2nd lecture

Hatchery Cleaning and Disinfection (C&D.)

Cleaning:

It is the removal of organic and inorganic material from objects and surfaces. This is normally accomplished by using detergents or enzymatic products. Thorough cleaning is necessary before disinfection and sterilization because organic and inorganic materials that remain on the surface of instruments interfere with the effectiveness of these processes.

Disinfection:

It is a process that reduces the number of microorganisms (with the exception of bacterial spores) on inanimate objects.

* Good cleaning and disinfection (C&D) procedures within the hatchery are necessary to reduce and continually minimize the level of microbiological contamination, and subsequently the risk of microbiological contamination in the building, machinery, eggs and hatchers.

The hatchery is the greatest potential source for the spread of diseases within the poultry industry. The problem usually starts with contaminated eggs which are incubated under ideal conditions for microbiological reproduction. The infection passes to the hatched chick and can then be disseminated.

Cleaning and disinfection objectives:

1. To reduce cross contamination between clean and dirty areas and between batches of eggs in incubation and hatchers.
2. To minimize the buildup of bacterial flora in the environment and microbial infection of the eggs.
3. To minimize the number of micro- organisms on the eggs surface by that to increase the number of hatched chicks.

How do you choose a disinfectant?

While choosing a disinfectant we should consider these characteristics:

1-Cost 2- Efficacy (killing efficiency against viruses, bacteria, fungi and protozoa) 3- Activity with organic matter 4- Toxicity (relative safety to animals) 5- Residual activity 6- Effect on fabric and metals 7- Solubility (acidity, alkalinity, pH) 8- Contact time 10- Temperature

Disinfectants can be divided into the following classes based on their chemical composition:

(Phenols -Chlorine -Iodine -Quaternary ammonium -Formaldehyde -Alkali -Chlorhexidine (Nolvasan) -Formalix)

Table 1. An example of hatchery cleaning and disinfection program.

Item / area	C&D frequency
Egg store	After trading eggs.
Single-stage incubators	After each incubation.
Multi-stage incubators	Trolley loading machines – monthly. Fixed-rack machines – clean floors with brush weekly. Empty machines annually for complete clean.
Incubator trolleys and trays	After every hatch.
Hatchers, trolleys, baskets and rooms	After every hatch.
Servicing equipment and rooms	After every hatch.
Incubation rooms	Wash Floors after fertility testing and transfers. Whole room every month.
Transfer room and equipment	After every transfer.
Wash rooms and hatchery waste disposal	After every hatch. Hatch waste storage systems should be cleaned after emptying.
hatchers holding rooms	After dispatch
Corridors	Weekly
Ventilation ducting, room spaces.	Quarterly
% Benefits	C = 99% **&** D = 1%

Fumigation:

Cleaning procedures and disinfecting equipment should be part of standard operating procedures. Incubators, hatchers and the racks should be disinfected with commercial disinfectant after each hatch.

Some larger businesses fumigate incubators before setting eggs. Occasionally the incubators are fumigated briefly with lower concentrations of the fumigant while eggs are in the incubator. Do not fumigate eggs after the first day of incubation. Embryos are sensitive to fumigation between 2 days and 5days of incubation. When eggs are fumigated at set, exposure of the eggs should be limited. Only trained individuals should use these techniques.

Sterilization of eggs:

- In each hatchery there are a special room for the sterilization of eggs to be sealed by a large fan to pull air on the walls and a small internal fan to stir the air inside the room and size of the room will be set by the amount of eggs daily.
- Enters the egg into the room in the vehicles so that the eggs exposed to the full effect of formalin
- Raise the temperature of the sterilization chamber to about 30 C and relative humidity to 70-75% is allocated (((per 1 cubic meter volume of 35 cm 3 formalin, 17.5 g potassium permanganate and 50 cm 3 water))
- Mix these quantities within a deep pot this vessel is not affected by heat or acids must leave the room immediately, because the interaction starts at 15-30 seconds and the resulting gas and irritating toxic to humans.
- About the sterilization process remains time and then open the sterilization room, and we run the large fan to expel harmful gases.

Washing

Disinfection

Washing

Cleaning

Disinfection pump

Washing Machines