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# EXPERIMENT 4    CLEANING AND DISINFECTION OF HATCHERY AND EQUIPMENTS

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## Structure

### 4.1 Introduction

Objectives

### 4.2 Experiment

4.2.1 Principle

4.2.2 Requirements

4.2.3 Procedure

4.2.4 Observations

4.2.5 Results

### 4.3 Precautions

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## 4.1 INTRODUCTION

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The fertile eggs are incubated artificially in a machine known as hatcher, which contains two separate compartments called setter and hatcher. In order to make the hatching machine under operation, several equipments are also required in the hatchery. The goal of any hatchery is to produce maximum number of good quality saleable chicks. Hatchery sanitation is the most important factor which determines the performance of the hatchery by increasing hatchability, reducing number of chicks discarded, preventing infection to chicks etc.

### Objectives

After performing this experiment, you will be able to:

- design a hatchery sanitation schedule; and
- judge the improvement in overall performance of the hatchery.

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## 4.2 EXPERIMENT

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### 4.2.1 Principle

Hatchery is the source of chicks and hence all the equipments involved in the entire hatching process must be hygienic without which it is not possible to achieve optimum hatch results and profits. Therefore, like the poultry house and farm equipments, the cleaning and disinfection must be a fool-proof operation in a hatchery too.

### 4.2.2 Requirements

- Hatchery room containing egg-setter, hatcher and their equipments
- Disinfectant sprays, floor cleaners, fumigation box or fumigation room
- Different disinfectants and sanitizers

### 4.2.3 Procedure

#### (i) Setter, Hatcher and its Equipments

- 1) Clean the floor and equipment with a pressure pump to remove all the organic matter/dirt as surface disinfectants are most effective in the absence of organic matter.
- 2) Remove the setter and hatcher trays from the machines for cleaning and disinfection.



Fig. 4.1: Setter

Fig. 4.2: Setter tray



Fig. 4.3: Hatcher



Fig. 4.4: Hatcher

- 3) Mop the floor regularly by using different disinfectant
- 4) Fumigate regularly the hatching eggs, incubator room, hatcher room, hatchers, washing room etc., using different strength. Normal or single strength described as 1X means 40 ml of formalin (40% formaldehyde) added to 20 g of potassium permanganate ( $\text{KMnO}_4$ ) for every 100 cft volume. For the same volume, if quantities of the chemicals used are doubled, say 80 ml formalin and 40 g  $\text{KMnO}_4$ , it is 2X and so on. Depending upon the requirements, 2X, 3X strengths can be used.
- 5) Use following concentrations and exposure time in different cases (Table 4.1).

**Table 4.1: Concentration of Fumigants and Exposure Time**

Fumigation of	Conc. of Fumigants	Time (in minutes)
Hatching eggs immediately after laying	1X, 2X	20
Incubator room	1X, 2X	30
Hatcher between hatches	3X	30
Hatcher room, chick room, Wash room	3X	30

**(ii) Other Facilities and Equipments**

Cleaning and disinfection of other equipments and facilities generally involves thorough cleaning with water followed by water with detergents and finally by clean water. For floors, regular mopping with disinfectant solution is compulsory. The protocol generally followed is tabulated below:

**Table 4.2: Hatchery Disinfection Protocol**

Area	Procedure of Disinfection
Egg Grader's hand wash	Cleaning and dipping of both hands in liquid soap solution at 4 ml/litre of water after one hour interval.
Fumigation room	Washing of floor daily with disinfectant/phenol at the end of the day.
Cold room	Mopping the floor with phenol solution.
Setter and Setter rooms, Hatcher room, Chick delivery room	Mopping with phenol solution once in a day. Setter and hatcher rooms are washed with water followed by a spray of 2% formalin when the worker movement is minimum.
Humidifier tank	Sanitize the water with quaternary ammonium compound (see Experiment 7). It will be better to sanitize the volume of water which is supposed to be consumed in 24 hours.
Floor washing	Once in a week, washing of floor of entire hatchery building with detergent solution and mopping with phenol solution. Walls up to 4 ft. of height should also be washed.
Hatcher tray cleaning	After cleaning, trays should be dipped in the following solutions: <ul style="list-style-type: none"> <li>• Orthophosphoric acid 1% dilution - 1<sup>st</sup> week of the month.</li> <li>• Caustic Soda @ 1g/litre of water – remaining three weeks of the month.</li> </ul>
Packing material room	Daily fumigation with bleaching powder and formalin @ 20 g bleaching powder plus 40 ml formalin per 100 cft.
Surroundings of hatchery	Always use disinfectants on rotation basis outside or surroundings of hatchery in prescribed concentration.
Foot dipping	After every shift, footwear used by staff and workers should be dipped in foot bath containing any standard disinfectant at recommended concentrations.
Hand wash	Liquid soap solution and water.

**4.2.4 Observations**

- i) Name and quantity of chemicals used for cleaning of hatcher tray.

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ii) Name and quantity of chemicals used for cleaning of packing material room.

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Observe for the cleanliness of the hatchery and its equipments in the hatchery you visited.

**4.2.5 Results**

Give your view on the state of cleaning (sanitation) of hatchery you visited.

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**4.3 PRECAUTIONS**

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- Use correct concentrations of different chemicals for different purposes. Follow the recommended protocol for proper hatchery hygiene.
- Take all the necessary precautions to prevent harm to the persons carrying out the total operations with chemical as it is injurious to the eyes of the operator.