

Hatchery Ventilation Sanitation
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IVESCO LLC

The Leader in Animal Health Solutions

Different Challenges

- New genetics bring new challenges for older or poorly designed facilities
- Employees have to be constantly checked behind.
 - It' difficult work and not very pleasant.
 - They don't understand the importance of cleaning or sometimes don't care.
 - Understaffing and turnover in sanitation.
 - No defined schedules or programs.




Three Environments to Consider for Designing a Sanitation Program

- 1) Machines and Equipment
Incubators, Hatchers, Processing
- 2) Rooms and Hallways
- 3) Ventilation Equipment
 - Evaporative Coolers
 - Heater Units
 - HVAC
 - Fans and Louvers




What is the Problem?

- Building design often an stumbling block to success
- The Job is Difficult and Unpleasant for employees
 - Areas difficult to reach and clean. Takes elbow grease.
 - Out of sight and out of mind
- Defined cleaning schedules are rarely in place
- Different materials in ventilation systems

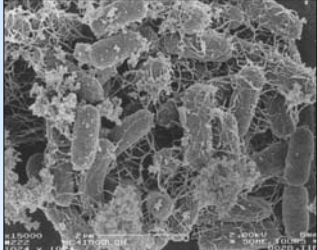



Two Common Enemies We Fight

- Biofilms or Bioslim – Make it extremely hard to fight bacteria.
- Aspergillus – Constant battle throughout the year if not cleaned properly.

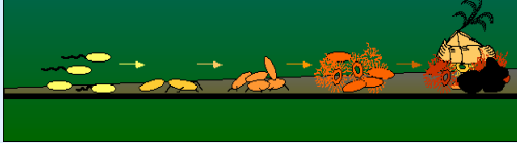


Enemy Number 1 – Biofilms/Bioslim

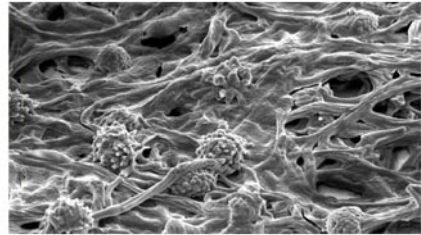



How do Biofilms form?

REVERSIBLE ADSORPTION OF BACTERIA (sec.)	IRREVERSIBLE ATTACHMENT OF BACTERIA (sec.-min.)	GROWTH & DIVISION OF BACTERIA (hrs.-days)	EXTRAPOLYMER PRODUCTION & BIOFILM FORMATION (hrs.-days)	ATTACHMENT OF OTHER ORGANISMS TO BIOFILM (days-months)
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They don't have to be just Bacterial



Aspergillus biofilm. A mixed biofilm found in airplanes. These fungal biofilms form on industrial surfaces as well as cause fatal pneumonia in humans and animals.

Scale & Mineral Deposits

MAGNIFIED BIOFILM ALKALINE IN NATURE



Controlling Scale and Biofilms

- Incorporate acidic (low pH) products for your regular alkaline hatchery cleaner at least 1 week every 6-8 weeks. Newer neutral cleaners are a better choice.
- An alternating pH program deprives organisms of optimum growth pH. It is like "Shocking the Swimming Pool"



Enemy Number 2

Aspergillus

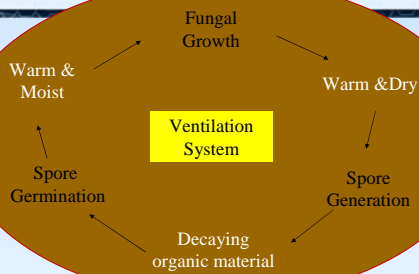


Aspergillus is most prevalent Pathogen in Ventilation System

- Present everywhere in nature
- Organism of decaying organic material
 - Reason for keeping ventilation system free of chick down and debris
- Grows between 53-134 degrees Fahrenheit. Optimum temperature is 98-109 degrees. Hatchery is a very good facility!
- Cycles of wet and dry optimize growth and dispersion in the hatchery



The Aspergillus Cycle



Sources of Aspergillus

- Incoming Egg Pack
 - Egg pack evaluations
 - Floor eggs
 - Breeder house conditions
 - Egg Coolers on breeder farms
- Immediate environment outside of hatchery
 - Feed mills
 - Grain fields
 - Hardwood forests, especially in the fall

Once Introduced into Ventilation

- Serves as source for rapid reproduction inside hatchery. It's important to check the following:
 - Air filtration for recirculating systems
 - Evaporative cooling systems
 - Ductwork
 - Insulation
 - Pre-filter for incoming fresh air
 - Air pressures to avoid dirty to clean recontamination

What is Our Objective?

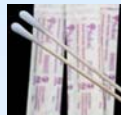
- 1) Continually Break Cycles of Contamination.
- 2) Maintain the Lowest Level of Microbial and Fungal Contamination at all times.
- 3) Minimize the levels of recontamination.

SOP's for Ventilation Systems

- 1) Pay detailed attention to all aspects of ventilation systems. Evap coolers, duct work, filters, etc. Remove the damp, gross soils by scraping or sweeping.
- 2) Wash down using high pressure if possible. May need to modify ductwork to allow cleaning so water doesn't lay inside.
- 3) Apply a compatible foamer, Neutral cleaner if possible (remember pH rotation). Allow to soak for 10-15 minutes to loosen soils and pressure wash or scrub with a brush.

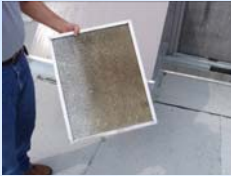
SOP's for Ventilation Systems

- 4) Don't forget the top of hatcher, plenums or plenum hallways.
- 5) Routine inspections of these areas along with Microbial plating and swabbing are important. Remember that just because an area looks clean, doesn't mean it is clean.

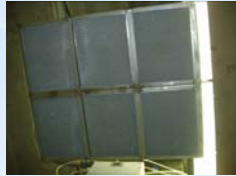


Filtration - Prevention

Avoid Metal grill type filters internally. They are nearly impossible to clean and disinfect



Outside HVAC Unit



Inside Filtration



www.ivisco.com

Use Disposable Filters

➤ Polyester type pad medias are efficient and inexpensive to use with little modification



Make Sure Ends are Sealed

Air Will Take the Path of Least Resistance



No Seams and More Economical

With Rolls of Polyester filter, You Can Make Your Own.



Setters Need Some Attention

Some Difficult Areas to Get to



Setters Need Some Attention

All of Your Air Goes through These Areas.



Hatchers Constantly Need Work

Any Chick Down from the previous hatch will recontaminate if not cleaned every hatch.



Hatcher Airflow

All Air Crosses the fan blades and humidity nozzles



Plenums Can Be Tough

Need to be cleaned as well as inside the hatch.



Plenums Can Be Tough

These Can be Drained, but Not Easily Cleaned



Plenums Can Be Tough

Plenty of Access doors are great. Just don't forget to clean the fans.



Clean Fans Outside As Well



Don't Forget Humidifiers

- Can be a Great Source of Contamination
- Need to be cleaned on a routine basis
- Some are injecting products like Anthium Dioxide (chlorine dioxide)



Vaccine Rooms – Often Forgotten

- Vaccine handling areas can be a Great Source of Contamination
- Filters need to be checked.
- Need to be cleaned on a routine basis



Maintain Ventilation Systems

- **Evap Coolers need to be cleaned and maintained** - Use products like Evap 100 that are non-corrosive are maintained to keep minimum amounts mold and bacteria from getting into the facility. Chlorine or too high levels of quat will harm pads. Prevention is step one.
- **Surfactants/Soaps** - Once Aspergillus is in your system, you will breed continual problems in to your hatchery until it is thoroughly cleaned. A good neutral surfactant with disinfection afterwards will do the job.
- **Clinafarm** - Do not substitute continual fogging of Clinafarm as adequate sanitation. It is a very good product, but it doesn't clean the surface which is your root contamination.



Evap Coolers and HVAC Units

Need to be cleaned on a routine basis. Watch out for chlorinated tablets. They are extremely corrosive to the machines and the pads.



Fogging Programs

- Fogging programs can be advantageous for airborne contaminants as well as for hard to get areas.
- When room fogging is done, it not only reduces loads in the room but also inside the machines. When machines call on fresh air, room air is pulled in.
- Do not fog more than labeled directions. An example would be fogging a quat at 6oz per gallon instead of the labeled ½ oz per gallon. This will lend itself to bioslim buildups which could result in more problems than no fogging program.



Systems for Fogging Programs

- Two type systems Used
 - Central Fogging Systems
 - Portable Barrel Foggers and Thermal foggers
- Machine fogging with portable foggers are not recommended. It disrupts both temperature and humidity. It also wets eggs usually at improper temperatures.
- For Central Fogging Systems, make sure nozzle placement is in accordance to manufacturer recommendations.



Some Common Tools of the Trade



Portable Fogger



Central Fogging System



Products for Fogging Programs

- Quats are generally fogged along with a Fog Enhancer which keeps it suspended in the air longer for better contact. (Make sure the product is labeled for fogging)
- The use of oxidizers such as Biox H (35% egg grade hydrogen peroxide) is good for killing mold spores which most disinfectants can't do.
- Some cases it is good to use both quats and oxidizers together. You get the benefits of oxidizers with the residual of the quat.
- Be careful with some oxidizers. They can be very corrosive to your equipment.



When to Use Fogging Programs

- Egg Rooms fogged daily. A minimum everyday that eggs were received.
- Hatcher and Setter Rooms should be fogged daily. A minimum everyday after sets and transfers.
- Process Room, Tray Wash Room, Separator Room, etc. should be fogged after everything is cleaned at the end of the day.
- Chick Buses and Egg Pick up Trucks fogged after being cleaned.



Non Hatchery Grade Hydrogen Peroxide ate up this equipment

This hatchery was only 8 years old at the time. Looked like it was 40 years old because of wrong products.



Summary

- ✓ Ventilation Systems are complex and sometimes very difficult to clean.
- ✓ They are usually out of sight and out of mind.
- ✓ This is one of the most important areas that will have the greatest impact on the overall health and performance on the birds in the field.
- ✓ Seven day mortality may not tell the full story.
- ✓ Paying attention to Sanitation of Ventilation Systems could pay great dividends to your company.



THANK YOU!

ANY QUESTIONS?

