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BIOSECURITY IN BROILER FARM

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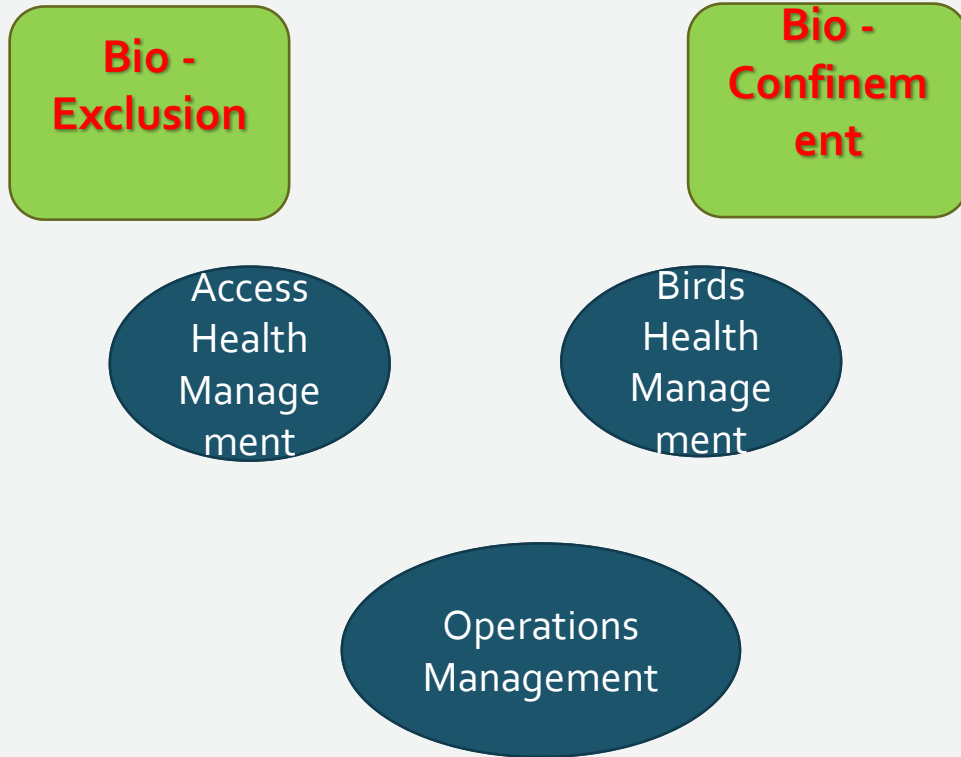
BIOSECURITY

What do we have to do to keep diseases from entering a poultry farm.

Biosecurity is an integral part of successful poultry production system. It refers to those measures taken to prevent or control the introduction and spread of infectious agents to a flock.

Principles of biosecurity

Preventing the introduction of a disease agent onto a farm - **‘bio-exclusion’**.



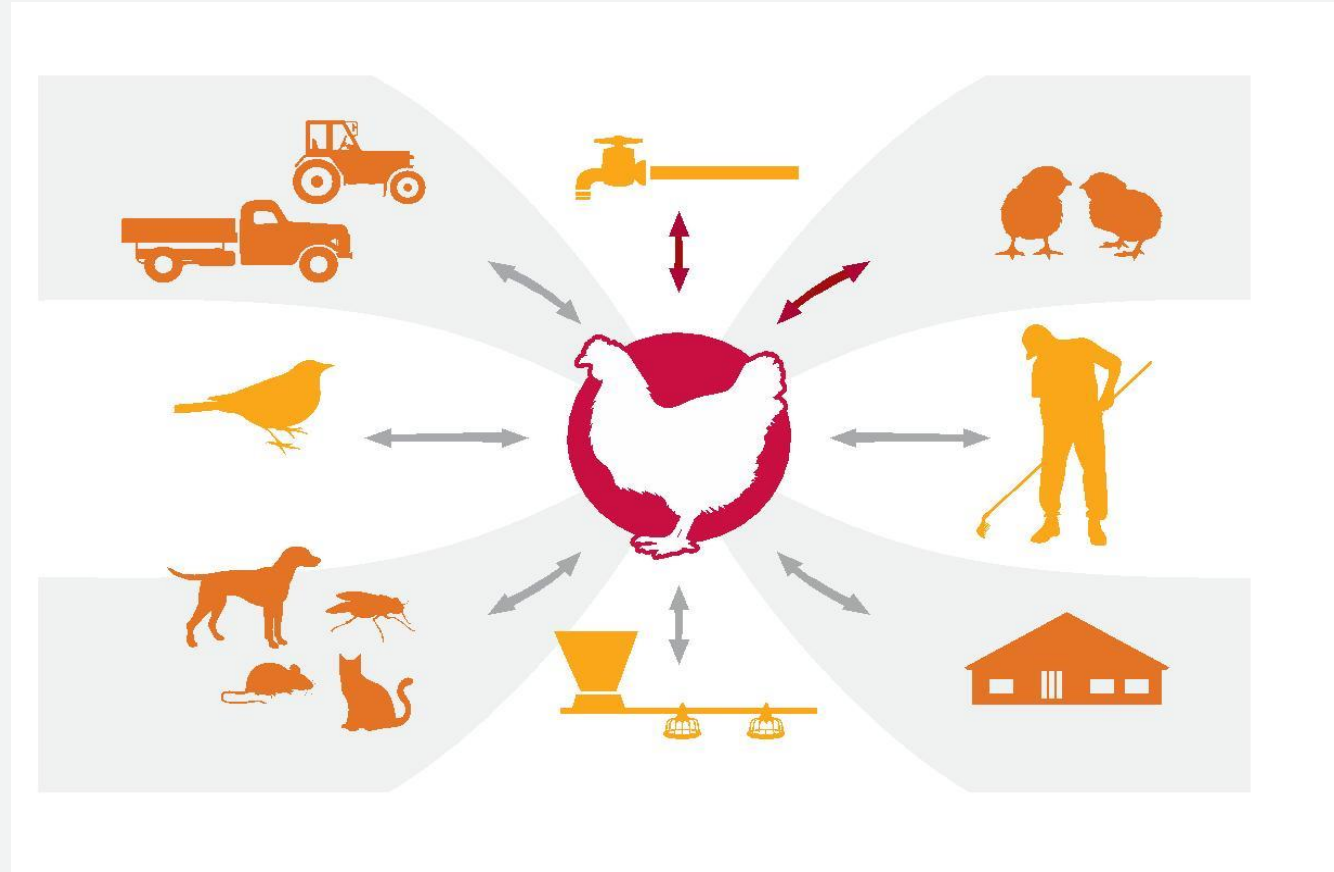
Preventing the spread of a disease agent on a farm - **‘bio-confinement’**.

.Disease agents can enter a farm on living (biological) and nonliving (fomites) carriers.

It is important that the most significant means of transmission be understood so that efforts at biosecurity can be prioritized on the highest risk factors.

.The vast majority of diseases are carried onto a farm by contaminated **people**, **equipment** and **vehicles**.

.Diseases can also be brought in through contaminated **water**, **chicks**, **litter** and **pests** such as **wild birds** and **rodents**.



.Poultry houses with different ages of chickens should be as far apart from each other as possible to prevent transmission of disease agents.

With different ages in close proximity, diseases will cycle from house to house since the area is not depopulated to 'break the cycle'.

.A minimum of 30 meters between houses with different ages is suggested.

The farm should be fenced to prevent entry of **unauthorized people** and other animals such as dogs, cats, backyard chickens, etc.

An entryway and disinfection designed so proper decontamination procedures can be practiced.

.The area around the poultry house should be keep clear of debris and vegetation keep short.

It is ideal to have a cement apron around the poultry house perimeter when possible as this facilitates cleaning and disinfection.

Inside the house, the walls, ceilings and floors should be smooth to permit cleaning.



Farm managers and veterinarians must ensure that all staff is trained in how to use the facilities correctly.



The entrance to each poultry house should be equipped with well-maintained cleaning and disinfection basins which all workers are trained in how to properly decontaminate on entry and exit from the house.

Access to the poultry houses must be through a compulsory compartment where cleaning and disinfection can be conducted.

This area provides a physical separation between the clean area and dirty area.



Vehicle disinfection pit



.All visitors, at the very minimum, should be required to wear dedicated clothing and footwear.

These include: Coveralls, Boots or plastic cover, Head cover, Gloves

Access to poultry houses must be through a sanitary area.

The sanitary area must be equipped with:

A change room with lockers;

A washbasin with hot and cold water and soap;

A disinfectant station.

Controls for lights, temperature, ventilation, etc.

Farm records for current and prior flocks.

.The level of biosecurity varies among poultry companies.

Some companies require showering and changing into clothing provided for access to all sectors of the integration while others only require changing of clothing and footwear.



OPTIMAL ENVIRONMENTAL CONDITIONS FOR REARING BROILERS

- Temperature - 22- 30 °C
 - Relative Humidity - 30-60 %
 - Ammonia level - Less than 25 ppm
 - Litter moisture - 15-25%
 - Air flow - 10-30 metres/minute
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Darkling beetles- adults and larvae



Red mites in droppings



Repair cracks on walls and roofs where insects and rodents can use as passages and shelters.

Common pests include wild birds, mosquitoes, flies and rodents.

These pests annoy and stress the birds and may serve as carriers of disease.

In some cases the pests are simply mechanical vectors.

However, in other cases, such as Salmonella in rodents and wild birds, they serve as biological vectors.
.Some pests can travel between poultry houses and even between farms.

Rodent control is a never ending battle and must be monitored closely.

Measures to be included in rodent control are:

Keep the area around the poultry houses clear of clutter and the grass cut short.

Repair and seal any holes or openings that would permit passage by rodents.

Install traps and keep poison baits (rodenticides) in designated places such as around feed storage bins, poultry houses, and sanitary areas.

The baits and traps must be monitored and maintained.



.A quality chick is one free of defects and free of infectious diseases.

When evaluating a chick for quality, it is important they are free of abnormalities, the umbilicus is properly healed, there is an absence of diarrhea, and they have the recommended body weights and uniformity.

.It is essential they are free of infectious diseases which can be egg transmitted such as mycoplasma and Salmonella.

Chickens must be provided high quality feed and water to achieve performance goals.

Maintaining quality through the production cycle is essential.

Feed stored in bags should be in a clean, cool and dry area.

On delivery to farm, feed should be inspected before being loaded into silos that have been cleaned and disinfected.

Feed vehicles should be cleaned and disinfected before and after delivery.

Feed must be protected during shipment so feed delivery vehicles must be maintained and disinfected before and after each delivery.

Excellent water quality is critical to achieve the desired performance.

Water is used for several functions during poultry production such as cleaning, disinfection, drinking and mixing with medicine and vaccines.

DECONTAMINATION: CLEANING, DISINFECTION, DOWN TIME AND MONITORING

.Farm disinfection is a critical part of the decontamination process.

Finally, the house needs to remain empty for 2- 3 weeks prior to reintroducing chickens.

Remove remaining feed from feeders and silos and water from lines.

Dismantle equipment.

Remove dust and dry clean.

Remove dust from all surfaces including ceiling, walls, and non-removable materials.

Remove litter from premises

Scrape cement floors to remove any adhering manure. If dirt floor, remove soil from the floor.

Washing is done in 4 steps:

1. Soaking with low pressure water.
2. Pressure washing.
3. Using a detergent to wash and remove oils and adhering dirt.
4. Rinsing with clean water

Disinfection:

.Disinfectants can be applied only to cleaned surfaces.



Water used for cleaning and disinfection must be of good quality:

The feed silos, which have been cleaned, can be disinfected with spray or formalin fumigation if permitted.

.Cleaning, descaling and disinfection of water lines are conducted to remove biofilms and mineral deposits formed during the growing cycle.

Risks associated with biofilms include:

Permanent source of the contamination of water.

Can inactivate drugs and vaccines.

Facilitate the development of antibiotic resistant bacteria.

Obstruct passage of water through lines leading to leaking of lines and wet litter.

Water can be treated with a disinfectant during the production cycle to prevent buildup of biofilms using chlorination, chlorine dioxide, peroxidation and others.



The sanitary waiting periods

The poultry houses should be cleaned and disinfected as soon as possible after removal of chickens.

.Following disinfection, it is suggested that houses be kept closed and vacant for at least 10- 15 days.

This period, from completion of disinfection until arrival of chicks, is referred to as 'down time'.

This time period has proven to be very valuable in providing the disinfectants time to act, drying the building, and allowing microbes and parasites to diminish.

Assessment of cleaning and disinfection program.

Treatment for insects

If there is a proliferation of insects, especially during the season of maximum activity, it is recommended to administer an insecticide a 2nd time before arrival of chicks.

Evaluation includes a visual assessment of the cleaning (the absence of dust and adhering organic material) and bacteriological assessment using media to determine quantity of bacterial organisms that persist.

Be sure to ventilate houses prior to chicks' arrival.

.Microbiological assessment is done on different surfaces by swabbing and wipes on agar and by contact plates.

Management of poultry mortality

.Poultry mortality must be removed from the premises daily as they can serve as a source of contamination.

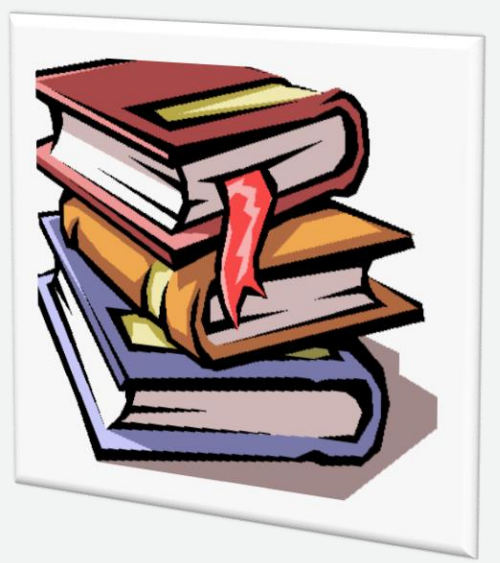
Biosecurity is much more effective in farms when a single age of chickens is housed--all-in and all-out. If diseases enter the farm, it is possible to break the infection cycle when the chickens are marketed.

Routine monitoring for flock health is essential to identify diseases as early as possible. Early treatment will limit losses and reduce likelihood of spread to other farms. Monitoring should include necropsy of daily mortality and morbidity and serological, bacteriological and mycological testing. Testing is often required for official control or part of an in-house control program.

.Biosecurity is a tool that helps to identify where and how errors are committed by the farmer, technician, veterinarian, and provides a roadmap on how to resolve the problem.

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Thank you !

