



Biosecurity Basics for Poultry

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Introduction

Biosecurity refers to procedures used to prevent the introduction and spread of disease-causing organisms in poultry flocks. Because of the concentration in size and location of poultry flocks in current commercial production operations and the inherent disease risks associated with this type of production, it is imperative that poultry producers practice daily biosecurity measures.

Developing and practicing daily biosecurity procedures as best management practices on poultry farms will reduce the possibility of introducing infectious diseases such as Avian Influenza and Exotic Newcastle as well as many others. Contract poultry growers should be familiar with the specifics of their company's biosecurity protocols and work closely with company representatives to implement those programs. Before implementing biosecurity programs, contract producers should check with poultry company personnel to be sure the measures taken are consistent and compatible with their company's policies.

What is biosecurity?

Biosecurity has three major components:

1. Isolation
2. Traffic Control
3. Sanitation

Isolation refers to the confinement of animals within a controlled environment. A fence keeps your birds in, but it also keeps other animals out. Isolation also applies to the practice of separating birds by age group. In large poultry operations, all-in/all-out management styles allow simultaneous depopulation of facilities between flocks and allow time for periodic clean-up and disinfection to break the cycle of disease.

Traffic Control includes both the traffic onto your farm and the traffic patterns within the farm.

Sanitation addresses the disinfection of materials, people and equipment entering the farm and the cleanliness of the personnel on the farm.

WHAT ARE THE BENEFITS?

- Keeping out poultry diseases such as avian influenza and Newcastle disease.

- Reducing the risk of zoonotic diseases such as salmonella.
- Protecting your neighbors, public health and the countryside.
- Improving overall flock health.
- Cutting costs of disease treatment

Infectious diseases can be spread from farm to farm by:

- Introduction of diseased birds
- Introduction of healthy birds who have recovered from disease but are now carriers
- Shoes and clothing of visitors or caretakers who move from flock to flock
- Contact with inanimate objects (fomites) that are contaminated with disease organisms
- Carcasses of dead birds that have not been disposed of properly
- Impure water, such as surface drainage water
- Rodents, wild animals and free-flying birds
- Insects
- Contaminated feed and feed bags
- Contaminated delivery trucks, rendering trucks, live hauling trucks
- Contaminated premises through soil or old litter
- Air-borne fomites
- Egg transmission

Of all the possible breakdowns in biosecurity, the introduction of new birds and traffic pose the greatest risk to bird health. Properly managing these two factors should be a top priority on your farm.

How much biosecurity do I need?

In order to assess how much biosecurity is practical for your farm, look at these three factors.

1. Economics
2. Common Sense
3. Relative Risk

New birds represent a great risk to biosecurity because their disease status is unknown. They may have an infection or be susceptible to an infection that is already present in birds that appear normal (healthy carriers) on your farm.

While all-in/all-out management isn't feasible for many breeding farms or farms raising exotic fowl or gamebirds, it is possible to maintain a separate pen or place to isolate and quarantine all new, in-coming stock from the resident population. Isolation pens should be as far from the resident birds as possible. At least 2 weeks of quarantine is suggested; 4 weeks is better. Watch birds for any signs of illness. Diagnostic blood tests for infectious diseases can also be performed at this time.

Use only clean plastic coops for transfer of poultry. Wooden coops are difficult to clean and have been responsible for distributing poultry diseases over long distances.

Avoid putting new birds, including baby chicks, in contact with droppings, feathers, dust and debris left over from previous flocks. Some disease-causing organisms die quickly, others may survive for long periods. For examples, see Table 1.

Direct the flow of on-farm traffic from the youngest to the oldest birds. Direct the traffic flow from the resident to the isolation area. Establish a "clear zone" free of vegetation around buildings to discourage rodent and insect traffic into the buildings or pens. Use a different pair of foot-covers in the isolation area and in the resident bird area to prevent the mechanical transfer of disease organisms on footwear. Footwear should be disinfected at each site. Disinfectant footbaths may help to decrease the dose of organisms on boots. But, because footbaths can be hard to correctly maintain it is a good idea to have a supply of cleanable rubber boots or strong-soled plastic boots for visitors.

Wash your hands after handling birds in isolation or birds of different groups. Disinfect waterers and feeders on a regular basis (daily). Plan periodic clean-out, clean-up and disinfection of houses and equipment, at least once a year. Use this time to institute rodent and pest control procedures. Remember that drying and sunlight are very effective in killing many disease-causing organisms.

Dispose of dead birds promptly by rendering, burning, burying, composting or sending them to a sanitary landfill.

Table 1. Longevity of Disease Causing Organisms	
Disease	Lifespan away from birds
Infectious Bursal Disease	Months
Coccidiosis	Months
Duck Plague	Days
Fowl Cholera	Weeks
Coryza	Hours to days
Marek's Disease	Months to years
Newcastle Disease	Days to weeks
Mycoplasmosis (MG, MS)	Hours to days
Salmonellosis (Pullorum)	Weeks
Avian Tuberculosis	Years

The following steps are a summarization of standard measures that poultry producers may use on their farms to increase the biosecurity of their flocks:

Keep Visitors to a Minimum

Human transportation of microorganisms is one of the more serious threats to biosecurity. Restriction of unnecessary human traffic is a major component of a sound program. Growers should restrict visitors and make sure that any visitor to their farm has a good reason to be there. Growers should provide protective covering such as boots, coveralls, and headgear to any visitors that work with, or have had recent contact with poultry. This would include friends, neighbors, relatives, equipment and utility service personnel. Visitors should never enter poultry houses unless approved by the grower or company personnel. Traffic through poultry houses should always flow from younger to older birds. One useful measure is keeping records of visitors that have been on the farm. If a problem arises, knowing who was there will help in limiting additional flock infections. Growers may post signs at the entrance to the farm indicating that entry to the farm and facilities is restricted. Poultry producers work to educate members of the local community of the risks to their flocks and the need to restrict traffic on their farms. This can be done by attending local community meetings or social events and speaking to groups and individuals about this subject. Print an article in the local newspaper about the importance of biosecurity for your farm and others. This can also help educate people regarding the seriousness of this issue.

Limit Visitations to Other Poultry Farms

Poultry growers should refrain from visiting other poultry operations unless absolutely necessary. When-ever it is necessary to visit another farm, growers should be sure to exercise additional precautions such as showering and changing clothes before arriving and washing any vehicle before entering a farm. It will be very important for growers to wear protective clothing including boots, coveralls and headgear and to clean and disinfect all clothing and equipment before returning to their facilities. Showering and changing into clean clothes will also be necessary.

Keep All Animals Out of Poultry Houses

Animals can be carriers of poultry disease causing organisms. Growers should not allow pets such as dogs, cats or other animals in their houses. Some growers will allow their dogs to walk the houses with them, but this is risky because the dogs may have been exposed to other animals or birds that have been contaminated with disease organisms. Poultry houses should be kept as closed as possible to prevent wild birds from getting inside. Wild birds utilizing the feeders and defecating in the houses can be a source of disease.

Practice Sound Rodent and Pest Control Programs

Rats, mice, and insects such as flies and darkling beetles can carry and spread microorganisms. Growers should consult with their poultry company and practice effective rodent and insect control programs. Eliminating or reducing as many of these pests as possible will reduce the risk of contracting or spreading a disease.

Avoid Contact with Non-Commercial Poultry or Wild Birds

Poultry growers should avoid all contact with non-commercial sources of poultry including backyard flocks, fanciers, fairs, poultry shows, and markets. These types of poultry are seldom fully vaccinated for the major poultry diseases and they are often exposed to many types and flocks of birds. Non-commercial birds represent extremely high-risk contacts. Employees should not be allowed to own their own poultry and neighbors with backyard flocks should be informed of the importance of getting sick or unhealthy birds to a diagnostic lab as soon as possible. Growers should also avoid wild birds such as ducks, geese and turkeys. Growers with farm ponds should be particularly concerned with the potential of carrying droppings from wild birds around ponds into their poultry houses. Wild birds are well known to be carriers of the avian influenza virus as well as other poultry diseases. Hunters should be sure they take the same biosecurity precautions as if they were visiting another poultry farm (i.e. showering, changing clothes, sanitizing vehicles, etc.).

Inspect Flocks Daily

Growers are required by their contract to inspect their flocks every day.

Mortality should be picked up daily and disposed of in a timely and approved method. Stock-piling mortality and allowing carcasses to decompose before disposal increases the risk of spreading disease via rodents and insects.

Growers should report increases in mortality or signs of health problems to their service representative immediately. This is required by contract and will ensure a rapid detection and response should a disease be present. Growers should check with their poultry company before using any vaccines, medications or drug treatments for a flock health problem. Timely reporting of health issues on a farm will not only help restrict additional infections, but will minimize losses to both the grower and the company.

Maximize the Environment

Maintaining litter in a relatively dry condition (i.e. 20%-30%) and providing good ventilation will help control microorganism numbers. Wet conditions combined with warm in-house temperatures provide a good growth environment for most disease causing organisms. Good ventilation also helps reduce microorganisms as fresh air entering and leaving the house dilutes microbe populations and removes them from the house. Poor ventilation can result in irritation of the respiratory tract of birds making them more susceptible to bacterial and viral infections.

Keep Areas Around Houses and Feed Bins Clean

Keeping grass and weeds cut around poultry houses and removing used equipment or trash is beneficial in keeping rodent and insect populations under control. Thick grass or weeds and old equipment provide refuge and habitat for rats, mice and insect pests that can spread disease. Spilled feed should be

cleaned up regularly and not allowed to collect for long periods of time. Spilled feed around the feed bins will attract birds, rats, mice and insects.

ESTABLISH REGULAR CLEANING AND DISINFECTING PROCEDURES.

Disinfect flock environments on a regular basis (Concurrent and Terminal). Disinfection reduces the pathogens in the flock environment, which thereby reduces the risk of disease.

. Disinfecting involves two steps: cleaning and applying a disinfectant. Always clean first. If the area is not cleaned thoroughly, the disinfectant will not work.

• STEP 1. CLEAN.

- . Remove all bedding, feed, and manure.
- . Sweep out loose dirt, cobwebs, and other loose materials.
- . Scrub all surfaces with a detergent or disinfectant cleaner (a high-power spray may be helpful).
- . Rinse away all detergent and organic matter (a high-power spray may be helpful).

• STEP 2. APPLY A DISINFECTANT.

- . Follow the directions on the disinfectant container, and use only the appropriate disinfectant. Disinfectants will not be as effective if they are excessively diluted to cut costs or if they are used improperly. Improper mixing decreases the effectiveness of the disinfectant.
- . Allow the disinfectant to dry completely.
- . Re-apply the disinfectant and allow it to dry a second time (optional)

Recognizing Disease Symptoms

It is important for poultry growers to be aware of signs of disease in their flocks. Early detection of contagious diseases can greatly reduce the impact and spread of that disease to other flocks. Clinical signs associated with the possibility of a disease in a poultry flock are:

- Lack of energy and appetite
- Decreased egg production
- Soft-shelled eggs or misshapen eggs
- Swelling of the head, eyes, comb, wattles and hocks
- Purple discoloration of the wattles, combs and legs
- Nasal discharge
- Coughing, wheezing and sneezing
- Lack of coordination in mobility
- Diarrhea
- Sudden or excessive mortality without clinical signs

Summary

Protecting poultry flocks from microorganism contamination is an extremely important component of commercial poultry production environment. The introduction of a highly pathogenic, contagious disease organism into poultry flocks could result in serious economic consequences for producers. The effectiveness of a biosecurity program can be optimized by regional participation. While any level of biosecurity is helpful, if all poultry producers in a given area utilize best management programs, the program as a whole will be more effective. Practicing sound biosecurity procedures every day as part of a best management program will help reduce the possibility of contracting a disease and will reduce the spread of disease should an outbreak occur.

References

Biosecurity Basics for Poultry Growers

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