Hatchery Sanitation

Tommy Lively - World Tech Hatchery Specialist

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Hatchery Sanitation

- The Ingredients
  - Hatching Eggs
  - Water Sanitation
  - Air/Ventilation
- Daily Cleaning
  - Incubators and Hatchers
- Sanitizer Application
  - Fogging Programs
- Tray and Box Washes
- Chillers
- Hatcher Fumigation
- Monitoring

Hatching Egg

- ✓ Free of contamination
  - ✓Nest quality
  - ✓Litter quality
  - ✓Egg collection quality
  - ✓Aspergillus/Fumigation...

Water Sanitation

- Test tap water Weekly
- Water Hoses commonly grow bacteria
- Pseudomonas is a much bigger problem with-out Anti-Biotics at Inovo
  - Chlorine Dioxide products
  - Reverse Osmosis (RO) systems

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Ventilation

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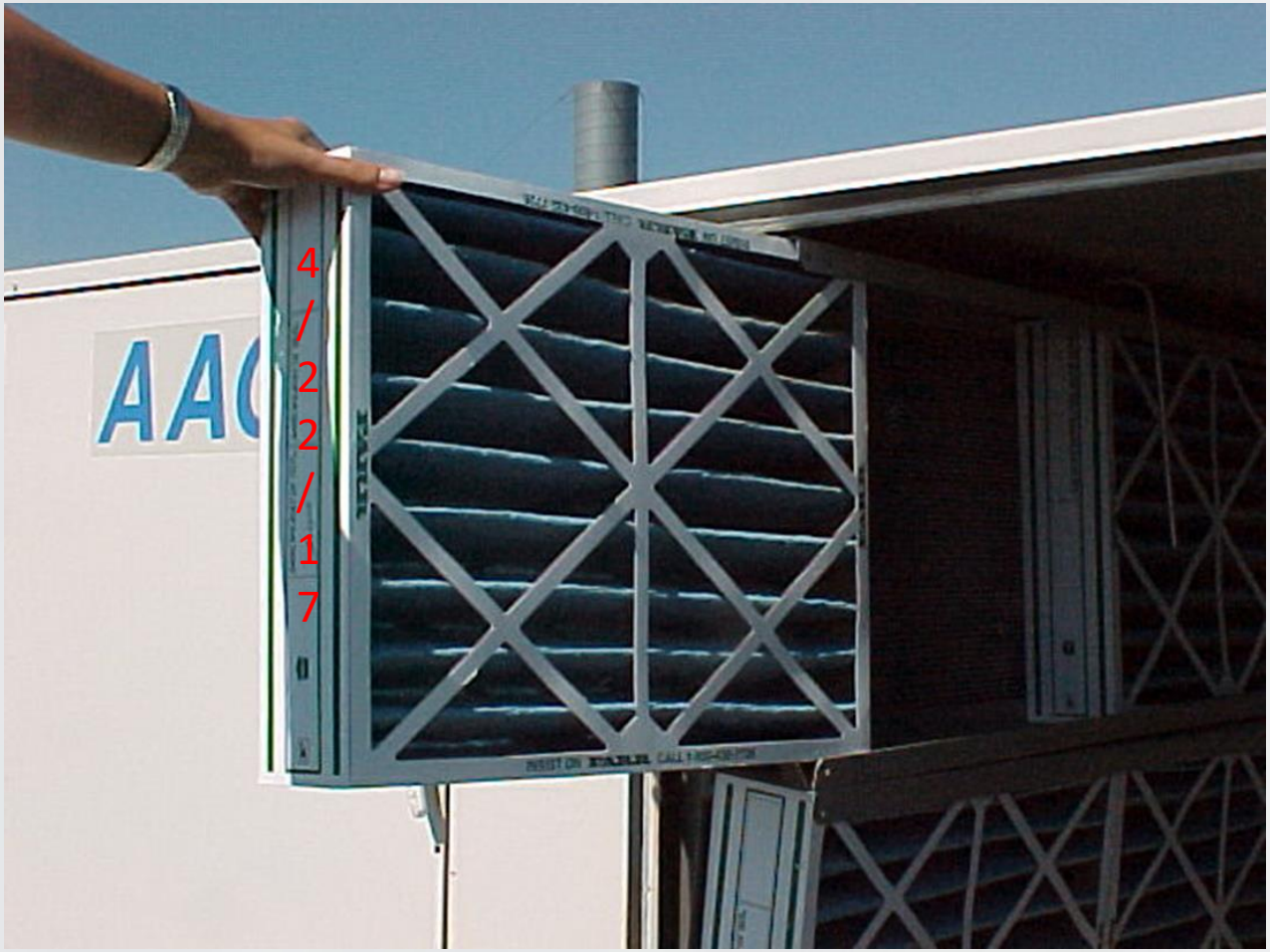
Pleated filters with dates



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Dirty filter

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Internal frame filter for proper seal

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Filters not sealed properly

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Dirty coil

- Decrease effectiveness for cooling capabilities
- Increase utilities cost with over use

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Insufficient coil for cooling purposes

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Low pressure water for cleaning purposes

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Remove the build of dust and debris

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Clean and prepared coil and filter pad

Remove the build of dust and debris

- Outside Coil Also Has To Be Washed

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Dailing Cleaning / Incubator

- Fan boards, grills, fan blades
- Rotational program for cleaning and disinfecting

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Complete shut down for cleaning and maintenance.

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Daily Cleaning Hatchers

Scrubbing and soaking the hatcher for proper cleaning

- Sweep Out Loose Egg Shells and Fluff

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Scrubbing and soaking the hatcher for proper cleaning

- Rinse out as much debris as possible

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Scrubbing and soaking the hatcher for proper cleaning

- Foam Soap and Scrub- Allow Soap to work for 15-20 Minutes before rinsing

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Scrubbing and soaking the hatcher for proper cleaning

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Don’t Forget the Plenum

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Hatch Room

- The Hatch Room is not clean until the air handler unit is clean

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Sanitizer

- Sanitizers should be foamed as well. Foaming greatly increases the effectiveness of products
- It is not clean until it has been Sanitized

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Sanitizers Mixing/Safety

VIROCID® is effective against:

Bacteria:	Dilution	Virus (on environmental surfaces):	Dilution
Salmonella enterica (formerly S. choleraesuis)*	1:400	Porcine circovirus, type II (PCV, PT-1 cell)*	1:200
Staphylococcus aureus*	1:400	Pseudorabies (American BioResearch Laboratories)*	1:400
Pseudomonas aeruginosa*	1:400	Porcine Respiratory and Reproductive Syndrome (Arko Laboratories)	1:400
Campylobacter jejuni*	1:400	Avian Reovirus (Spafas Strain)*	1:256
Corynebacterium pseudotuberculosis*	1:400	Marek's Disease (Spafas Strain)*	1:400
Avibacterium paragallinarum (formerly H paragal-linarum)*	1:400	Newcastle Disease (Spafas Strain)*	1:400
Klebsiella pneumoniae*	1:400	Avian Influenza (Turkey/Wis/66 strain - H9N2)*	1:400
Listeria monocytogenes*	1:400	Human Influenza A (H1N1)*	1:400
Mycoplasma gallisepticum*	1:400	Swine Influenza A (H1N1)*	1:400
Mycoplasma synoviae*	1:400	Avian Infectious Laryngotracheitis (Charles River Laboratories)	1:400
Ornithobacterium rhinotracheale*	1:400	Infectious Bursal Disease (Spafas Strain 2512)*	1:400
Salmonella enterica (formerly S. enteritidis)*	1:400	**FUNGUS (ON ENVIRONMENTAL SURFACES):**	
Mycoplasma hyopneumoniae**	1:400	Fusarium dimerum*	1:400
Streptococcus suis*	1:400	Penicillium expansum*	1:400
Salmonella enterica (formerly S. typhisuis)*	1:400	Trichophyton mentagrophytes	1:400
Escherichia coli*	1:400	**Algae and slime forming bacteria in recirculating water cooling systems and evaporative condensers**	**25-50 ppm**
Bordetella avium*	1:256		
Salmonella enterica (formerly S. pullorum)*	1:256		

* in the presence of 400 ppm AOAC synthetic hard water and 5% soil load
** in the presence of 400 ppm AOAC synthetic hard water and 25% soil load

dilution	Preparation method
1:400	1/3 fluid ounce per gallon of water
1:256	1/2 fluid ounce per gallon of water
1:200	2/3 fluid ounce per gallon of water

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Hatch basket cleanliness

- Dirty Baskets can cause Omphalitis (Yolk-Sac Infection)

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Tray Wash (USA)

- Tray wash Maintenance
- Temp & Chemical Control
  - Monitored and recorded temperature every 2 hours
    - Target 140-150°F (60-66°C)
  - Soap and disinfect monitored daily
- Additional disinfectant application
  - At end of tray wash
  - Post wash

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Sanitizer Dip for Trays and Flats

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Tray Wash (South America)

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Soap Loosens Organic Matter

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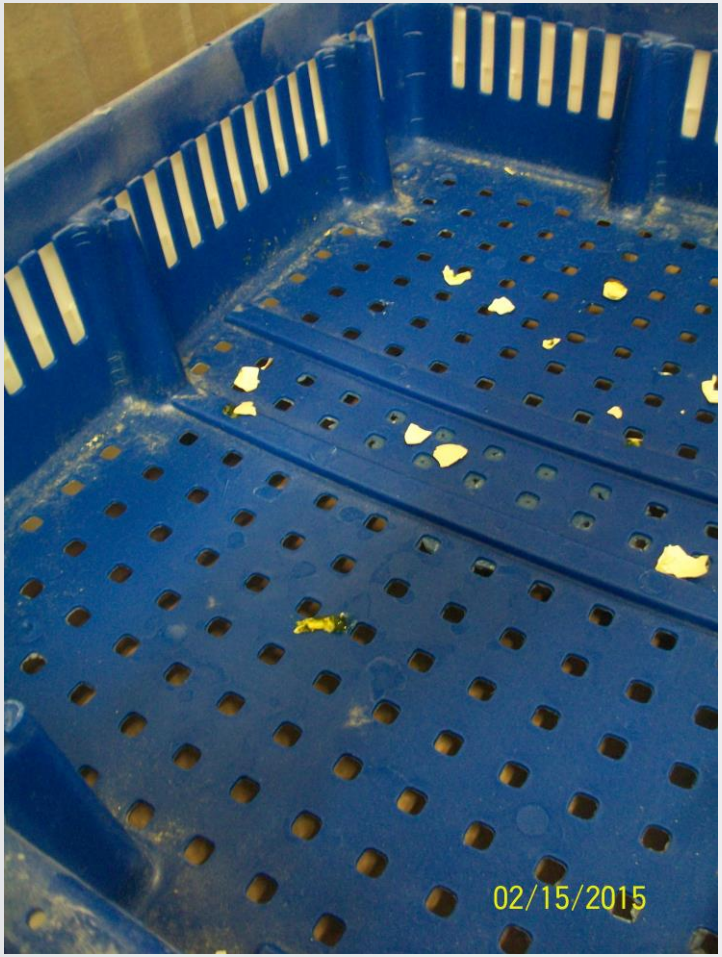
Chick box cleanliness



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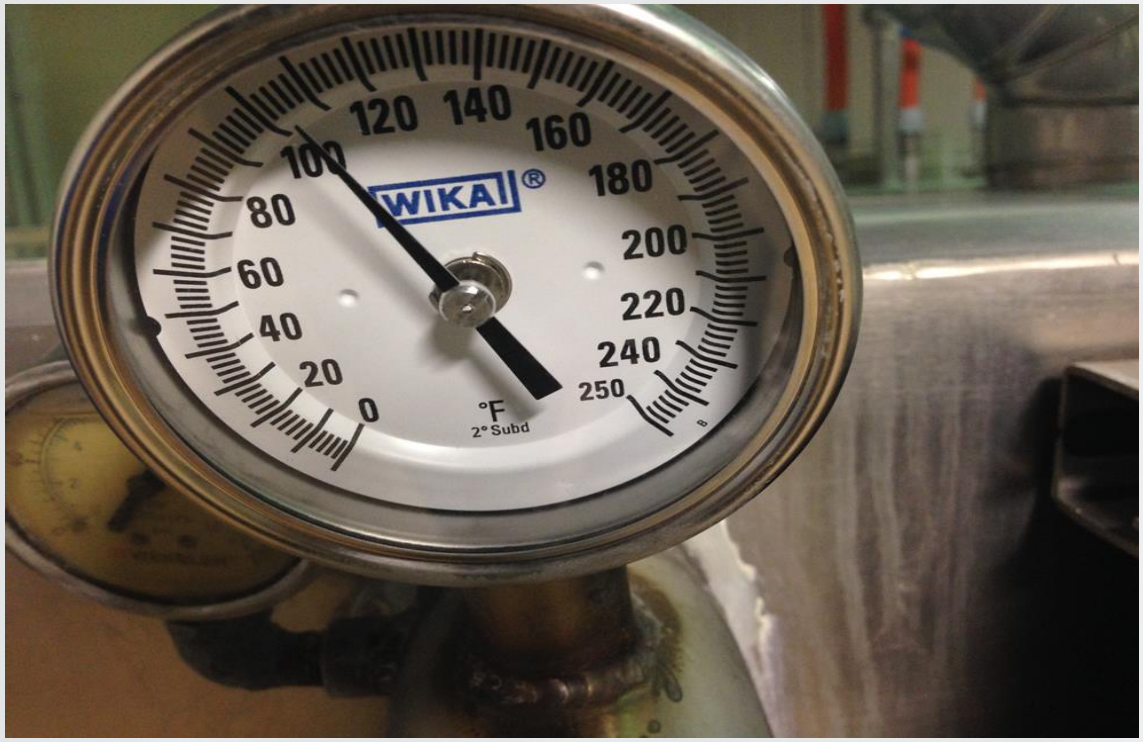
Tray wash water temperature is very important!!

- 100 to 120 (37 – 48 C) grows pseudomonas
- 140 – 150 (60 to 66 C)kills pseudomonas



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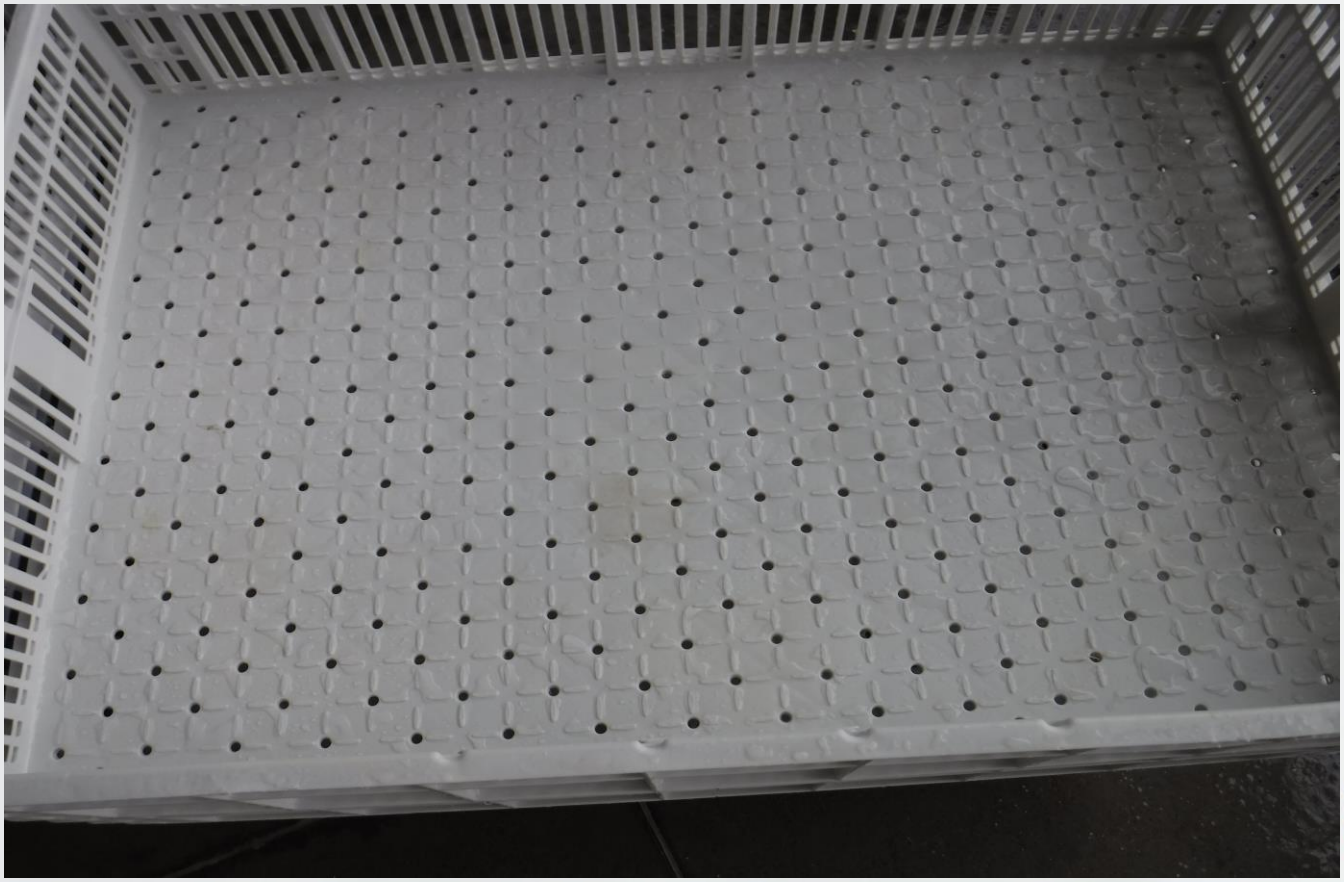
The Ultimate Goal!

- A Clean Hatcher Basket!!



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Use the tray wash system to clean hatching trays, boxes and egg flats

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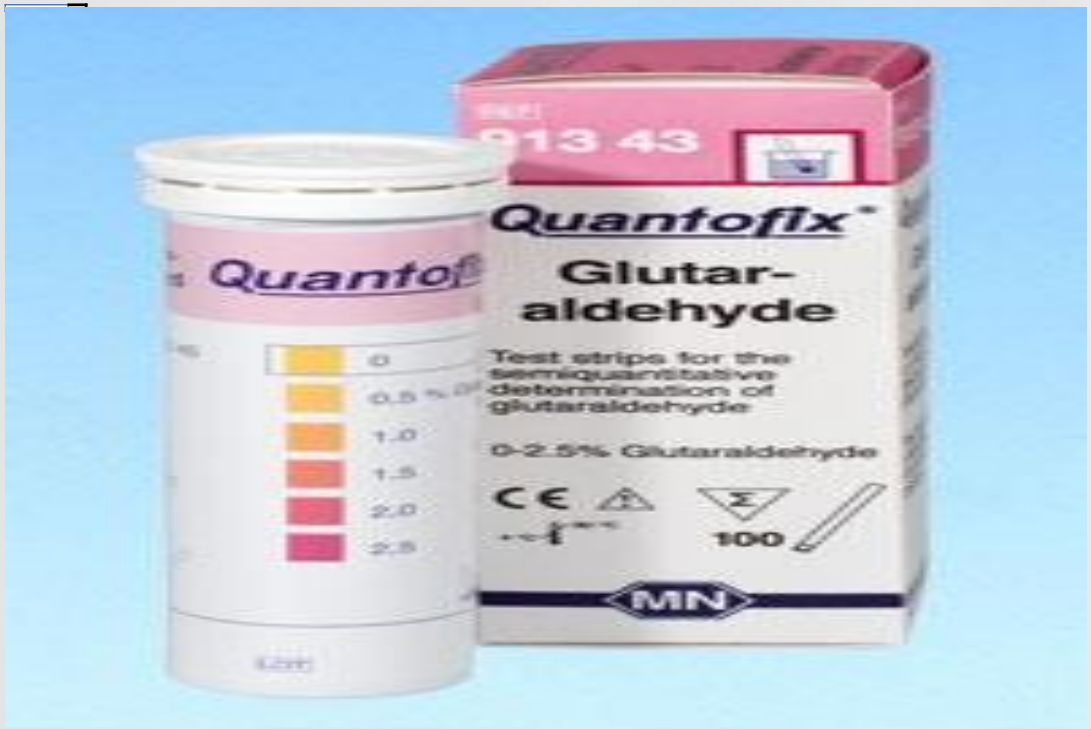
Sanitizer Solution Test

- Do You Check The Sanitizer Level Throughout The Process??



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The Clean Room

- Ventilation and Pressure are very important here
- Do not allow steam and heat from the tray wash to enter the separator room
- Don’t allow chick down to cover clean trays

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Fogging systems

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Fogging schedule

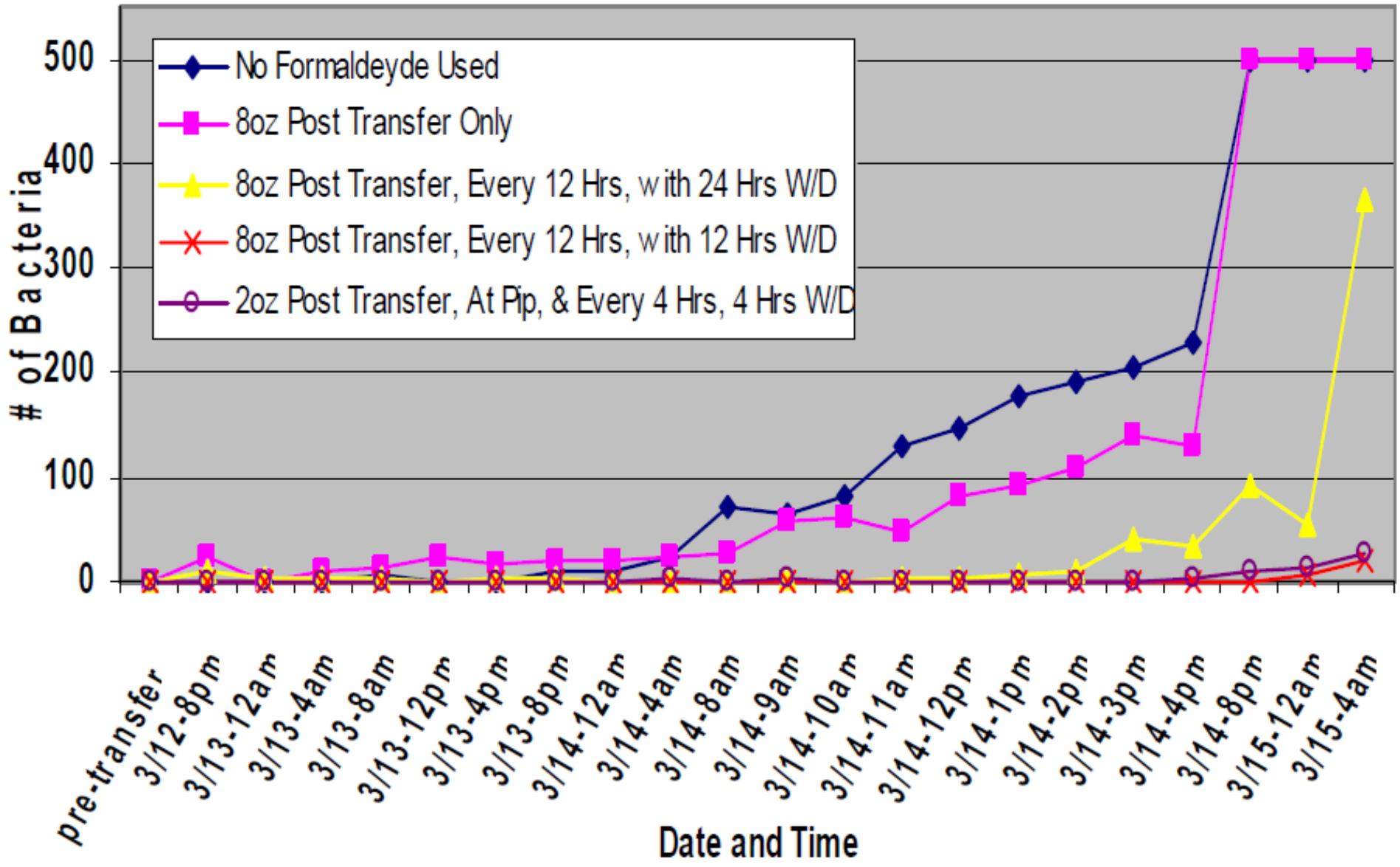
	CHICK HOLDING ROOM	CHICK ROOM	SMALL HALL	LARGE HALL	HATCH ROOM #1	HATCH ROOM #2	HATCH ROOM #3	SETTER ROOM	SS SETTER	PULL ROOM	EMBREX ROOM	CLEAN SIDE ROOM
SUN 4AM	■	■	■	■		■				■		■
SUN 10AM	■	■	■	■	■	■	■	■	■	■	■	■
SUN 4PM	■	■	■	■		■				■	■	■
SUN 10PM	■				■		■	■	■			
MON 4AM	■	■	■	■	■					■		■
MON 10AM	■	■	■	■	■	■	■	■	■	■	■	■
MON 4PM	■	■	■	■	■					■	■	■
MON 10PM	■					■	■	■	■			
TUE 4AM	■	■	■	■						■	■	■
TUE 10AM					■	■	■	■	■			
TUE 4PM	■	■	■	■						■	■	■
TUE 10PM					■	■	■	■	■			
WED 4AM	■	■	■	■		■				■	■	■
WED 10AM	■	■	■	■	■	■	■	■	■	■		■
WED 4PM	■	■	■	■						■	■	■
WED 10PM	■				■	■	■	■	■			

Hatcher fumigation during the hatch process

- A disinfectant of some kind is needed during the pipping and hatch process

- Methods seen today in the industry include
  - Formaldehyde application (.075ml/chick)
  - Hydrogen Peroxide (H202) application
  - Glut/quat disinfectant application

Formaldehyde Test Results



Formaldehyde application

White Paper

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Liquid Formaldehyde Usage

North America

Written by Ben Green
Hatchery Specialists, World Technical Support

When considering the use of formaldehyde in your hatchery there are many different aspects that first need to be considered (see chart to right).

Know and Understand:

- Your state/country rules and regulations for usage
- Safety requirements
- Approved administration methods

First and foremost, make sure your know and understand your state and country rules and regulations for usage of this chemical. ***Secondly***, ensure you are following all safety requirements. ***Finally***, ensure you adhere to the approved administration methods. The use of this chemical requires formal training of employees, medical qualifications, and industrial hygiene monitoring to ensure safe levels throughout the hatchery. All of these safe guards should be in place before beginning the use of formaldehyde, or when changing the dosage or administration of formaldehyde.

When deciding how much formaldehyde should be used in the hatcher cabinet a simple calculation is used to figure the total amount for the entire hatch cycle. Estimate the total number of chicks to be hatched in the hatcher cabinet. Multiply this number by .075 ml and this will give you the total amount of formaldehyde to be used in the entire hatch cycle per cabinet.

Example: 11,000 chicks per hatcher cabinet (X) .075 ml = 825 ml

This total amount of formaldehyde should then be administered evenly and consistently throughout the hatch process. The first dose should be administered immediately following transfer. The next doses should be spread out every 6-8 hours until approximately 4 hours prior to the pipping process. 4 hours prior to the chicks pipping the timing for the dosage of formaldehyde should go to every 2 hours. This dosage interval of every two hours will allow for consistent formaldehyde ppm levels in the hatcher cabinet throughout the hatching process. The testing that is performed in regards to the safety regulations will dictate when the last dosage can be administered.

Methods of Administration

There are three different methods of administration of formaldehyde into the hatcher cabinets. Keep in mind, these methods are for liquid formaldehyde administration only and you should always adhere to your state/country rules, regulations and safety requirements. Review the provided images and detailed descriptions on the back page for the prescribed methods.

(Continued on back)

Liquid Formaldehyde Usage (Cont).

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Figure 1: A hand held device where the dosage can be changed with a dial. The end of this device is placed at an insertion point on the hatcher cabinet to then place formaldehyde into the cabinet.

Figure 2: An IV medical bag where prescribed doses are indicated on the bag and a thumb wheel is used to release the formaldehyde with a gravity flow.

Figure 3: An automated system where a clock and pumps are used to automatically release formaldehyde at prescribed intervals without human interaction.

All of these methods should include a poly tubing system to get the liquid formaldehyde into the hatcher cabinet. Once the liquid is in the cabinet a braided rope made with wicking material should be used to evenly displace the formaldehyde for proper effectiveness. This braided rope will absorb the liquid and should aid in providing proper distribution from the top to the bottom of the hatcher cabinet. The length of this braided rope should be to the bottom of the hatcher floor.

Using these methods, timing figures and dosage calculations will aid in effectively controlling overall bacterial contamination during the hatch process.

Published March 19, 2015
For more information, visit
www.cobb-vantress.com

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Hydrogen Peroxide application

- The micron size should be considered. The ideal micron size of 14-16 is recommended.
- Never use a solution above 3% when spraying
- This chemical is corrosive to metal

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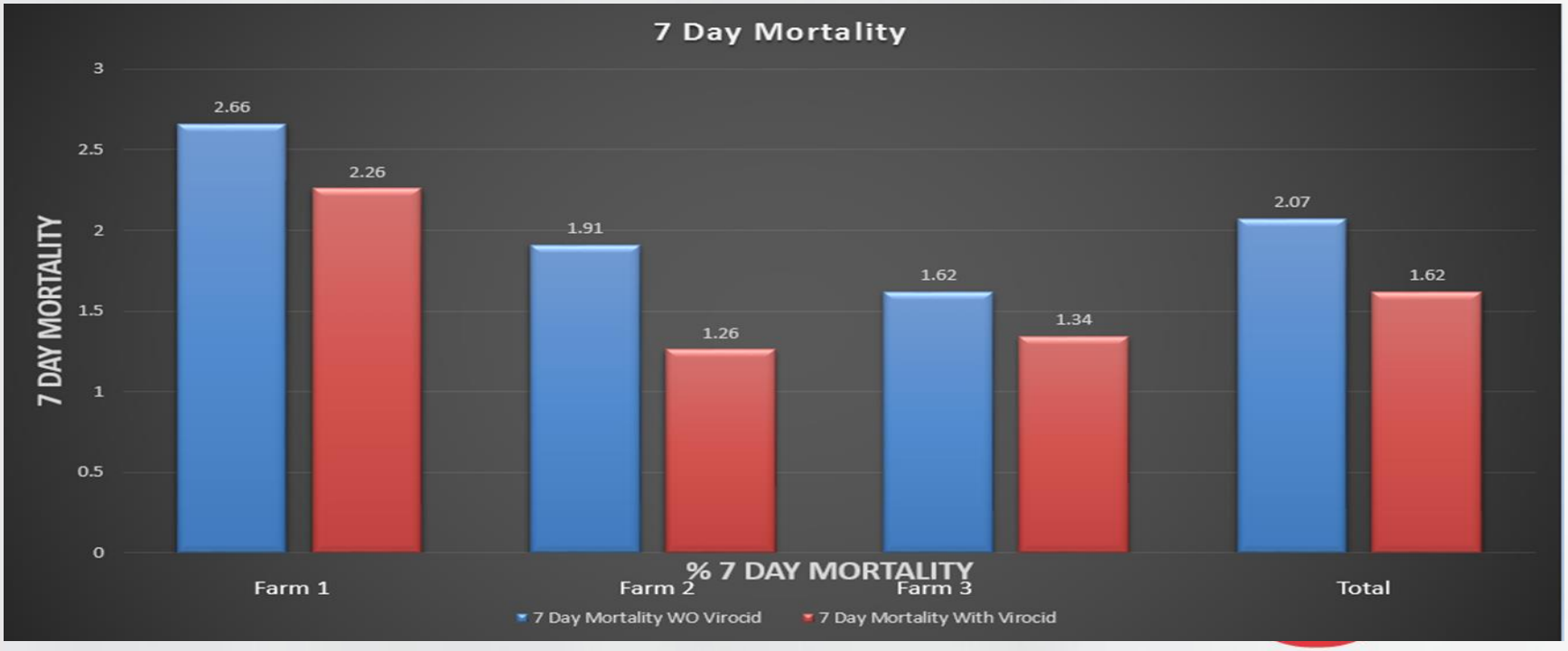
Glut/Quat application

- A 2% solution sprayed at 20ml per administration
- Spray every 30 minutes to achieve bacterial reduction



Chiller usage at the hatchery

What is the correct chiller temperature

- Recommended to sample chiller temperature at the point of entry into the machine
- This temperature should be between 59 – 64 (15-18 degrees Celsius) at the entry point
- Measure the multiple entry points to insure accuracy and correct balance

Use of a probe at the point of entry to determine the temperature

FAMILY.
PURPOSE.

Have you ever seen this before?

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Chiller temperature setting

The chick down acts as insulation. This does not allow for the cooling effect that is desired.

Processing Equipment

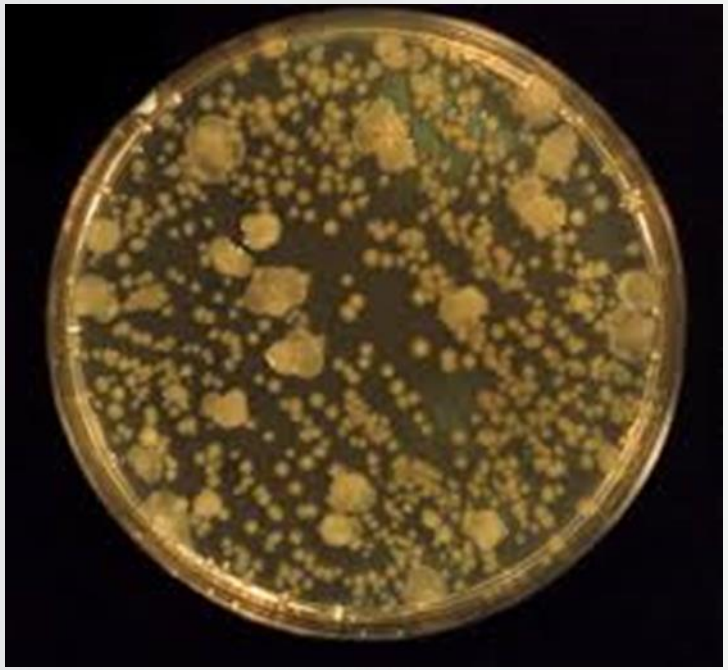
- Clean and sanitize immediately after every hatch
- Fog Room after it is dry

Vaccine Mixing

- Use a separate sterile needle and syringe for each item added
- Wipe port with alcohol before each needle entry
- Have written protocols for mixing

Monitoring

- Sampling each area to insure cleanliness
  - Egg room
  - Setters
  - Setter room
  - Hatchers
  - Hatcher room
  - Chick room
  - Hallways
  - Hatcher Baskets



New Innovations in determining how clean a surface truly can be.

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Visual Inspection

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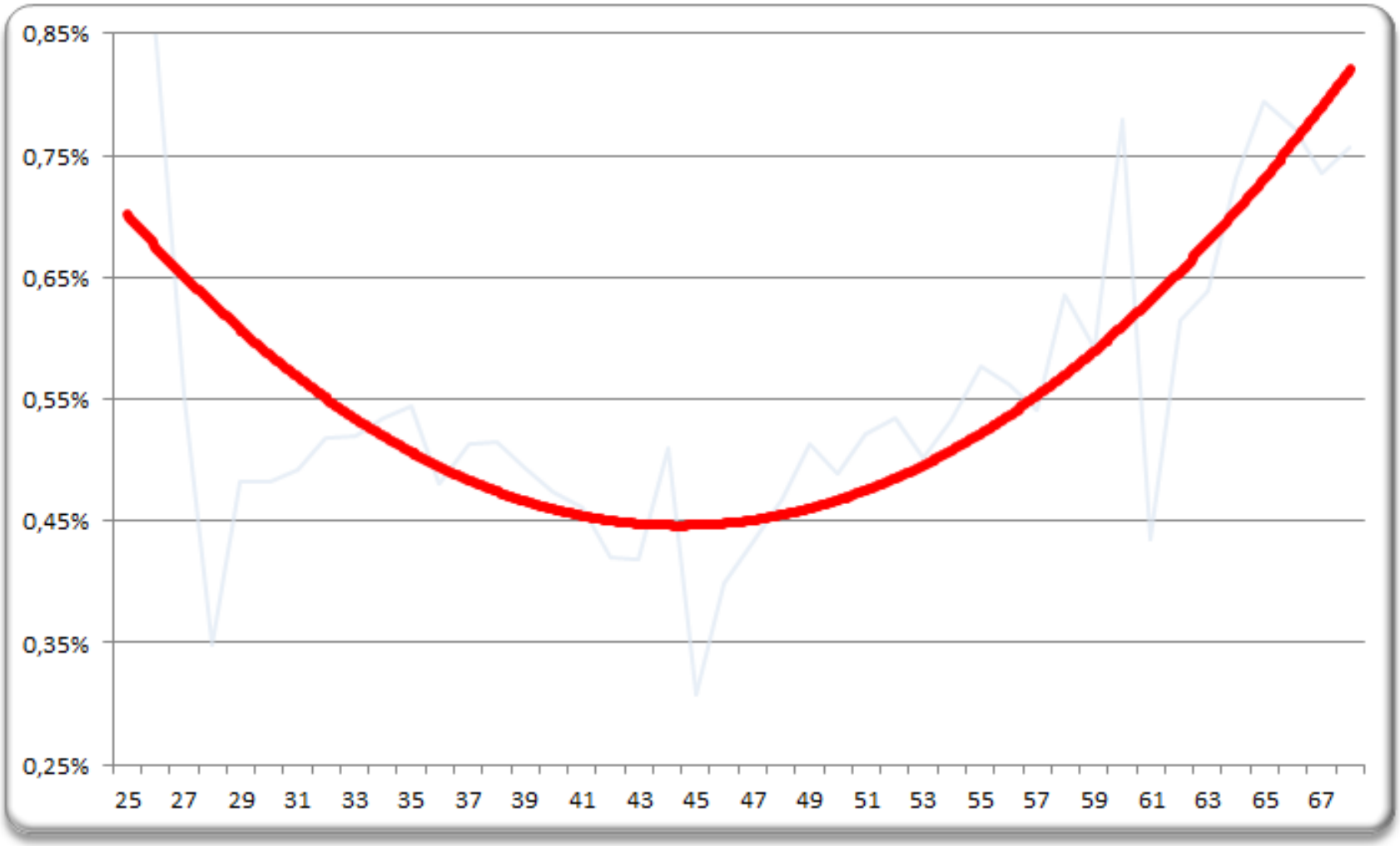
7 day mortality per breeder flock age



Conclusion

- Incubator / hatcher sanitation
- Washer temperature of 60-66 C
- Hatcher fumigation
- Chiller temperature of 15-18 C
- Disposable filter usage

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Foaming cleaner for better organic matter removal

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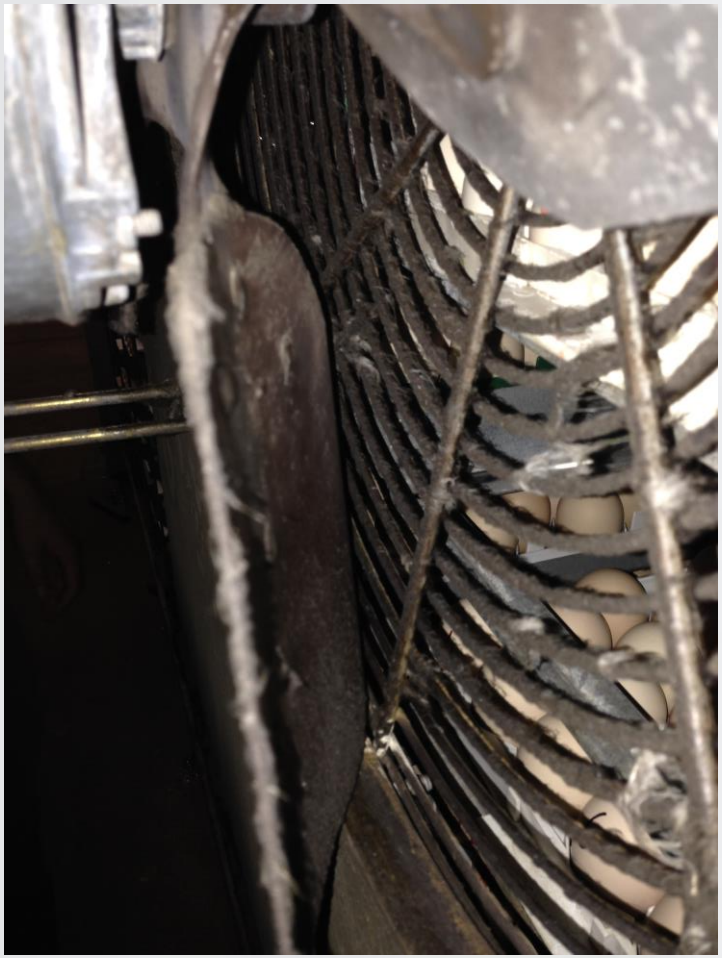
Program established for proper cleaning and general maintenance



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