

Official Training on the NPIP Program Standards Biosecurity Principles

May 16-17, 2017
Portland, Maine

Biosecurity Principle #1

Biosecurity Responsibility

Discussion led by:

Dr. Eric Gonder-GCC Chair and Member-at-Large

Dr. Jill Nezworski –GCC West North Central Regional Member

PREAMBLE

- Based on the flock size as stated in the 9 CFR 53.10, and including breeding flocks premises with at least 5000 birds, the following minimum management practices and principles are designed to prevent the introduction and spread of infectious diseases.

Biosecurity Principles: Responsibility

(1) Biosecurity responsibility

The Biosecurity Coordinator is responsible for the development, implementation, maintenance and ongoing effectiveness of the biosecurity program. Depending on the type and size of poultry operation, the Biosecurity Coordinator's responsibility could be at the farm, production site, production complex, or company level. The Biosecurity Coordinator should be knowledgeable in the principles of biosecurity. The Biosecurity Coordinator, along with the personnel and caretakers on the farms and production sites are responsible for the implementation of the biosecurity program. The Biosecurity Coordinator should review the biosecurity program at least once during each calendar year and make revisions as necessary.

Audit Guidelines: Biosecurity Responsibility

1.1. Is there a Biosecurity Coordinator? If so, please provide their name.

1.2. Is there a site-specific biosecurity plan?

1.2.1. Site-specific biosecurity plans can be defined as either farm-specific or complex-wide specific. Examples cited below are not all-inclusive nor do all examples cited need to be presented. Supporting documentation that is requested should reflect farm-specific or complex-wide specific as appropriate.

1.3. Is the Biosecurity Coordinator knowledgeable in the principles of biosecurity?

1.3.1. The Biosecurity Coordinator must be able to describe and interpret their company's biosecurity program and how it meets the requirements of the NPIP biosecurity principles.

1.4. Does the Biosecurity Coordinator review the biosecurity plan at least once during each calendar year and make revisions as necessary?

1.4.1. The Biosecurity Coordinator must be able to provide recorded dates in which annual reviews were made and evidence of revisions to the biosecurity plan if any were necessary.

1.5. Does the biosecurity plan indicate there will be a review by the Biosecurity Coordinator in periods of heightened risk of disease transmission?

1.5.1. Documentation of compliance, including evidence of a discussion during periods of heightened risk can take any form (e.g., emails, letters, memos, phone logs, text messages, etc.). It is the responsibility of the Biosecurity Coordinator to clearly define and communicate the "period of heightened risk" in the biosecurity plan.

Biosecurity Responsibility

Each site should have a coordinator and a plan

- If an entity has a coordinator and a plan, it can be audited.
- If an entity doesn't have either one, who's responsible for biosecurity? Whoever is responsible should be audited.
- Recommend working with big entities first – they should be responsible, especially if their supply depends on contractors or purchased product. They need to protect that supply.
- A MOU between State OSA's may be needed for multi-state entities, similar to those used for hatchery and laboratory inspections.
 - An MOU is not required. In the case of multi-state entities, States should work together to identify the State that will audit each site to avoid duplication or omission.

Biosecurity Principle #2 Training

Discussion led by:

Dr. Kristy Pabilonia-GCC Western Regional Member

Mr. JC Essler-GCC South Central Regional Alternate

Biosecurity Principles: Training

(2) Training

The biosecurity program should include training materials that cover both farm site-specific procedures as well as premises-wide and/or company-wide procedures as appropriate. All poultry owners and caretakers that regularly enter the perimeter buffer area (PBA) must complete this training. The training must be done at least once per calendar year and documented. New poultry caretakers should be trained at hire. Training records should be retained as stated in Title 9-CFR §145.12(b) and 146.11(e).

Regarding the phrase “regularly enter the perimeter buffer area (PBA)”, the word “regularly” does not necessarily mean daily. This means at uniform intervals of time.

Audit Guidelines: Training

- 2.1. Does the biosecurity program include training materials that cover both farm site-specific procedures as well as company and/or complex-wide site-specific procedures, as applicable?
- 2.2. Do all poultry owners and caretakers that regularly enter the perimeter buffer area (PBA) complete this training?
 - 2.2.1. Supporting documentation (e.g., training logs, training completion sheets, sign-in sheets, certificates of completion, etc.) should be provided.
- 2.3. Has the training been completed at least once per calendar year and documented?
 - 2.3.1. Supporting documentation (e.g., training logs, training completion sheets, sign-in sheets, certificates of completion, etc.) should be provided.
- 2.4. Are new poultry caretakers trained at hire?
 - 2.4.1. Supporting documentation (e.g., training logs, training completion sheets, sign-in sheets, certificates of completion, etc.) should be provided.
- 2.5. Are training records retained as stated in Title 9-CFR §145.12(b) and 146.11(e)?
 - 2.5.1. Records must be maintained for at least 3 years.

Biosecurity Principle #3

Line of Separation (LOS)

Discussion led by:

Dr. Julie Helm-GCC South Atlantic Regional Member

Dr. Jessica Walters-GCC South Atlantic Regional Alternate

Biosecurity Principles: Line of Separation (LOS)

(3) Line of Separation (LOS)

The Line of Separation (LOS) is a functional line separating the poultry house(s) and the poultry inside from exposure to potential disease sources. Generally, it is defined by the walls of the poultry building with practical deviations to account for entry points, structural aspects, or outside access areas. The site-specific biosecurity plan should describe or illustrate the boundaries of the LOS and clearly outline the procedures to be followed when caretakers, visitors, or suppliers cross it.

For poultry enclosed in outdoor pens, similar principles for the LOS can be applied for defining and controlling the LOS for each pen. In this circumstance, the walls of the outdoor pens would provide template for defining the LOS to be used when entering or exiting the pens.

For poultry with non-enclosed outdoor access, the LOS is recommended but not required. Further, in an emergency disease state where the transmissible disease risk is heightened, it is highly recommended to enclose all poultry and enforce a LOS.

Audit Guidelines: Line of Separation (LOS)

3.1. Does the site-specific biosecurity plan describe or illustrate the boundaries of the LOS? If not, please explain.

3.1.1. Provide a diagram, map, and/or a detailed description of the LOS. The LOS is recommended but not required for poultry with unenclosed outdoor access, but is highly recommended during periods of heightened risk.

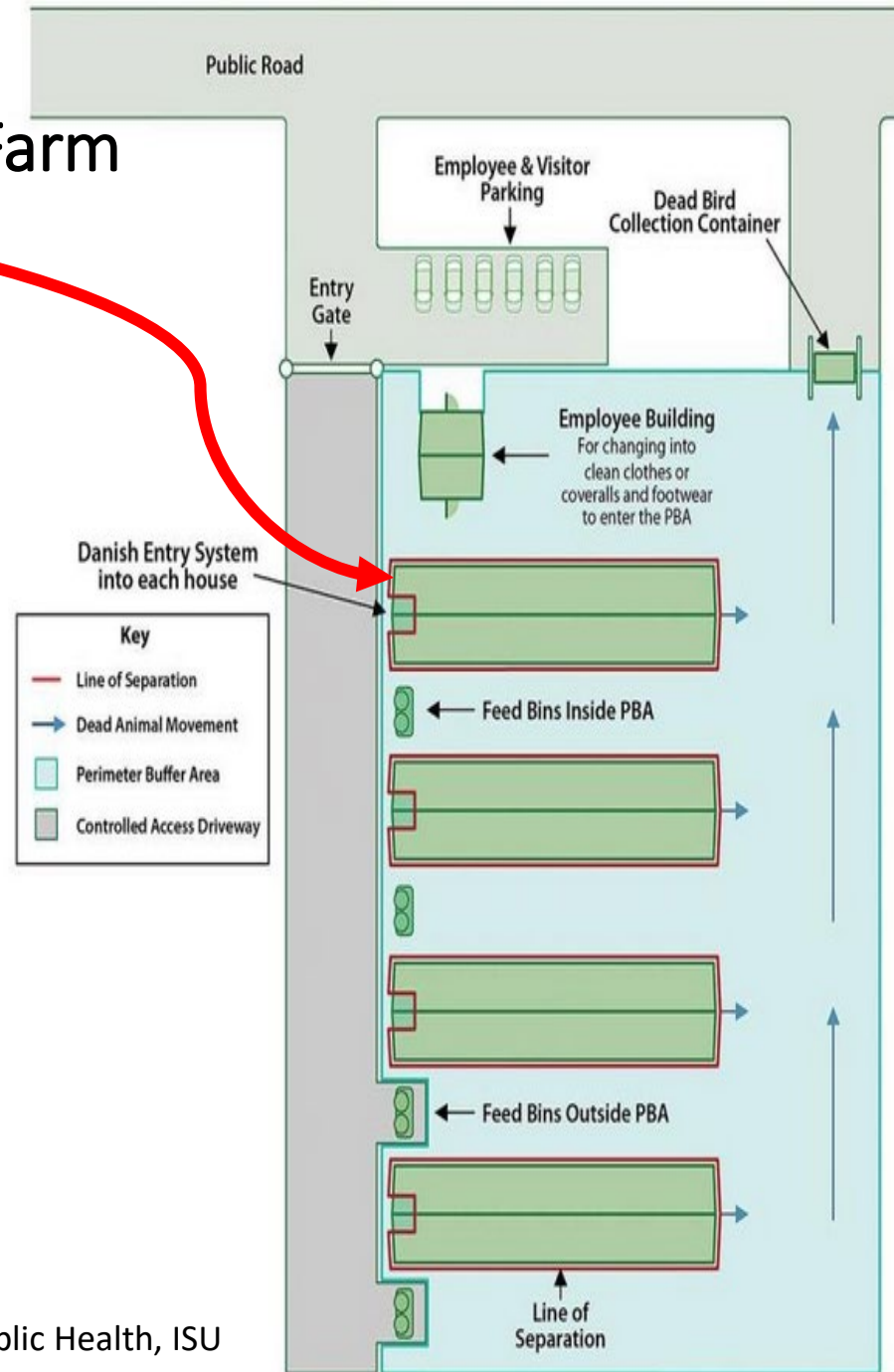
3.2. Does the site-specific biosecurity plan clearly outline procedures to be followed when caretakers, visitors, or suppliers cross the LOS?

3.2.1. Provide the procedures (e.g., written instructions, signage, training videos, etc.) to be followed by caretakers, visitors or suppliers to cross the LOS.

LOS – Broiler / Turkey Farm

- LOS is a functional line separating the poultry house(s) and the poultry inside from exposure to potential disease sources.

- Generally, it is defined by the walls of the poultry building



LOS – In-Line Table-Egg Complex

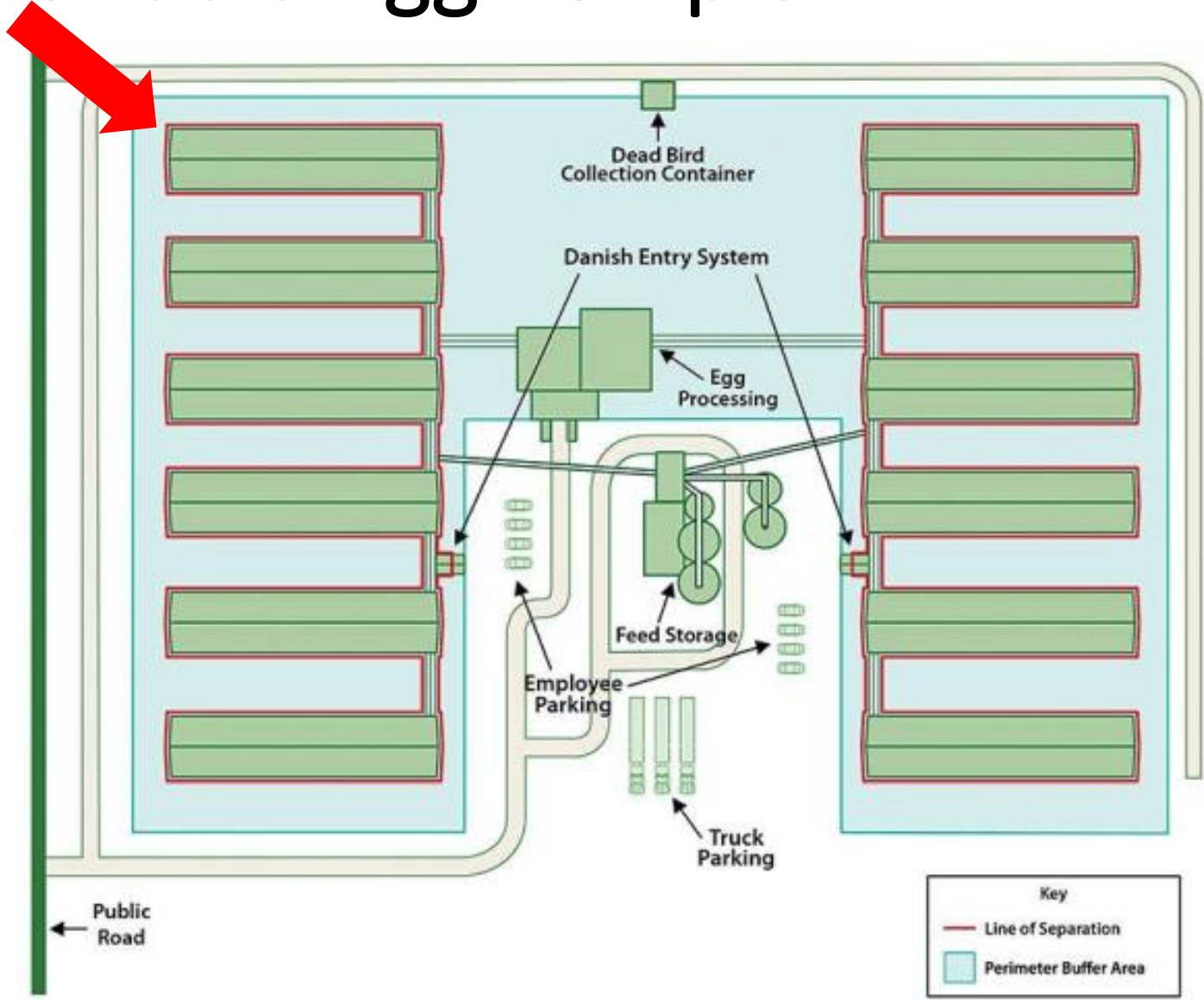


Diagram from Center for Food Security & Public Health, ISU

Line of Separation (LOS)

- **For poultry enclosed in outdoor pens,** similar principles for the LOS can be applied for defining and controlling the LOS for each pen.
- In this circumstance, the walls of the outdoor pens would provide template for defining the LOS to be used when entering or exiting the pens.

Line of Separation (LOS)

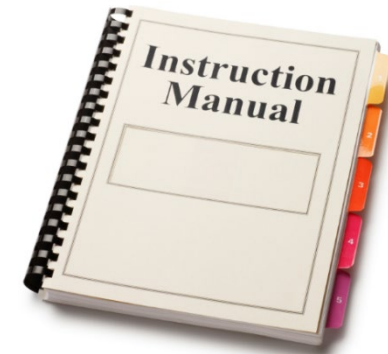
- **For poultry with non-enclosed outdoor access,** LOS is recommended, but not required.
- Further, in an emergency disease state where the transmissible disease risk is heightened, it is highly recommended to enclose all poultry and enforce a LOS.

Line of Separation (LOS) Audit & Guidelines

- Q 3.1 – Does the site-specific biosecurity plan describe or illustrate the boundaries of the LOS?
Yes or No
- If not, please explain.
 - Provide a diagram, map, and/or a detailed description of the LOS.
 - LOS is recommended, but not required for poultry with **unenclosed outdoor access**, but is highly recommended during periods of heightened risk.

Line of Separation (LOS) Audit & Guidelines

- Q 3.2 – Does the site-specific biosecurity plan clearly outline procedures to be followed when caretakers, visitors, or suppliers cross the LOS? Yes or No
- Provide the procedures (e.g. written instructions, signage, videos, etc.) to be followed by visitors or suppliers to cross the LOS.



Biosecurity Principle #4

Perimeter Buffer Area (PBA)

Discussion led by:

Dr. Julie Helm-GCC South Atlantic Regional Member

Dr. Jessica Walters-GCC South Atlantic Regional Alternate

Biosecurity Principles: PBA

(4) Perimeter Buffer Area (PBA)

The perimeter buffer area is a functional zone surrounding the poultry houses or poultry raising area that separates them from areas unrelated to poultry production on that site and/or adjoining properties. It is comprised of the poultry houses and poultry raising areas as well as nearby structures and high traffic areas involved in the daily function of the poultry farm. This would usually include but not be limited to such things as feed bins, manure sheds, composting areas, egg rooms, generators, pump rooms, etc. The site-specific biosecurity plan should describe or illustrate the boundaries of the PBA and clearly outline the procedures that caretakers, visitors, or suppliers must follow when entering and leaving the PBA.

Audit Guidelines: Perimeter Buffer Area (PBA)

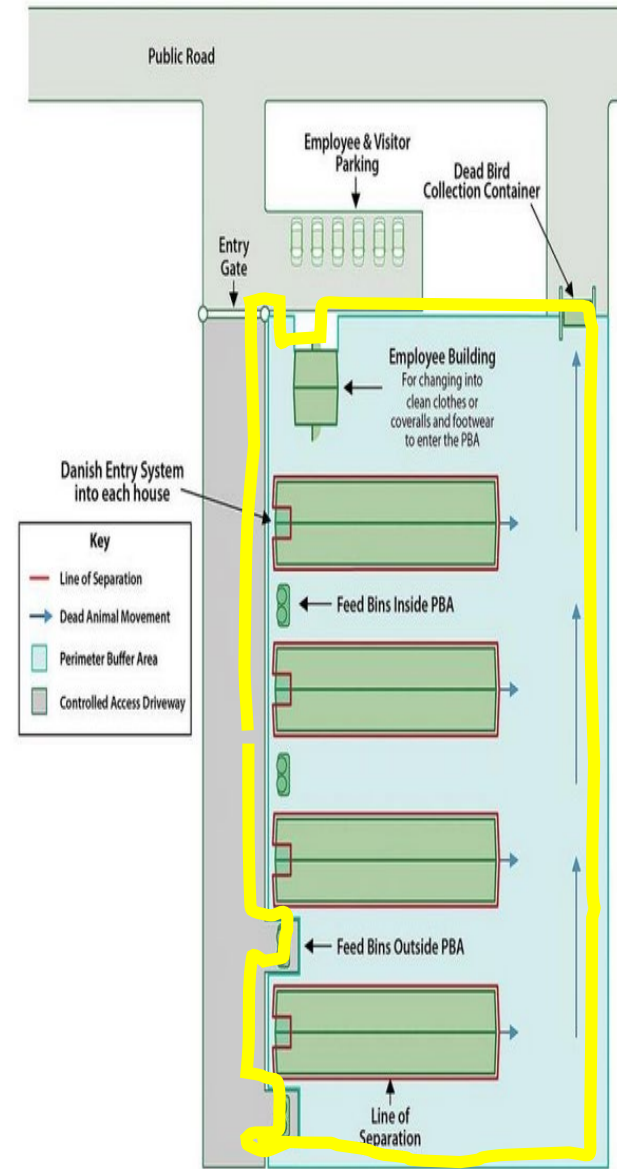
4.1. Does the site-specific biosecurity plan describe or illustrate the boundaries of the PBA?

4.1.1. Provide a diagram, map, and/or a detailed description of the PBA.

4.2. Does the site-specific biosecurity plan clearly outline the procedures to be followed by caretakers, visitors, or suppliers when entering and leaving the PBA?

4.2.1. Provide the procedures (e.g., written instructions, signage, training videos, etc.) to be followed by caretakers, visitors or suppliers when entering and leaving the PBA.

Perimeter Buffer Area (PBA)



Perimeter Buffer Area (PBA)

- PBA is a functional zone surrounding the poultry houses or poultry raising area that separates them from areas unrelated to poultry production on that site and/or adjoining properties.

The PBA does not have to be surrounded by a fence.

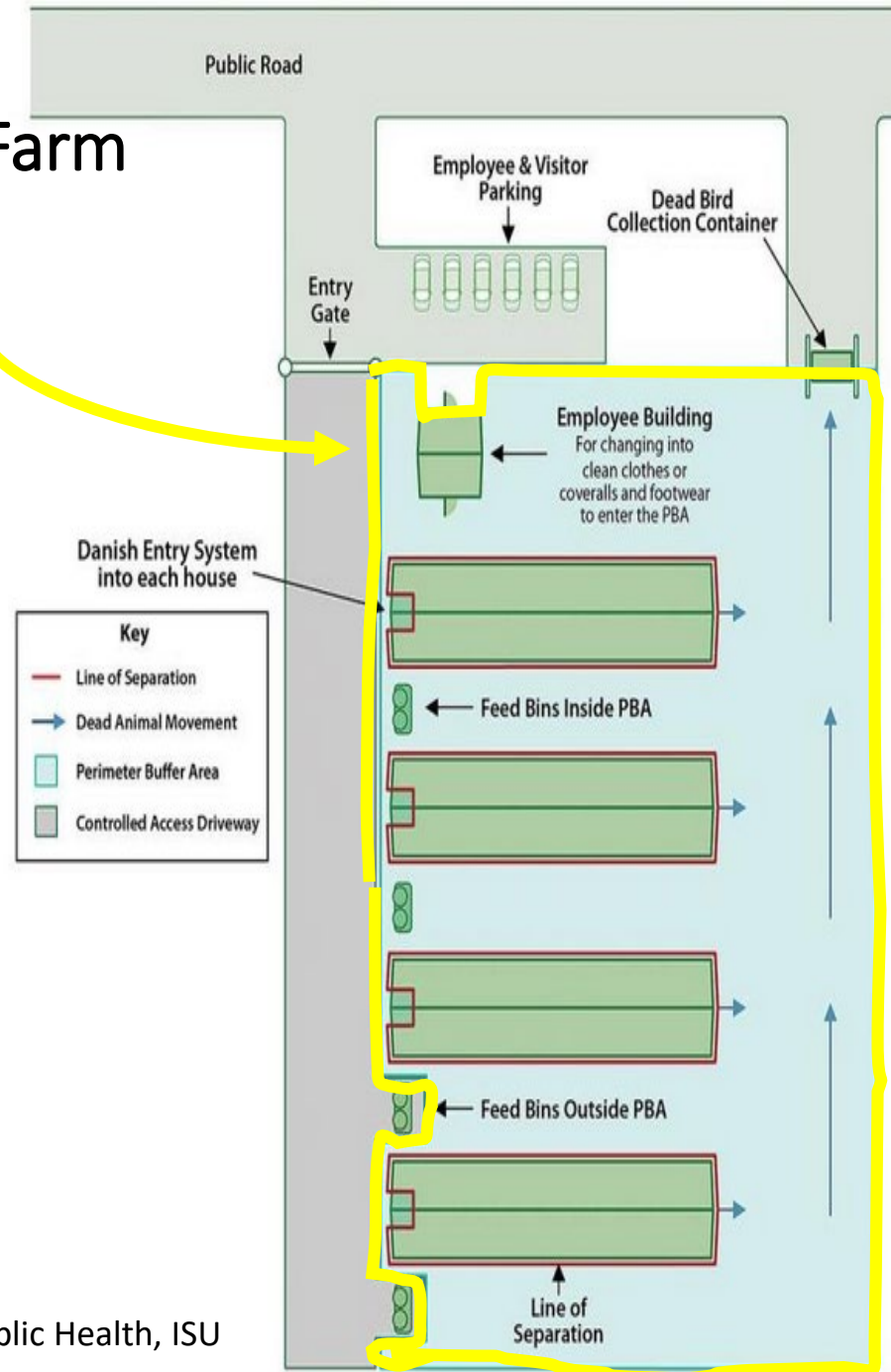
- It is comprised of the poultry houses and poultry raising areas as well as nearby structures and high traffic areas involved in the daily function of the poultry farm.

Perimeter Buffer Area (PBA)

- This would usually include but not be limited to such things as feed bins, manure sheds, composting areas, egg rooms, generators, pump rooms, etc.
- The site-specific biosecurity plan should describe or illustrate the boundaries of the PBA and clearly outline the procedures that caretakers, visitors, or suppliers must follow when entering and leaving the PBA.

PBA – Broiler / Turkey Farm

- Functional zone surrounding the poultry houses or poultry raising area
- High traffic areas involved in the daily function of the poultry farm



PBA – In-Line Table-Egg Complex

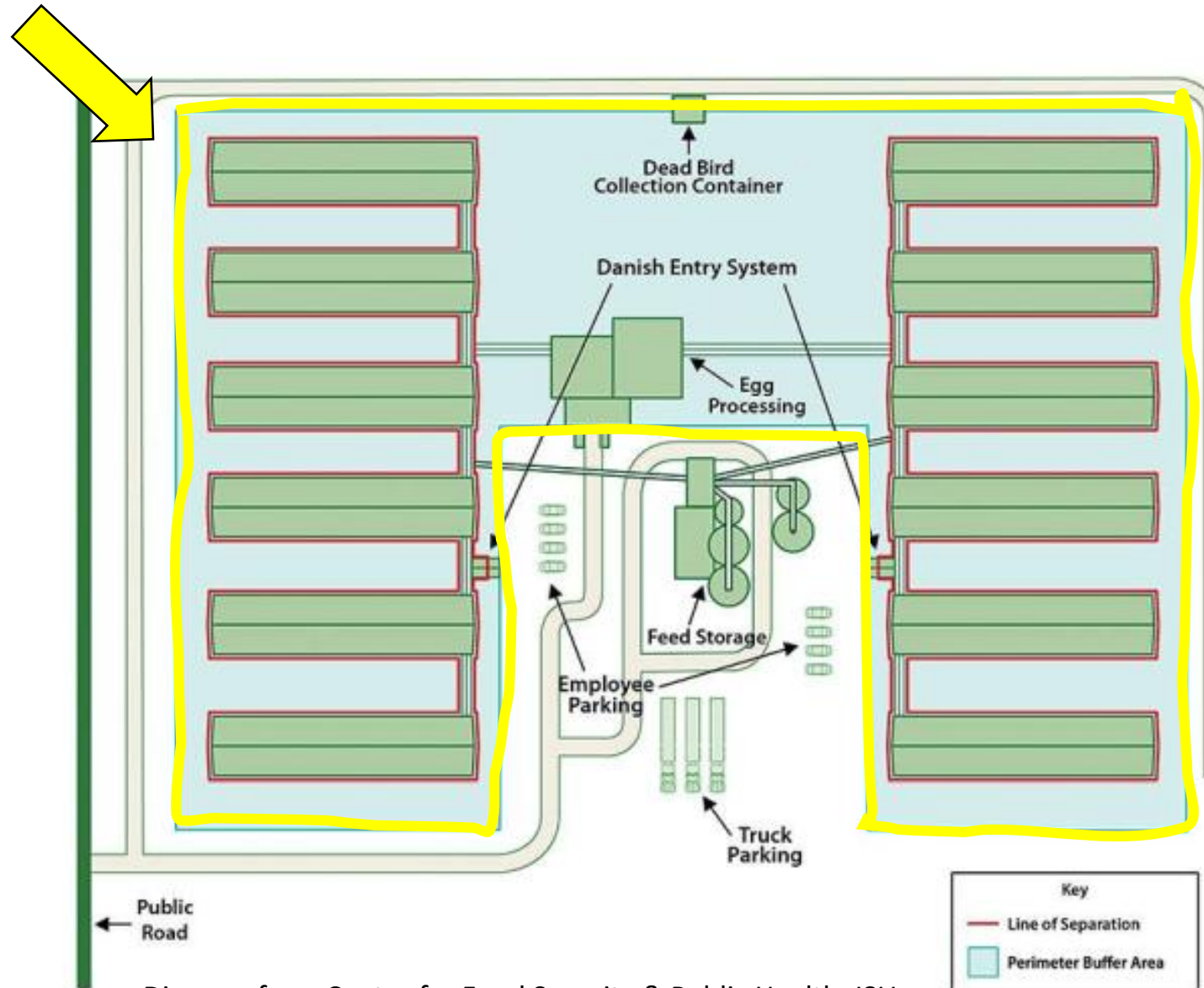


Diagram from Center for Food Security & Public Health, ISU

Perimeter Buffer Area (PBA) Audit & Guidelines

- Q 4.1 – Does the site-specific biosecurity plan describe or illustrate the boundaries of the PBA? Yes or No
 - Provide a diagram, map, and/or a detailed description of the PBA.

Perimeter Buffer Area (PBA) Audit & Guidelines

- Q 4.2 – Does the site-specific biosecurity plan clearly outline the procedures to be followed by caretakers, visitors, or suppliers when entering and leaving the PBA? Yes or No
- Provide the procedures (e.g. written instructions, signage, training videos, etc.) to be followed by caretakers, visitors or suppliers when entering and leaving the PBA.



Biosecurity Principle #5

Personnel

Discussion led by:

Dr. Ben Wileman-GCC West North Central Regional Alternate

Dr. Mary Jane Lis-GCC North Atlantic Regional Alternate

Biosecurity Principles: Personnel

(5) Personnel

The biosecurity program and/or the site-specific biosecurity plan should include provisions specifically addressing procedures and biosecurity PPE for site-dedicated personnel. The plan should likewise address the procedures and biosecurity PPE for non-farm personnel. The plan should also specify procedures which all personnel having had recent contact with other poultry or avian species should follow before re-entering the PBA.

Audit Guidelines: Personnel

5.1. Does the biosecurity program and/or site-specific biosecurity plan include provisions specifically addressing procedures and biosecurity personal protective equipment (PPE) for site-dedicated personnel?

5.1.1. PPE should be described in the biosecurity plan for each type of production facility.

5.2. Does the biosecurity program and/or site-specific biosecurity plan address the procedures and biosecurity PPE for non-farm personnel?

5.2.1. PPE should be described in the biosecurity plan for each type of production facility for non-farm personnel.

5.3. Does the biosecurity program and/or site-specific biosecurity plan specify procedures which all personnel having had recent contact with other poultry or avian species should follow before re-entering the PBA?

5.3.1. Supporting documentation (e.g., signed statements, acknowledgement forms, visitor log-in, signed policy documents, etc.) should be provided.

Biosecurity Principle #6

Wild Birds, Rodents, Insects

Discussion led by:

Dr. Jarra Jagne-GCC North Atlantic Regional Member

Dr. Mary Jane Lis-GCC North Atlantic Regional Alternate

Biosecurity Principles: Pest Control

(6) Wild Birds, Rodents and Insects

Poultry operations should have control measures to prevent contact with and protect poultry from wild birds, their feces and their feathers as appropriate to the production system. These procedures should be reviewed further during periods of heightened risks of disease transmission. Control programs for rodents, insects, and other animals should be in place and documented.

Audit Guidelines: Wild Birds, Rodents, and Insects

6.1. Are there control measures in the biosecurity program and/or site-specific biosecurity plan to prevent contact with and protect poultry from wild birds, their feces and their feathers as appropriate to the production system?

6.2. Does the biosecurity program and/or site-specific biosecurity plan contain control programs for rodents, insects, and other animals?

6.3. Are these programs documented?

6.3.1. Provide description of control programs and examples of the documentation [e.g., log sheets, rodent control company contracts, Best Management Practices (BMP) audits, maintenance records, etc.].

Wild birds, Rodents and Insects

Jarra Jagne and Mary Jane Lis

Wild birds, Rodents and Insects

Biosecurity Principle # 6

- Poultry operations should have control measures to prevent contact with and protect poultry from wild birds, their feces and feathers as appropriate to the production system
- These procedures should be reviewed further during periods of heightened risks of disease transmission
- Control programs for rodents, insects and other animals should be in place and documented

Controlling Wild Birds

- Can carry disease by flying from farm to farm. Important as “bridge” species in HPAI outbreaks
- They can act as vectors (carriers) for a wide range of other diseases and parasites that can infect commercial poultry.
- To prevent harm to poultry from wild birds, it is important to keep wild birds out of the **poultry houses** and to minimize their presence on the farm environment

Wild Bird Control On The Farm

- The main aim is to minimize the presence of wild birds in close proximity to poultry houses or the fields in which commercial poultry range.
- This will reduce the risk of wild birds coming into direct contact with commercial poultry or disease agents from wild birds being transferred to the poultry by staff or equipment.



Wild Bird Control On The Farm

- Fencing – How effective?
- Attractiveness of area around poultry house to wild birds – feed, water availability and nesting and roosting places
- Free range flocks? Keep feed inside houses instead of outside and providing artificial shade
- Use of netting, repellents and barbed wire to prevent roosting on roof of houses
- Active control measures – shooting, trapping, baiting, nest destruction etc. Use of poison should be done with caution
- Devices to frighten them

Control in Poultry Houses

- Walls, roofs, floors and doors should be kept in good condition
- Close doors at all times
- Poisons or traps – However, when using poisons it is important to ensure that they are suitable for use in poultry houses and are used in accordance with manufacturer's specifications.



Wild Birds and HPAI

- Wild waterfowl birds and other migratory birds serve as natural reservoir
- Transmission to poultry facilities via feces on footwear
- Direct defecation on bedding and commingling of wild birds and outdoor flocks



Rodent Control

Why rodent control?

- Rats and mice, can be a major cost factor on the poultry farm because of the food that they eat and spoil with feces and urine,
- Damage to housing and equipment
- Disease carriers - result in flock health problems, staff health problems and/or food safety concerns regarding the products produced on the farm.
- The house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and roof rat (*Rattus rattus*) are commonly found in and around livestock and farm facilities



Rodent Ecology

- Building construction and design should block and not allow access
- Rodents burrow into walls, holes, deep litter etc.
- Active at night
- Nesting in burrows or above ground
- Active breeding – One pair and offspring can produce 800 young in 9 months



Estimating Rodent Populations

- Rat sign but no rats seen – 1 to 100.
- Occasional rat sightings at night – 100 to 500.
- Seen every night and occasionally by day – 500 to 1000.
- Many by night and day – up to 5000.

Rodent Control

- Provide description of control programs and examples of the documentation [e.g., log sheets, rodent control company contracts, Best Management Practices (BMP) audits, maintenance records, etc.].

Rodents and Disease

Disease	Agent	Type of Rodent
Bordetellosis	bacteria	rats
Leptospirosis	bacteria	rats and mice
Erysipelas	bacteria	rats
Salmonellosis	bacteria	mice and rats
Fowlpox	virus	rats
Pasteurellosis	bacteria	rats and mice
Avian influenza	virus	rats and mice

Because rodents are capable of both mechanical and physiological transmission of various bacteria, viruses, and nematodes, the potential exists for rodents to transmit several other pathogens in poultry systems.

Rodents and HPAI

- AIVs have been shown to successfully replicate in rodents without adaptation.
- AIV infections in rodents can result in high viral titers in lungs and nasal turbinates
- Presence of virus in nasal washes and saliva
- Transmission to naïve contact animals.
- Therefore, active AIV shedding by infected rodents may play a role in transmission to poultry.

Rodents and Economic Loss

- Feed loss – consume 30g/day, 1000 rats consume an estimated 11 tons of feed/year
- Damage to buildings – Foundations, water lines, electric cables
- Damage to flocks – break and eat eggs, kill young chicks and bite adult birds
- Zoonotic disease carrier (viruses, bacteria, parasites)

Rodent Control Measures

- Minimize access to buildings (rodent proof every aspect)
- Prevent access to feed and water
- Eliminate nesting places (rodent proof)
- Place feed and equipment 60cm off the ground and 60cm away from wall
- Keep grass short and area around building clean
- Good sanitation in poultry houses – sweeping debris, broken eggs etc.
- Baiting and trapping
- Monitoring rodent populations

Baiting Stations

- Use of rodenticides
- Use in conjunction with traps
- Follow manufacturer's instructions to avoid poisoning poultry and workers
- Lay out along rodent pathways from nest to feeders
- Provide water near bait
- 10 days on and 10 days off – rats can figure out baiting soon enough
- Change baits frequently to prevent resistance build up



Insect Pest Control

- The goal of pest control is to reduce pests to an acceptable level.
- Total eradication is an unrealistic goal for most farms.
- Integrated Pest Management (IPM) was developed to use all available management tactics or strategies to manage pests with the least disruption to the environment.
- IPM uses Cultural, Biological, Chemical and Mechanical methods to control pests.

Pest Control

➤ Requires systematic process of decision making based on five principles

1) Detection – monitoring via visual appraisal

2) Identification – positive identification

3) Economic Significance

4) Control Method Selection – several methods of control

Natural, cultural, chemical, mechanical, legal (restricting human activities that lead to pest accumulation)

5) Evaluation

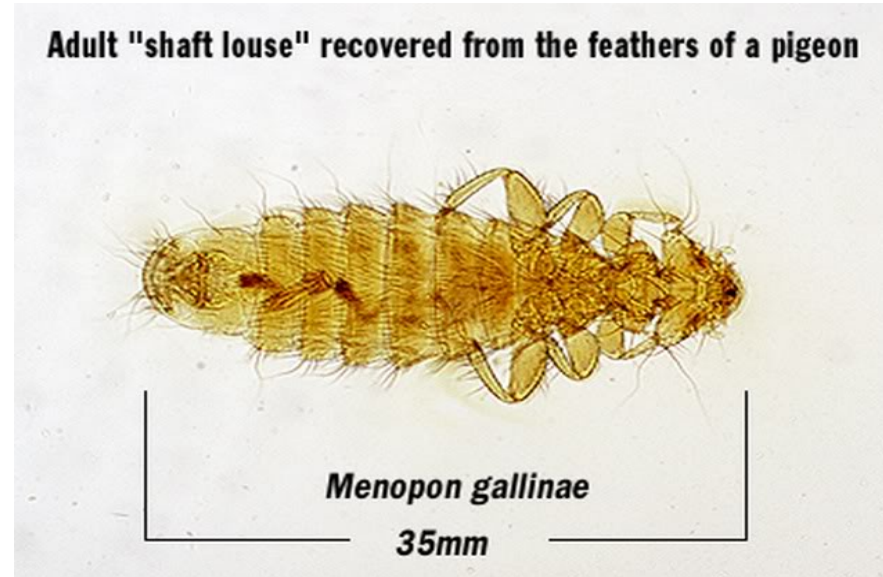
Insect Pests and Their Control

Important Insect Pests In Poultry Establishments

- **Mites**
- **Lice**
- **Flies**
- **Beetles**



Lice - Menacanthus stramineus and Menopon gallinae



Lice - Life Cycle

- Entire life cycle is spent on the host primarily in the feathers. Off the host, survival is less than a week
- Eggs or “nits” are laid at the base of the feather and made to stick with a gluelike substance
- Nits hatch in 4-7 days into nymphs and look just like adults except smaller and nearly transparent. The nymphs go through several molts to become adults changing color
- One female can lay 300 nits/life cycle. The entire lifecycle is just 3 weeks therefore in just a few months the population increases dramatically

Lice - Nits



MITES

- Mites are arthropods belonging to the class Arachnida with single-segmented bodies and four pairs of legs
- They are very small, usually <1mm, some are microscopic
- They are not host specific and have evolved and adapted well to a changing environment
- Mouths are designed for piercing and chewing

Mites – Life cycle

- Consists of egg, larva, nymph and mature adult
- The cycle can be completed in an average of 7 days depending on the type of mite and the environment
- The adult female needs blood in order to reproduce and the female is 95% of the population
- They are generally opaque but become darker after a blood meal

Northern Fowl Mite – stained feathers



Treatment

- Carbaryl
- Permethrin
- Rabon
- Ravap

Fly Control

- The fly cycle varies depending upon the species of fly and the temperature under which the pupa and larva develop.
- The life span of the house fly is 8 to 20 days under average summer conditions
- Monitoring of fly populations is easily accomplished with the use of six to 10, 3x5 white index cards placed evenly throughout the facility .
- As the flies land on the card, they leave a black speck. As the fly population increases so does the number of specs. 20 to 50 specs per card per week usually indicates you have a fly problem
- Keep cards numbered and dated to serve as a record of fly activity
- Fly traps can also be used

Fly Control

- Manure management
- Chemical control
- Biological control

Acknowledgements

- Michael Darre and James Rock - University of Connecticut Animal Science Department— Pest Management on Poultry Farms

Biosecurity Principle #7

Equipment and Vehicles

Discussion led by:

Dr. Dave Hermes-GCC East North Central Regional Member

Ms. Jenna Gregorich- GCC East North Central Regional Alternate

Biosecurity Principles: Equipment/Vehicles

(7) Equipment and Vehicles.

The biosecurity plan should include provisions for procedures for cleaning, disinfection, or restriction of sharing of equipment where applicable. Vehicle access and traffic patterns should be defined in the site-specific biosecurity plan.

Audit Guidelines: Equipment and Vehicles

7.1. Does the biosecurity program and/or site-specific biosecurity plan include provisions for procedures for cleaning, disinfection, or restriction of sharing of equipment where applicable?

7.1.1. Supporting documentation (e.g., written instructions, signage, training videos, etc.) should be provided.

7.2. Are vehicle access and traffic patterns defined?

7.2.1. Provide a description of vehicle entry access and traffic patterns.

Biosecurity Principle #8

Mortality Disposal

Discussion led by:

Dr. Eric Gonder-GCC Chair and Member-at-Large

Biosecurity Principles: Mortality Disposal

(8) Mortality Disposal

Mortality should be collected daily, stored and disposed in a manner that does not attract wild birds, rodents, insects, and other animals and minimizes the potential for cross-contamination from other facilities or between premises. It is recommended that dead bird disposal be on-site, if possible. Mortality disposal should be described in the site-specific biosecurity plan.

Audit Guidelines: Mortality Disposal

- 8.1. Is there a mortality disposal plan?
- 8.2. Does the mortality disposal plan reference the frequency of removal, storage of mortality, and pest control around mortality storage and disposal areas?
 - 8.2.1. Provide a description of the mortality disposal plan and examples of documentation [e.g., mortality sheets, company contracts, Best Management Practices (BMP) audits, disposal records, etc.].
- 8.3. Does the mortality disposal plan address procedures for handling mortality disposal in a way that minimizes the potential for cross-contamination from other facilities or between premises?
 - 8.3.1. Supporting documentation should be provided (e.g., written instructions, videos, etc.) for proper handling of mortality to minimize the potential of cross-contamination.

Is there a plan?

- Unacceptable plans:
 - “Our contractors are responsible for that – it’s in our contracts” – take a look at that portion of the contract – it should then address frequency of removal, storage and pest control.
 - Stating that contractors must comply with applicable regulations will usually not be satisfactory – most regulations target water quality and public health, not biosecurity.
 - Additionally, while a company may choose to have contractors sign-off on the 14 Biosecurity Points, their signature alone in acknowledgement of reading the points is not an acceptable plan.
- Has cross-contamination between facilities been considered at all? Any provisions for traffic routing or sanitation of equipment?

Biosecurity Principle #9

Manure and Litter Management

Discussion led by:

Dr. Jill Nezworski- GCC West North Central Regional Member

Dr. Jarra Jagne- North Atlantic Regional Member

Biosecurity Principles: Manure/Litter

(9) Manure and Litter Management

Manure and spent litter should be removed, stored and disposed of in a manner to prevent exposure of susceptible poultry to disease agents. Onsite litter and manure storage should limit attraction of wild birds, rodents, insects, and other animals.

Audit Guidelines: Manure and Litter Management

9.1. Is the manure and spent litter handled in a manner that limits the spread of infectious disease?

9.1.1. Procedures (e.g., written instructions, manure/litter handling log sheets, protocols, permits, guidance for contractors, etc.) should be provided showing how disease risk from manure and litter handling has been addressed.

Manure and Litter Management

- Poultry wastes coming from broiler, turkey and layer farms have the potential to spread disease if not handled properly
- Manure and spent litter should be removed, stored and disposed of in a manner that will prevent exposure of susceptible poultry to disease agents

Manure and Litter Management

- How manure and litter are disposed of depends on federal, state and municipality laws and regulations
- Farmers should familiarize themselves with the regulations in their particular locality

Manure and Litter Management

- In addition to containing animal pathogens, poultry litter and manure can also contain human pathogens, contaminate drinking water and contain high levels of nitrates which can be harmful
- Proper waste management can reduce the concerns and allow wastes to be properly utilized for a variety of things including as fertilizer for crops

Manure and Litter Management

- The choice of a proper waste management system depends on many factors such as size of operation, number and type of birds and even climate.
- There is no perfect system for managing poultry waste. The producer must make the decision based on the cost

Manure and Litter Management

- Many methods are used to manage litter and manure. Anaerobic and aerobic processing of poultry waste can be done in two ways using lagoons and digesters.
- Onsite litter and manure storage are also thought to limit attraction of wild birds, rodents, insects and other animals

Manure and Litter Management

Lagoons - anaerobic

- Poultry waste is placed in a large pond or “lagoon”.
- Through bacterial activity, the solids are reduced then liquefied
- Can causes lots of unpleasant odors and is suitable for remote areas.
- Proximity to water source is important to prevent contamination
- Reduced waste is pumped i onto crop land.
- Aerobic lagoons are prepared similarly but use aerobic bacteria. Air is pumped in to provide oxygen. Reduces the unpleasant odors



Digesters

- Manure can be also be managed through the use of Digesters
- Digesters are large tanks (many different types) that are airtight and hold the fermenting slurry.
- The digester has mixing and heating devices to keep the manure at 35 C
- Digesters are used to produce biogas to power generators or create heat for both domestic and farm applications

Anaerobic Digester



Conveyor direct to semi



Direct liquid manure application



Banked/Bermed on site storage



Onsite Manure storage



Off site manure storage – field stockpile



Field application – either direct or delayed



Removing manure from floor houses





Bringing in new bedding-storage





Biosecurity Principle #10

Replacement Poultry

Discussion led by:

Dr. Dave Hermes- GCC East North Central Regional Member

Dr. Mary Jane Lis- North Atlantic Regional Alternate

Biosecurity Principles: Replacement Poultry

(10) Replacement Poultry

Replacement poultry should be sourced from health-monitored flocks which are in compliance with NPIP guidelines. They should be transported in equipment and vehicles that are regularly cleaned, disinfected and inspected. Biosecurity protocols should be in place for equipment and personnel involved in the transport of replacement poultry.

Audit Guidelines: Replacement Poultry

10.1. Is replacement poultry sourced from flocks which are in compliance with NPIP provisions and program standards?

10.1.1. Replacement poultry is defined as poultry from hatch to maturity intended to become laying hens or breeders.

10.1.2. Provide supporting documentation (e.g., VS 9-2 form, VS 9-3 form and/or NPIP hatchery production records) showing that source flocks are active and compliant participants in the NPIP.

10.2. Is replacement poultry transported in equipment and vehicles that are regularly cleaned, disinfected and inspected?

10.2.1. Supporting documentation (e.g., written instructions, wash station reports and/or logs, inspection reports, invoices, etc.) should be provided. The biosecurity plan should be followed as written and clearly define “regular cleaning.”

10.3. Are biosecurity protocols in place for equipment and personnel involved in the transport of replacement poultry?

10.3.1. Supporting documentation [e.g., signed statements, acknowledgement forms, visitor log-in sheets, policy documents, standard operating procedures (SOPs), Best Management Practices (BMPs), etc.] should be provided for personnel involved in the transport of replacement poultry.

10.3.2. Supporting documentation [e.g., written instructions, protocols, procedures, training videos, standard operating procedures (SOPs), Best Management Practices (BMPs), etc.] should be provided for equipment involved in the transport of replacement poultry.

Audit Guidelines: Replacement Poultry

10.1. Is replacement poultry sourced from flocks which are in compliance with NPIP provisions and program standards?

10.1.1. Replacement poultry is defined as poultry from hatch to maturity intended to become laying hens or breeders.

10.1.2. Provide supporting documentation (e.g., VS 9-2 form, VS 9-3 form and/or NPIP hatchery production records) showing that source flocks are active and compliant participants in the NPIP. Alternately, and perhaps more efficiently, it may be appropriate for large integrators that are sourcing replacement poultry from a single or small number of companies, the source company or companies' NPIP number can be provided. NPIP participant information is available on the NPIP website: www.poultryimprovement.org.

Biosecurity Principle #11

Water Supplies

Discussion led by:

Dr. Ben Wileman- GCC West North Central Regional Alternate

Dr. Dave Hermes- GCC East North Central Regional Member

Biosecurity Principles: Water Supplies

(11) Water Supplies

It is recommended that drinking water or water used for evaporative cooling be sourced from a contained supply such as a well or municipal system. If drinking water comes from a surface water source, water treatment must be used to reduce the level of disease agents. If surfaces have been cleaned or flushed with surface water, subsequent disinfection should be employed to prevent disease transmission. If water treatment is not possible, a risk analysis should be performed to determine actions needed to mitigate risks.

Audit Guidelines: Water Supplies

11.1. Is drinking water or water used for evaporative cooling sourced from a contained supply such as a well or municipal system?

11.2. If water comes from a surface water source, is water treatment used to reduce the level of disease agents?

11.2.1 If yes, describe the water treatment used.

11.3 If water treatment is not possible, is a risk analysis performed to determine actions needed to mitigate risks?

11.3.1 The Biosecurity Coordinator should provide evidence that the risk of an untreated system has been considered and demonstrate steps to mitigate that risk if feasible.

11.3.2 Risk assessment should have considered risks from the water supply. This guidance does not require a peer-reviewed professional risk assessment to be performed.

11.4 If surfaces have been cleaned or flushed with surface water, is subsequent disinfection employed to prevent disease transmission?

11.4.1 If surfaces were cleaned or flushed with surface water and subsequent disinfection was employed, a description of the subsequent disinfection and/or supporting documentation should be provided (e.g., invoices for chemicals used and purchased treatment equipment, treatment plans, etc.)

11.4.2 If surfaces were cleaned or flushed with surface water and subsequent disinfection was not employed, see item 11.3.2 above.

Biosecurity Principle #12

Feed and Replacement Litter

Discussion led by:

Mr. JC Essler- GCC South Central Regional Alternate

Dr. Alberto Torres- GCC South Central Regional Member

Biosecurity Principles: Feed & Litter

(12) Feed and Replacement Litter

Feed, feed ingredients, bedding, and litter should be delivered, stored and maintained in a manner that limits exposure to and contamination by wild birds, rodents, insects, and other animals. Feed spills within the PBA (outside of the LOS) should be cleaned up and disposed in a timely fashion.

Audit Guidelines: Feed & Replacement Litter

12.1. Is feed, feed ingredients and litter stored and maintained in a manner that limits exposure to and contamination by wild birds, rodents, insects, and other animals?

12.1.1. Guidance applies to the feed ingredients and litter which are under the direct control of the entity being audited. A description or examples (e.g., written instructions, feed or replacement litter handling, log sheets, protocols, permits, guidance for contractors, etc.) should be provided showing how exposure to and contamination by wild birds, rodents, insects, and other animals is limited. Occasional exceptions may be necessary (e.g., seasonal storage, acts of God, etc.).

12.1.2. Guidance applies to the feed ingredients and litter which are under the direct control of the entity being audited.

12.2. Does the biosecurity plan address feed spills within the PBA (outside of the LOS)?

Biosecurity Principle #13

Reporting of Elevated Morbidity and Mortality

Discussion led by:

Dr. Alberto Torres- GCC South Central Regional Member

Dr. Kristy Pabilonia- GCC Western Regional Member

Biosecurity Principles: Morbidity/Mortality

(13) Reporting of Elevated Morbidity and Mortality

Elevation in morbidity and/or mortality above expected levels, as defined by the biosecurity plan, should be reported as required in the site-specific biosecurity plan and appropriate actions should be taken to rule out reportable disease agents.

Audit Guidelines: Reporting ↑ Morbidity/Mortality

13.1. Does the biosecurity plan address elevated morbidity and/or mortality above expected levels?

13.1.1 A description of the actions and/or documentation (e.g., evidence of investigation, tracking graphs, mortality/morbidity patterns, case reports, mortality logs, etc.) used to monitor morbidity and/or mortality should be provided. The Biosecurity Coordinator is responsible for communicating what constitutes elevated morbidity and/or mortality in the biosecurity plan.

13.2. Is there a plan to report to responsible authorities and take appropriate action should you suspect and need to rule out reportable disease agents?

13.2.1. Provide the written procedure to report and take appropriate actions when disease agents are suspected. The Biosecurity Coordinator is responsible for providing the written procedures.

13.2.2. The written procedure should identify the responsible reporting authorities. The Biosecurity Coordinator is responsible for clearly communicating who the responsible authorities are.

Biosecurity Principle #14

Auditing

Discussion led by:

Dr. Denise Brinson- NPIP Senior Coordinator and GCC
Executive Secretary

Biosecurity Principles: Auditing

(14) Auditing

Auditing of the biosecurity principles is based on flock size as outlined in 9 CFR 53.10 **and shall include breeding flocks with at least 5000 birds**. Audits shall be conducted at least once every two years or a sufficient number of times during that period by the Official State Agency to ensure the participant is in compliance. Each audit shall require the biosecurity plan's training materials, documentation of implementation of the NPIP Biosecurity Principles, corrective actions taken, and the Biosecurity Coordinator's annual review to be audited for completeness and compliance with the NPIP Biosecurity Principles. An audit summary report containing satisfactory and unsatisfactory audits will be provided to the NPIP National Office by the OSAs.

Those participants who failed the initial document audit conducted by the NPIP OSA may elect to have a check audit performed by a team appointed by National NPIP Office including: an APHIS poultry subject matter expert, the OSA, and a licensed, accredited poultry veterinarian familiar with that type of operation. If these participants seek to be reinstated as being in compliance with the Biosecurity Principles by the NPIP OSA, they must demonstrate that corrective actions were taken following the audit by the team appointed by NPIP.

Auditing Tree

