

# **Importance of Biosecurity in Farm**

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# Doubling Time of Bacteria

**1. Bacteria - Doubling Time - 50 minutes  
In 24 hours - 500 millions (50 crores)**

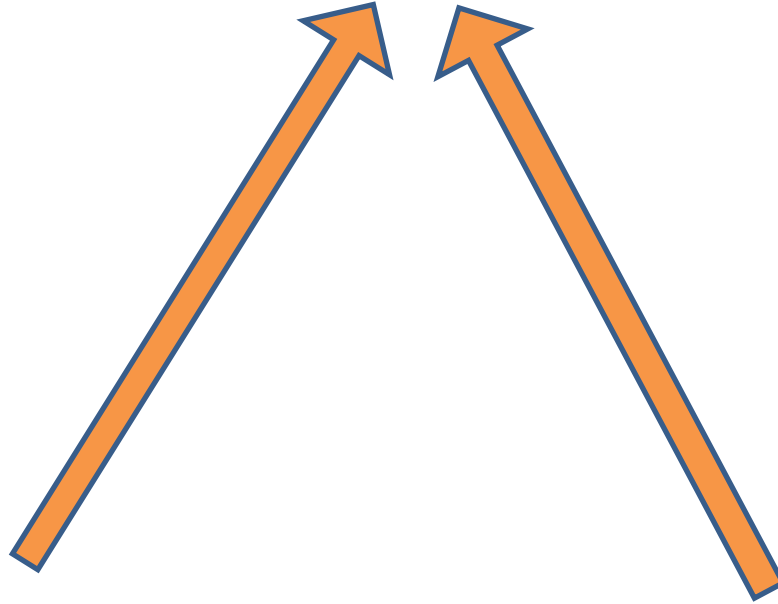
**2. *E. coli* - Doubling Time - 20 minutes  
In 9.5 hours - 500 millions (50 crores)**

**3. *Clostridium perfringens* - Doubling Time 7 minutes  
In 3.5 hours – 500 millions (50 crores)**

# BIOSECURITY

**Disease**

**Limitations of  
Vaccination**



# IMPLEMENTATION OF HIGH BIOSECURITY STANDARDS

- Biosecurity is at the very basis of successful poultry management.
- The following measures must be implemented for effective disease control.

## **Vehicle sprays:**

- Soiled vehicles can carry disease organisms.
- Should be washed free of litter and dropping and then disinfected.
- All drivers should follow biosecurity procedures.

## **Wheel dips:**

- While entering or leaving all vehicles must pass through full wheel disinfectant dips.

## **Foot dips (footbath):**

- Before entering and after leaving people and visitors should wash hands and use disinfectant foot dips.
- First remove organic material from shoes by a brush.

## **Shower rooms:**

- People can transmit pathogens mechanically on clothes, shoes, hands, and hair. Better they take a shower and change into clean clothes and footwear.

# CONTROL OF WILD BIRDS, RODENTS AND OTHER DISEASE VECTORS

- **Wild birds:** Transmit virulent strains of avian influenza and Newcastle disease, also mycoplasma, salmonella, and campylobacter infections.
- **Rodents (Rats and Mice):** Contaminate food and water with their excrement. Important in salmonella transmission.
- **Rodent control:** Includes three approaches:
  1. Rodent-proofing,
  2. Sanitation,
  3. Rodent killing. This is the most common method in India through zinc phosphide
- **Others disease vectors:** These include insect (flies, mosquitoes, lice, fleas, mites, ticks, beetles, etc.). Mosquitoes can transmit fowl pox virus. Beetles act as vectors for Gumboro and Marek's disease virus. Control by spraying of standard insecticides on birds. Fly control by manure management.

# CLEANING AND DISINFECTION PROCEDURES

These include:

**Preparing the house:** Remove previous flock, litter and manure. Allow down time for at least 15 days. Sanitize drinking water system. Sweep the house and thoroughly dry clean. After final disinfection, give the house down time at least 15 days.

**Disinfection of the house or pen and equipment:** involves thorough application of broad - spectrum disinfectants. Give proper contact time.

**Fumigating, misting or fogging:** This is final biosecurity measure. Formaldehyde fumigation, once practised has been replaced by safer chemicals, applied with thermal fogging machines or as a fine mist or spray.

# FOMITES AND FARM EQUIPMENT

**Fomites:** Clothing, equipment etc.

**People:** Already discussed.

**Feed:** May be contaminated with a number of pathogens such as *Salmonella* spp. *E. coli*, *Clostridium* spp, *Aspergillus* spp and mycotoxins. Meat and bone meal - salmonella

**Litter:** Can be contaminated with a variety of pathogens - viral, bacterial and protozoal. Needs effective disposal.

**Water:** Water system harbours significant bacterial contamination, e.g., from feed particles, dust, litters, and faeces, and nasal and mouth discharges. Use of effective water sanitizers is advised.

**Farm equipment:** Egg trays, trolleys and transport crates. They may transmit salmonella, ILT virus and red mite. Use 'once -only' disposable trays.

**Artificial insemination equipment:** Can also transmit disease.

# DEAD BIRDS DISPOSAL

**Burning:** This is the best procedure, usually done through incinerator. However, being expensive wood is rarely used for burning carcasses. Five quintals of wood is sufficient for 100 kg of dead birds.

**Burying or burial:** A pit must be prepared of two metres long, two metres wide and two metres deep. This size pit enables disposal of about 300 birds. Numbers of birds can be doubled, if it is made one metre deeper. Carcasses must be covered by a layer of calcium hydroxide and then with a layer of earth (at least 40 cm deep). Burial should be such that rodent and stray animal, such as dog cannot access it. The burial place should be suitably marked and not opened for at least five years.

**Composting:** Compost heat rapidly reaches temperature between 140°F and 165°F and reduces birds to soft tissues within 14 days. Effective in destroying *E. coli*, *Salmonella*, and Gumboro virus.



# DISEASE PROTECTION DEPENDENT ON ANTIBODY VS. CELLULAR IMMUNITY

Disease	Antibody	Cellular
<b>Ranikhet Disease</b>	✓	
<b>Infectious Bursal Disease</b>	✓	
<b>Avian Influenza</b>	✓	
<b>Chicken Infectious Anaemia</b>	✓	
<b>Avian Encephalomyelitis</b>	✓	
<b>Infectious Coryza</b>	✓	
<b>Infectious Bronchitis</b>	✓	✓
<b>Reovirus Infection</b>	✓	✓
<b>Fowl Pox</b>	✓	✓
<b>Inclusion Body Hepatitis</b>	✓	✓
<b>Salmonellosis</b>	✓	✓
<b>Colibacillosis</b>	✓	✓
<b>Marek's Disease</b>		✓
<b>Infectious Laryngotracheitis</b>		✓
<b>Mycoplasmosis</b>		✓

Thank you