EFFECTIVE BIO SECURITY
The Only Weapon to Control Poultry Problems

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Poultry production is subjected to intensive housing and management systems in order to maximize the main advantages of poultry as a food source.

This intensification has been accompanied by an increase in the incidence of disease in these enterprises. Because the poultry industry is a world wide activity with comparable housing circumstances and similar genetic stock that is disseminated to all the major poultry producing nations, one can expect similar disease problem all over the world.

Viral diseases represent the dominant pathology in the poultry industry. Therefore vaccination is essential for control, which makes poultry probably the most vaccinated livestock in the world. In this context understanding of BIO SECURITY CONCEPT in Poultry is mandatory.

Bio-Security can be defined as the measures and methods adopted to secure a disease free environment in farm for improved profitability.

- One of the most significant factors limiting efficiency and good performance is disease. Hence if disease is prevented or limited, efficiency will automatically rise.
- The most effective form of protection against disease, especially for poultry under modern production techniques is Biosecurity.
- Medication and vaccination have played a major role in treating diseases but it is now widely accepted that they cannot, prevent losses due to disease.
- Controlled, and good management practices are strictly followed, medication and vaccination alone cannot adequately protect stock.
- Poultry must be given an environment in which disease infections are controlled to the point where vaccination and medication can achieved beneficial effects. Biosecurity is a key element in this disease control method.
- Antibiotics, that were once regarded as a **"Cure all"** are now an outdated concept. Antibiotic efficacy seems to be declining as pathogens develop resistance to them.

Aims of Biosecurity

1. Prevention of entry of microbes into the premises.
2. Reduction of the microbial contamination of the area.
3. Total elimination of pathogenic organisms from the premises that cause diseases.

Sources of Diseases

Chicks

- Water
- Feed
- Litter
- Vectors, Vehicles and Visitors.
- Wind and Dust.

Bio - Security Measures

I. Structural Biosecurity :

1. Construct the buildings in East-West directions to avoid direct sunlight.
2. Fencing of farms perimeter to prevent unwanted visitors.
3. Test the water sources for mineral, bacterial, chemical contamination and pathogen load. Use good sanitizer regularly
4. Feed, litter and equipment should be stored in a section separated from the live-bird area to prevent contamination.
5. Provide proper curtains to protect the flock from extreme climatic conditions and rain water entry.
6. Provide good lighting systems.
7. Adjust proper measures of ventilation.
8. Facilities for disposal of dead birds.
9. Construct proper drainage system.

II. Operational Biosecurity

A. Traffic Control

1. Control human traffic - prevent people from brining diseases into a poultry operation by restricting access to poultry facilities.
2. Monitor vehicles entering premises for poultry pickup or delivery, feed delivery, fuel delivery etc.
3. Create awareness on biosecurity among the personnel working in the farm or hatchery. Provide foot disinfection and vehicle disinfection at the gate with a good disinfectant.
5. Establish a logbook and record non-farm staff enter the farm.

B. Rodent and Wild birds control

1. Disinfection without prior to adequate rodent and insect control is wasting of time and money.
2. Remove dead birds and after post mortem, incinerate or dispose them properly.

Avoid contaminating the poultry premises with dead chicks, broken eggs or feed spillage etc, which will attract wild birds and these are main source of many infectious and parasitic Diseases.

C. Health Monitoring

1. Regular monitoring of health status will aid in evaluation of biosecurity program.
2. In case of laying flocks keep watch on egg production curve.
3. Monitor on daily feed and water intake by the bird.
4. Look for morbidity and mortality on daily basis.
5. Keep regular check on external parasites like lice, mites and ticks.

D. Equipment

1. Any item brought into the farm from other farms should be thoroughly washed and disinfected before use.
2. Wash all shifting including trucks and other vehicles.

E. Disinfection

1. Disinfect all the equipments before getting into the farm.
2. Provide foot dips with a good disinfectant at the entrance of the shed to prevent the entry of microbes through personnel.
3. Provide vehicle disinfection and spray with a good disinfectant at the gate.

Conceptual Biosecurity

It is best to build the breeder farm in an isolated area, atleast 3 KM away from the nearest poultry in cases of breeder farms and 1.6 KM in case of commercial broiler and layer farms.
Breeder farms should be away from major roadway that may be used to transport commercial and backyard poultry.
Maintain enough distance between breeder and grow out farms and facilities such as hatcheries and feed mills.

The microbial load multiplies in the birds and spreads over the farm premises through the following routes.

1. Droppings.
2. Exhaled air.
3. Dropped feathers
4. Dead birds.
5. Slaughter hous**e.**

Thus pathogen load increases in the farm which becomes the source of infection for the subsequent batches.

If biosecurity measures in the farm are good, pathogen load is under control and the farm is free from diseases resulting in improved productivity, but if biosecurity measures are not adequate, pathogenic load increase in geometric proportion resulting in poor productivity and possibly ending with disease outbreaks.

- This not only effect present batches but also the subsequent batches.
- Thus biosecurity measures are crucial to bring the microbial load under control.
- Disease preventive measures are focused in the following areas:

1. Management
2. Nutrition
3. Vaccination
4. Medication

Common management factors which are of concern are

1. Rearing of multi age groups.
2. Rearing of broilers / layers together.
3. Improper regulations of traffic.

Nutrition has got few limitations which are quite inevitable

Variation in raw materials quality is a major constraint as majority are agricultural products procured from different sources.

Price fluctuation forces the producers to alter the formulation intern affecting the quality of the feed.

To maintain quality of feed one should have improved conditions of storage and transport which is again a major difficulty.

Vaccination

Vaccination is done in almost all the farms to protect the birds against diseases. Inspite of proper vaccination disease outbreaks are seen frequently. This is due to

a. Severe field challenge.
b. Vaccines are not available for all diseases. Ex. E.coli.
c. New and variant virus strains.

Medication through feed and water are used to prevent many bacterial and fungal diseases, yet disease continue unabated due to limitations like

a. No virus protection
b. Reduced sensitivity
c. Undesirable effect
d. Expensive

Therefore a vital factor in disease prevention is "A Good disinfection program".

A good disinfection program reduces level of field challenge, it also compliments vaccination and medication to improve Productivity.

Good cleaning and disinfection are the powerful tools of biosecurity which helps in preventing the entry of pathogens into the flock.

- They play an important role in the biosecurity of poultry operations including hatchery, brooding facility, poultry houses, storage facilities or processing plants.

Good qualities of a disinfectant :

1. Broad spectrum: Effective against wide range of disease causing Organisms including bacteria, virus, fungi, bacterial spores protozoa.
2. Safe and non toxic to both birds and the personnel.
3. Should not taint the surfaces, equipments etc.
4. Should have minimum contact time.
5. Effective in presence of organic matter.
6. Should be cost effective.
7. Longer residual activity.
8. Non - corrosive to the equipments.

Disinfection is of two types

1. Terminal disinfection
2. Continuous disinfection

Terminal disinfection:

This is done after removal of a batch and before introduction of a fresh batch.

- After lifting the birds the litter is dampened by spraying water, left for a day and then removed.
- Dry cleaning is done to remove feathers, dust etc.
- The house is cleaned with a plain water preferably with hot water.
- Caustic soda flakes are sprinkled evenly on the floor @ 1kg/1000 sft.
- The flakes are soaked with water and spread evenly on the floor. It is left for 2 to 3 hours and then washed with plain water.
- Then a good disinfectant is used as per the company is recommendations.
- All accessories like feeders, waterers, curtains etc. are given a Plain water wash before treatment with a disinfectant.

Continuous disinfection:

This refers to the in disinfection practices followed in the presence of birds like

a. At regular intervals (once weekly)
b. During disease outbreaks (twice daily)
c. During water sanitation (good sanitizer)