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## **EXPERIMENT 2    CLEANING, DISINFECTION AND FUMIGATION OF POULTRY HOUSE**

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### **2.1 INTRODUCTION**

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Cleaning is usually related with sanitation. Sanitation refers to a clean state wherein disease causing (pathogenic) organisms like bacteria, fungus, virus etc., are present, but do not affect the bird's health. Disinfection indicates destruction of all vegetative forms of microorganisms whereas spores are not destroyed completely. Sterilization means total destruction/removal of all infective and reproductive forms of all microorganisms. Poultry house gets contaminated with accumulated load of disease-producing organisms during rearing of a flock through litter, dust etc. Hence, before housing next batch of chicks or birds, it is necessary to clean and disinfect the house and equipments in order to prevent spread of diseases, if any, to subsequent flock. In brief, the cleaning, disinfection and fumigation of poultry house helps setting up physical and/or chemical barrier between infectious agents and the birds.

#### **Objectives**

After performing this experiment, you will be able to:

- demonstrate effective cleaning, disinfection and fumigation of poultry house; and
- justify the need for fumigation in protecting birds from several diseases.

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### **2.2 EXPERIMENT**

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#### **2.2.1 Principle**

Failure to adopt cleaning, disinfection and fumigation will lead to a build up of bacterial load causing a poor growth rate, low feed efficiency, less egg production and severe outbreak of diseases. Therefore, proper attention is required to adopt such preventive measures.

## 2.2.2 Requirements

- Different cleaning equipments for dry cleaning and washing such as hard brooms, scrapper, scrubber, pressure pump, flame gun with LPG cylinder.
- Different disinfectants and chemicals like formalin, potassium permanganate, caustic soda, kerosene, copper sulphate, lime powder.
- Flame gun (if available).

## 2.2.3 Procedure

Different cleaning and disinfection methods for poultry houses are as follows:

### (i) Dry Cleaning

- 1) After disposal of the flock, spray the litter using 5-10 % formalin or burn the litter.
- 2) Remove all electrical installations.
- 3) Remove feeders, drinkers etc., clean and disinfect them separately.
- 4) Remove the litter and dispose it off to manure pit or by other method practiced at the farm.
- 5) Sweep, scrap and scrub the floor to remove the residue (dirt) and reduce the residual infection.

### (ii) Pressure Cleaning

- 1) Floor, roof, trusses, wire nets, side walls and curtains of each shed should be wet cleaned with the pressure pump.
- 2) Wash-water should be properly drained away from the building.
- 3) Spray with complex disinfectants.

### (iii) Chemical Treatment

- 1) After pressure cleaning and spraying, soak the floor with caustic soda (pH more than 12) for 24 hours.

### (iv) Heat Treatment

- 1) Burn the floor, side walls, wire nets with flame gun to kill most of the organisms.

### (v) Whitewash of the Shed

- 1) Prepare a paste of lime powder @ 20 kg per 1,000 sq. ft area with 3% copper sulphate ( $\text{CuSO}_4$ ), 1% kerosene, and 5-10 % formalin, and apply on the floor and the side walls of the shed.

### (vi) Fumigation

Fumigation is one of the easiest and effective methods of sanitation of poultry sheds because fumes generated can reach deep in crevices (a narrow opening or hole). The procedure is as follows:

- 1) Calculate the total volume of the house in cubic feet (cft) by multiplying length, width and height of the house (at the ridge), all in feet.

- 2) Cover all openings (side-walls) with curtains.
- 3) For every 100 cft, keep 40 g potassium permanganate ( $\text{KMnO}_4$ ) in a clay pot.
- 4) Keep the clay pot at the centre of the house in the central passage.
- 5) For every 100 cft, measure and take 80 ml of formalin (40% formaldehyde).
- 6) Pour formalin into the clay pot with  $\text{KMnO}_4$  and come out as quickly as possible because formaldehyde fumes are released immediately.
- 7) Close the door and wait for 20 minutes.
- 8) Open the curtains.

### (vii) Terminal Disinfection

After cleaning, the house is preferably sprayed with a chemical disinfectant, usually referred to as “Terminal disinfectant”. Some of the common disinfectants are as follows:

**Table 2.1: Common Disinfectant’s Composition and Dose Rate in Water**

Disinfectant	Dose (%)	Disinfecting Coverage
Benzalkonium chloride, Formaldehyde, Gluteraldehyde	3	Floor and Shed
Bleaching Powder or Chlorinated Lime	2	Equipments, Floor
Carbolic Acid or Phenol	5	Dipping of shoes
Copper Sulphate	0.5	Equipments
Didecyl Benzene, Metacresol, Polyalkyl Monohydric, Sulphonic Acid	0.1	Shed
Formalin	3	Spraying in hatchery and house
Savlon	0.5	Equipments and hands
Sodium Hydroxide	2	Equipments, Floor

## 2.2.4 Observations

Observe for the cleanliness of the poultry house you visited.

- i) Name and quantity of chemicals used for cleaning of poultry house.

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- ii) Name the ingredients to make lime powder paste for whitewash.

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## 2.2.5 Results

Your view on cleanliness of poultry farm you visited.

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## **2.3 PRECAUTIONS**

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- Take all the necessary precautions to prevent any harm to the person carrying out the total operations with formalin as it is injurious to the eyes of the operator.
- Any method employed should not affect the strength and durability of the building itself.
- Take utmost care for various steps of cleaning, disinfection and fumigation of poultry house. Any negligence will increase the chances of disease-spread.