source for further colonisation of hatchery air, water and drainage systems. For this reason hatcheries should be cleaned immediately after the hatch day using a proven hygiene programme which is monitored to prove efficacy. It is important that the hygiene programme is tailoured to the structure of the hatchery. A modern hatchery, constructed from composite panels, can withstand a much more aggressive hygiene programme with much more effective and aggressive chemicals, than an old hatchery constructed of wood and fibreboard. Electrical installations should also be considered as some caustic cleaners can make conduits, cables and switches brittle over time.

Figure 1 - The bacterial growth curve.

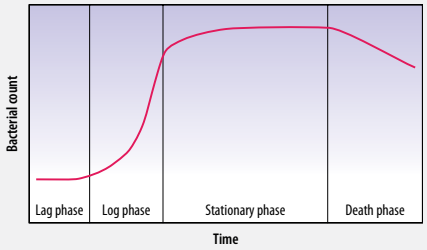

Figure 2 - Differences between results before and after cleaning.

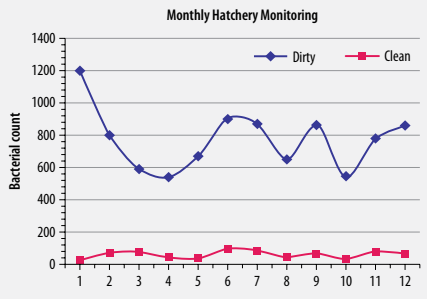

Table 1 - An example of a basic hatchery monitoring programme.

Area	Sample types	Rational
Surface counts – walls and equipment	Swabs – both before and after cleaning	Hygiene programme efficacy – establish levels of contamination at the end of a hatch day for comparison to post cleaning results (Figure 2)
Drains	Swab	Specific analysis of particular challenges e.g. Salmonella
Air counts	Settle plates or air samplers	Monitor – Bacteria – Moulds e.g. Aspergillus species – Measure of filtration efficiency
Incoming water Recycled water Machine water	Water samples	Prevention of pathogen distribution Water treatment efficiency Monitoring of risk points

Effectiveness of disinfectant

Similarly, the hatchery equipment should be regarded as a factor when selecting cleaning chemicals, as stainless steel gives much more chemical option than aluminum (no chlorine!) where chemical-induced corrosion can be rapid and severe. Once suitable chemicals have been selected for the hatchery structure, consideration should be also be given to the compartability of the chemicals; for example, the detergent should be compatible with

the disinfectant, as there is the risk that an incompatible chemical nature of the detergent can 'knock out' the effectiveness of the disinfectant. In general, most hatcheries benefit from a three stage hygiene programme: Wash down, detergent application and sanitizer application. This can be detailed as follows:

- Wash down (remove organic debris)
- Detergent application (emulsify the remaining organic debris making it more readily removed)
- Rinse (remove any remaining debris)
- Let dry
- Disinfect surfaces
- Aerial disinfection

Where there are specific problems in the hatchery, for example insect infestation, then an insecticide should be chosen which will be compatible with the general hygiene chemicals.

Clean water essential

Additionaly, consideration should be given to water treatment coming into the hatchery which can introduce contamination to machines, in particular through the humidity systems. Some methods employed for this task are as follows:

- UV treatment
- Chlorination
- Chlorine Dioxide generator

Again, thought should be given to a combination of efficiency and corrosive effects of these methods dependant on hatchery structure and compatibility to the chemicals used in the hygiene programme.

There is a school of thought that there should be a shuttle program for disinfectants, where two different chemical types are rotated alternately over a period of time to prevent bacterial resistance building up within the hatchery environment. While this strategy was applicable previously, we now have complex sanitizers on the market which have up to four different chemical classes combined in the preparation to produce a broad spectrum of biocidal activity. So far resistance to these types of sanitizers have not been reported.

Bacterial resistance

Environmental monitoring of the hatchery should be used as a sole indicator of bacterial resistance, and any changes made based on the results generated and compared against a known monitoring standarad with acceptable limits. Many microbiological contamination problems are often assumed to be due to bacterial resistance to the chemicals employed in the hatchery, but these chemicals are only as good as the method and consistency of application. For instance, the application of a foam cleaner allows the operator to confirm that they have applied an even coverage over all areas; however the consistency of the foam is as important as the coverage. Foam should be thick with the consistency of shaving foam and have the ability to adhere to vertical surfaces for at least 20 minutes (*see photos 1 and 2 below*).

The equipment used to produce the foam is key to the consistency; where inadequate foam is produced it can be enhanced by addition of a foam thickener or the introduction of additional air pressure to the foaming system.

The use of recycled water in the cleaning procedure should be avoided and, where this is designed into a cleaning system - for example some tray and basket washers systems, then water treatment such as chlorination should be employed as the water is recycled. Monitoring and control of chlorination levels is important from a potential corrosion and health and safety point of view.

Hygiene monitoring programs

In order to establish the effectiveness of the hatchery hygiene programme and address potential contamination problems before they result in chick quality problems, a comprehensive monitoring programme and analysis of results is required. The monitoring results should be assessed for absolute microbial loading trends over time, including an analysis of seasonal fluctuations. Internal air samples should be compared to external air samples which are likely to enter the hatchery. This comparison also gives an indication of the current efficiency of hatchery air filtration where fitted.

Photo 1 - *Foam overly watery with inadequate aeration resulting in inadequate adhesion and contact time.*

Photo 2 - *Foam with the correct levels of water and aeration, producing thick foam with a good adhesion and good contact time.*

All debris must be removed adequately, for which high pressure cleaning is a useful method.

Microbiological monitoring results

The results generated from a monitoring programme allow analysis of the hatchery hygiene programme and its ability to control potential pathogen introduction, and to minimise contamination from specific high risk points in the production system. The programme should highlight seasonal trends such as aerial fungi especially in hatcheries located in rural areas where a seasonal peak of aerial fungal spores can cause sudden and significant health problems in the day old chick.

While the access to laboratory facilities is advantageous, the hatchery can implement its own monitoring programme where a laboratory is not available by the use of rapid diagnostics, such as ATP measurement (equivalent to aerobic bacterial counts) and rapid culture techniques such as Petrie film. ATP in particular can be employed after cleaning to ensure prescribed standards are being met in real time and remedial action taken prior to the next hatch.

From the knowledge gained through the operation of monitoring programmes, changes in the hygiene programme in the form of chemical types or application methods can be implemented to ensure chicks hatch into a high hygiene environment which is pathogen free.

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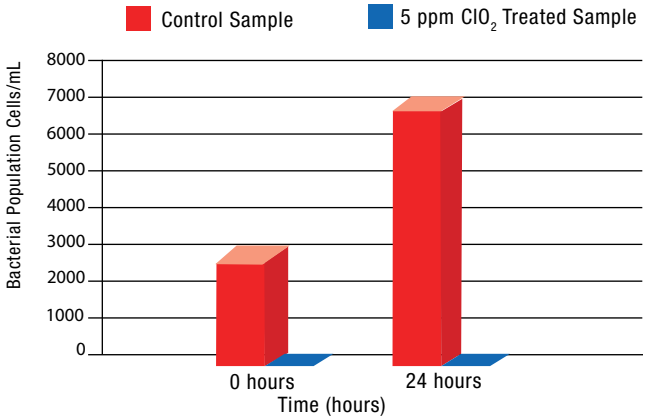
Efficacy of ProOxine® against Biofilm

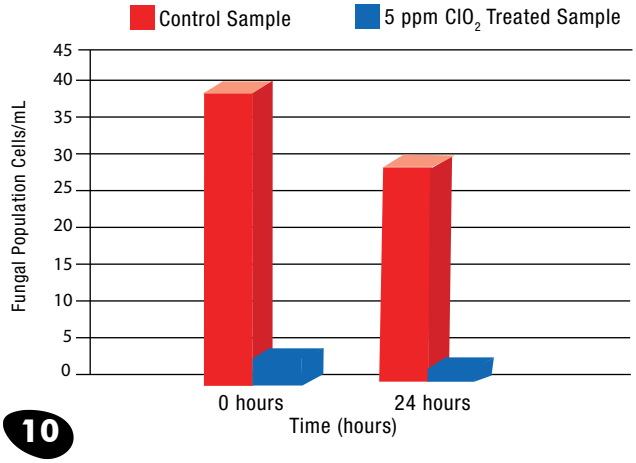
CONTROL EFFECT OF 5 ppm ClO_2 AGAINST BIOFILM BACTERIA

On Bacteria	Control Sample	5 ppm ClO_2 Treated Sample
0 Hour	3000	30
24 Hours	7000	2



CONTROL EFFECT OF 5 ppm ClO_2 AGAINST BIOFILM FUNGI

On Fungi	Control Sample	5 ppm ClO_2 Treated Sample
0 Hour	40	4
24 Hours	30	2



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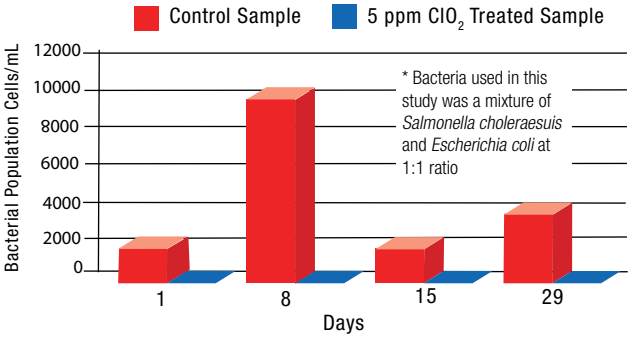
15 Days	2000	2
29 Days	4000	2



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