



**COURSE OPENING**

**BIOSECURITY FOR FARMS AND MARKETS IN NIGERIA**



**Introductions**

- Please share with us your:
  - Name
  - Where you work
  - One expectation you have for this course
  - Any personal information that may be interesting to the group

2



**Purpose**

- The purpose of the course is to help veterinarians, poultry growers, sellers, and market administrators to:
  - Recognize the signs of HPAI
  - Understand the human risks associated with HPAI
  - Prevent HPAI in commercial and smallholder farms as well as in markets.
  - Transfer this knowledge.

3



**Objectives**

- By the end of the course, participants will be able to:
  - Define the three principles of biosecurity: isolation, traffic control and sanitation;
  - Identify potential biosecurity risks;
  - Explain appropriate biosecurity measures for poultry farms (large scale and small holder);
  - Explain appropriate biosecurity measures for poultry transport and those that are appropriate for Nigeria;
  - Explain appropriate biosecurity measures for live bird markets (urban and rural) and those that are appropriate for Nigeria;
  - Advise poultry growers, sellers, and live bird market administrators in developing a biosecurity plan;
  - Transfer biosecurity concepts and techniques to various audiences.

4



**Logistics**

5



**Agenda**

TIME	DAY 1	DAY 2	DAY 3
AM	Opening Ceremony	Biosecurity Practices for Transporting Poultry to Market	Biosecurity Planning Exercise
	Overview of AI in Nigeria	Biosecurity Practices for Live Bird Markets	Biosecurity Risk assessment
PM	Biosecurity Risks and Principles	Biosecurity Practices for Live Bird Markets (continued)	Taking the Learning Home
	Biosecurity Practices for Commercial Farms	Cleaning and Disinfection	
	Biosecurity for Smallholder Farms	Introduction to Biosecurity Planning	Course Closing

6



**A Note About the Manual...**

- The manual will be used to convey key concepts covered in the course
- There is space to make notes as well as capture reflections
- References materials for during and after the course



**Guidelines**

- Keep time (start on time, return from breaks on time, end on time)
- Switch mobile phones off or to “vibrate”
- Participate fully
- Ask questions freely
- Balance talking and listening
- Respect each other’s points of view

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

## OVERVIEW OF BIOSECURITY RISKS AND PRINCIPLES

**BIOSECURITY FOR FARMS AND MARKETS IN NIGERIA**

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Module Purpose**

- To learn the basics about biosecurity risks and principles for preventing an H5N1 HPAI outbreak, and to provide an overview of the natural history of AI, with particular emphasis on H5N1 Highly Pathogenic (HPAI) strain.

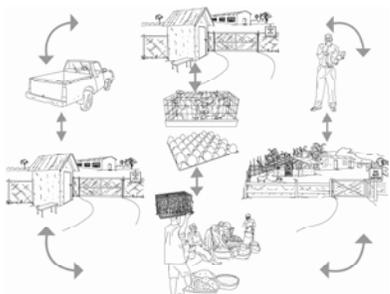
**Module Objectives**

- Define the three principles of biosecurity: isolation, traffic control, and sanitation;
- Identify potential biosecurity risks.

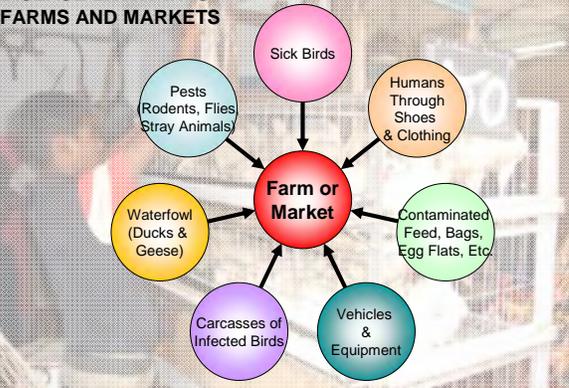
 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**How Disease Spreads**



**DISEASE ENTRY INTO FARMS AND MARKETS**



 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**At your tables,**

- Identify the common physical conditions and human behaviors that put poultry at risk of disease in the location assigned to your table (commercial farm, smallholder farm, dealers and transporters, live bird markets, consumers).
- Record as many as you can think of on the flip chart.
- Identify one person to present your list.
- Take about 10 minutes to create your list.

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**What is Biosecurity?**

Bio = Life  
Security = Protecting  
Biosecurity = Protecting Life

Biosecurity is a set of practices designed to prevent the spread of disease into a farm or market.  
It is the process of keeping germs away from poultry and poultry away from germs.

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Principles of Biosecurity**

1. Isolation
2. Traffic Control
3. Sanitation

**Prerequisite:** Healthy Poultry  
Good animal husbandry and management is essential!

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Animal Husbandry and Management**

Ensuring the good health and maintenance of poultry

For example:

- Provide adequate feed, water, air
- Remove carcasses regularly
- Keep records of flock health

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Isolation**

Creating an environment where poultry are protected from carriers of disease – people, other animals, air, water, etc.

For example:

- Keeping poultry in closed, screened buildings on the farm, and in secure cages at the market
- Practicing All-In, All-Out Management
- Separate poultry from other animals and from other poultry species
- No standing bodies of water on property

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Traffic Control**

Controlling the movement of people, animals, equipment, and vehicles into, out of, and within a farm or market

For example:

- Not allowing unauthorized persons onto farm property
- Working from healthy to sick, young to old birds
- Not allowing poultry dealers on to the farm
- Single entry and exit points can help control traffic in markets.
- Market should be set up so that human traffic flows in one direction - from the entrance to the exit.
- An unloading area should be created for vans and other vehicles transporting birds from farms. This controls the flow of traffic and restricts the potential entry point for disease to one area. Also, a single unloading area is easier to clean and disinfect

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

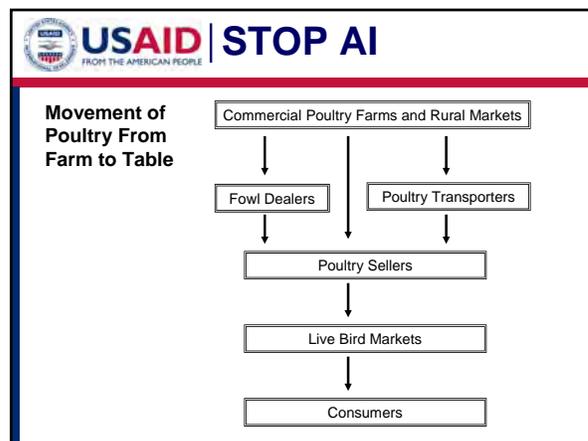
---

**Sanitation**

Regular cleaning and disinfection of housing, equipment, vehicles and people

For example:

- Workers wash hands and feet, change clothes and shoes before working with birds
- Clean and disinfect equipment regularly
- Clean and disinfect poultry houses and cages between flocks
- Have a pest control program





**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**OVERVIEW OF BIOSECURITY RISKS  
AND PRINCIPLES**

**REFLECTION**


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**BIOSECURITY PRACTICES FOR  
 COMMERCIAL FARMS**  
**BIOSECURITY FOR FARMS AND  
 MARKETS IN NIGERIA**


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Module Purpose**

To learn principles and methods for preventing an H5N1 HPAI outbreak.

**Module Objective**

*At the conclusion of this module, participants will be able to:*

- Explain appropriate biosecurity measures for commercial farms

2


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Discussion**

- How many of you work with commercial farms?
- Who do you work with on the farm?
- How would you describe their level of knowledge about poultry diseases? About biosecurity?
- In your experience, what biosecurity practices do most farms follow?
- What are the most common biosecurity risks you've seen on commercial farms?

3


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Biosecurity Messages for Commercial Farms**

1. Practice Good Animal Husbandry
2. Design and Maintain Your Farm to Keep Diseases Out
3. Control Entry to and Movement on Your Farm
4. Keep Your Farm Clean

4


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Good poultry house construction**




**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Good poultry house construction**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Poorly constructed poultry house**



1 5 2006

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Practice Good Animal Husbandry**

1. Provide adequate feed and water
2. Remove carcasses at least twice a day
3. Cull sick birds regularly
4. Monitor and record flock health
5. Never add new poultry to a flock
6. Do not keep multiple species of poultry

8

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Do not mix different species of poultry – geese at a layer farm**



1 5 2006

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Guinea fowl and unconfined chickens on a poultry farm**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Improper carcass disposal, layer farm**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Design and Maintain Your Farm to Keep Diseases Out**

1. Restrict Access to the Entire Farm
  - Fence and gate farm
  - Fence poultry area
  - No standing bodies of water on the farm

12

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Fish pond on West African poultry farm  
Economic necessity vs good biosecurity?**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Entering the Farm

1. Visitors

- Only visitors with legitimate business
- Do not allow visitors into bird pens unless absolutely necessary
- Visitors entering the bird pens must change clothes, footwear, wear a hair cover and gloves
- Keep a visitor log book

14

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Entering the Farm

2. Farm Workers

- Don't hire workers who keep birds at home
- Encourage workers to bathe before work
- Require workers to wash hands and feet before entering the farm
- Have dedicated clothing and footwear for workers

15

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Entering the Farm

3. Vehicles and Equipment

- Park outside vehicles at the farm gate
- Clean and disinfect any vehicles that must enter the farm
- Do not park any vehicles near the poultry houses

Vehicles and equipment to be particularly aware of: feed trucks and poultry crates/egg flats that leave the farm

- Turn to pages 10-12 in your Participant Manual for recommendations

16

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Egg pick up inside poultry farm**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Movement within the Farm

4. Work from healthy birds to sick, and from young to old

5. When moving between poultry houses:

- Wash hands
- Clean and disinfect footwear or change into footwear dedicated to the house you're entering

18



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Discussion**

Footbaths

- What do you think about putting sponges and sacks in footbaths? What are the advantages and disadvantages?

21

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Movement from the Farm

6. Never visit live bird markets unless absolutely necessary
  - If necessary, disinfect footwear when returning to your farm and bathe and change clothes before entering your poultry houses
7. Never visit a neighbor who has sick poultry and don't let other farmers visit your farm if you have sick poultry

22

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Conducting Farm Business

8. Buying Live Birds
  - Only buy from people you know and trust
  - Never purchase from an area with HPAI outbreaks
  - Quarantine any new birds for at least 2 weeks
9. Selling Live Birds
  - Transport poultry offsite to a poultry dealer, or
  - Transfer to a poultry dealer on your farm, or
  - Transport to a live bird market, or
  - Sell directly from the farm.

See page 14-15 for specific recommendations

23

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Conducting Farm Business

10. Selling Eggs
  - Collecting eggs from pens – using plastic vs. paper flats
  - Sorting the eggs into flats to be taken off the farm – using plastic vs. paper flats
  - Never bring paper egg flats back from the market too the farm
  - If selling eggs directly from the farm, sell them at the farm gate.

See page 15-16 for specific recommendations

24

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Plastic crates**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Control Entry to and Movement on Your Farm**

Precautions for People Who Move Between Farms

- Do not visit more than 2 farms per day
- Do not visit more than 1 farm where birds are sick, bathe and change clothes/shoes immediately after
- Park outside the farm gate
- Wash hands/feet and change clothes/shoes before entering and upon exiting

See page 17 for specific recommendations

27

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Eggs in paper crates**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Keep Your Farm Clean**

1. Clean and Disinfect Equipment Regularly
  - Daily for equipment in direct contact with birds
  - Weekly for bird areas and other equipment
  - Clean by removing off organic matter using a scrub brush, soap, and hot water
  - Apply disinfectant and allow sufficient contact time
2. Feed Management
  - Keep away from pests
  - Clean up spills immediately
  - Clean automatic feeders once a month
  - Do not reuse feed bags, if used

29

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE





**Keep Your Farm Clean**

- 3. Litter Management
  - Change litter after each flock
  - Compost used litter to make it safe for use as a fertilizer
- 4. Clean Poultry Houses Between Flocks
  - See page 20 for procedure
- 5. Pest Control
  - Keep feed in secure containers/areas
  - Keep the area around poultry houses free of debris and weeds/grass
  - Keep changing areas clean and orderly
  - Use traps or poison to control pests



**Summary of Key Points**

- Wear clean, protective clothing and footwear when working with poultry
- Keep dedicated clothing and footwear on the farm for workers and visitors
- Prevent poultry from mixing with wild birds, other animals, and pests
- Restrict the movement of poultry/eggs, animals, manure, equipment, and people between farms and markets
- Control the movement of poultry/eggs, animals, manure, equipment, and people on the farm
- Practice basic hygiene – regular hand washing and decontaminating footwear



**Case Study**

- Read the case study individually.
- In your small groups,
  - Identify the biosecurity infractions seen in the picture of the problem farm provided as a handout.
  - Discuss what ideas you have for correcting the infractions. Be ready to share your ideas with the group.
- Take about 20 minutes.



**BIOSECURITY PRACTICES FOR  
COMMERCIAL FARMS**

**REFLECTION**


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**BIOSECURITY PRACTICES FOR  
 SMALLHOLDER FARMS**

**BIOSECURITY FOR FARMS AND  
 MARKETS IN NIGERIA**


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Module Objective**

*At the conclusion of this modules, participants will be able to:*

- Explain appropriate biosecurity measures for smallholder poultry farms;
- Share experiences working with smallholder poultry in Nigeria.


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**West African smallholder poultry operation**




**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Discussion**

- How many of you work with smallholder farmers?
- How would you describe their level of knowledge about poultry diseases?
- About biosecurity?


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Individual Task**

- Review Module 3 in the Guide: Biosecurity Practices to Protect Your Smallholder Farm from HPAI.
- Note down any questions you have about the recommendations in this section.
- Be prepared to share the practices of smallholders in your country.


**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

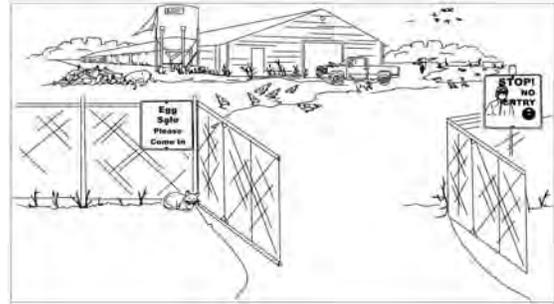
---

**Table Discussion**

- What are the biggest challenges to adopting biosecurity practices for smallholders?
- Which do you think are the most important practices?
- Which ones will be the easiest to adopt?
- What are some ideas about how to work with smallholders to get them to adopt some of these practices?
- Take about 20 minutes for your discussion.

**Table Task**

- List the biosecurity infractions you can see in the illustration of the problem farm in your participant manual.
- Choose 1-2 of the infractions.
- What should be done to correct the infractions?
- Given the discussion on how to get smallholders to practice biosecurity, what would you propose to get them to adopt these practices?



Problem Farm

**BIOSECURITY PRACTICES TO  
PROTECT COMMERCIAL FARMS**

**REFLECTION**



## BIOSECURITY PRACTICES FOR TRANSPORTING POULTRY TO MARKET

BIOSECURITY FOR FARMS AND  
MARKETS IN NIGERIA



### Module Objectives

*At the conclusion of this module, participants will be able to:*

- Explain appropriate biosecurity measures for poultry transport.
- Discuss transport of poultry in the Nigerian context



### Discussion

- Who moves poultry to market?
- How often do you interact with fowl dealers and transporters?
- What are the common practices around transporting poultry to market?
- What are the common biosecurity risks?



How are poultry transported to market in Nigeria?





**Safely Transporting Birds to Market**

1. Start with Healthy Birds
2. Don't Spread Disease
3. Keep It Clean



**Safely Transporting Birds to Market**

- 1. Start with Healthy Birds**
  - Only buy birds from trusted producers
  - Do not accept sick birds



**2. Don't Spread Disease**

- Avoid collecting birds from multiple farms in one day
- Never bring dealer/transporter cages onto farms
- Have easily identifiable cages
- Do not enter poultry houses to pick up birds
- Avoid carrying people and birds in the same vehicle at the same time
- Also avoid carrying multiple species together
- Respect poultry movement bands during outbreaks



**Avoid transporting people and animals in the same vehicle!**

A photograph showing a group of people loading a large, heavy wooden cage onto the roof of a blue van. The cage is made of woven wood or bamboo and is being held up by several people. The van is parked on a street with trees in the background.

**3. Keep It Clean**

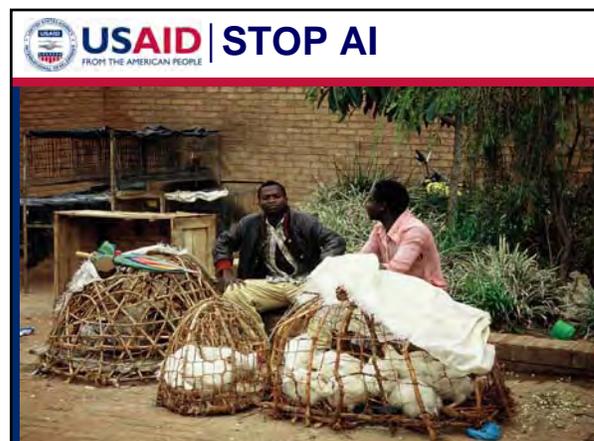
- Clean and disinfect vehicles before and immediately after transporting birds
- Use cages made of plastic or metal
- Frequently dispose of and replace cages made of wood (e.g., millet stalks, raffia, palm products, bamboo)



**USAID STOP AI**  
FROM THE AMERICAN PEOPLE

### How to Clean and Disinfect Vehicles and Cages

- Clean and scrub vehicles and cages with soap and water (hot water preferred) to remove all dirt, feathers, bedding, blood, and excrement before disinfecting.
- Clean the vehicle's wheels, wheel arches, under-body, and surfaces that have come in contact with birds or cages on the exterior and interior of the vehicle.
- Use an appropriate disinfectant, like Quaternary-ammonium (Algenex®), Phenol (Dettol®) compounds or Virkon® at the manufacturer recommended concentration and quantities for the recommended contact time (min 10 minutes).





**Small Group Exercise: Role-play**

- Each table group will be assigned a biosecurity practice for transporting poultry to market to discuss with a transporter.
- With your group, decide how you will convince the transporter to adopt the practice. Develop a message you would deliver to him/her.
- Choose one person from your group to be the messenger and one to be the transporter. You will *role-play* the conversation.
- Take about 15-20 minutes to prepare.



**Small Group Exercise: Role-play**

- Do not accept or purchase from flocks showing signs of disease.
- Avoid collecting birds from different farms on the same day
- Do not enter poultry houses to pick up birds.
- Clean and disinfect vehicles before and immediately after transporting birds
- Frequently replace (burn or bury) the traditional cages made from millet stalks, raffia, palm products or bamboo.



**BIOSECURITY PRACTICES FOR  
TRANSPORTING POULTRY TO  
MARKETS**

**REFLECTION**


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**BIOSECURITY PRACTICES FOR  
 LIVE BIRD MARKETS**

**BIOSECURITY FOR FARMS AND  
 MARKETS IN NIGERIA**


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Module Purpose**

To provide an overview of biosecurity practices specific to live bird markets.

**Module Objectives**

At the conclusion of this module, participants will be able to:

- Explain appropriate biosecurity measures for live bird markets (urban and rural);
- Share experiences from the different states on how their markets are managed.

2


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Discussion**

- What are the biosecurity challenges in live bird markets?
- Who is responsible for improving biosecurity in live bird markets?
- What is the role of the municipal authorities?
- What is under their control?
- How would you describe their level of knowledge about poultry diseases?
- About biosecurity?

3


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Key Biosecurity Messages for Municipal Market Managers**

1. Locate markets away from food
2. Control the flow of traffic in the market
3. Provide for good sanitation
4. Educate sellers about biosecurity practices
5. Conduct regular disease surveillance

4


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Location of Markets**

- Locate live bird markets away from the main municipal market and away from areas where food is sold, prepared or cooked.




**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Controlling Traffic Flow**

- Set up the market so that the traffic of people flows in one direction, from the entrance to the exit.



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Good Sanitation**

- Provide waste bins for disposal of dead birds
- Provide area for trucks and vehicles to be washed before leaving the market

8

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Provide for Good Sanitation**

- Provide the space and water needed for washing cages, vehicles, feeders and drinkers and for workers to wash their hands



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfectant for a poultry seller**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Market Infrastructure: Poultry market area with poor drainage**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Market Infrastructure: Concrete slabs allow for better cleaning**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Educate sellers about biosecurity practices**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Pair Task**

- What are the easiest recommendations to implement?
- Which ones are the hardest? What are the obstacles?
- How can you overcome these obstacles?

14

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Discussion**

- What role do the poultry sellers in the market play in biosecurity?
- How would you describe their level of knowledge about poultry diseases?
- About biosecurity?

15

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**The two most important biosecurity points for poultry sellers:**

- Never buy or sell sick poultry
- Never sell carcasses of dead poultry



16

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Key Messages for Poultry Sellers**

For urban markets:

- Start with healthy birds
- Be alert for illness in your birds
- Keep it clean
- Do not mix different species of poultry
- Use well constructed cages that are easy to clean

17

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Guinea fowl and chickens in the same cage**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Poor cage construction- difficult to clean**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Rural Markets**

One additional point for rural markets:

- Organize the market



20

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Rural Markets: Organize the market!**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Organize the Market!**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Table Task**

- Which recommendations are easiest to implement? Why?
- Which are the hardest? Why?
- How best can you convey the messages?
- How can you encourage adoption of these practices?

23

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Discussion**

- What are you learning about how to encourage and support biosecurity in live bird markets?
- What ideas do you have about working with the municipal authorities and poultry sellers to increase biosecurity?

24

The new trend – market processing, how safe?



Poultry slaughter and processing – unhygienic and risky



Defeathering – scalding water not clean



Defeathering pot in Bangladesh – scalding water is dirty!



Processing at the market - Nigeria



Processing in unhygienic conditions



 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Poultry processing - Bangladesh**



 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Individual Task**

- Read the live bird market scenario
- Identify the risks
- Be prepared to share your lists in the plenary
- You have 10 minutes

32

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Discussion**

- What is one important idea that you're taking away from this discussion about how to increase biosecurity in live bird markets?

33

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Safe Travels**



 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**BIOSECURITY PRACTICES FOR  
LIVE BIRD MARKETS**

**REFLECTION**


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**CLEANING AND DISINFECTION**  
  
**BIOSECURITY FOR FARMS AND  
MARKETS IN NIGERIA**


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Decontamination is key to good biosecurity**



2


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Module Purpose**  
 To familiarize participants with the concepts of decontamination and decontamination procedures appropriate for use in a farm or market.

**Module Objectives**  
*At the conclusion of this module, participants will be able to:*

- Define cleaning and disinfection and explain what each accomplishes
- Describe the safe use of disinfectants
- Explain the importance of PPE use in cleaning and disinfection
- Review the information on a disinfectant (chemical) label
- Explain the process of selecting and preparing disinfectants
- Describe how to carry out cleaning and disinfection in farms and in live bird markets

3


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Cleaning and Disinfection=Decontamination**

- Decontamination is...
  - The removal or neutralization of disease organisms (or hazardous chemicals) through a process of cleaning and disinfection

4


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Why do we Clean and Disinfect ?**

- Cleaning and disinfection are key components of routine biosecurity in farms and live bird markets to:
  - Destroy viruses and other disease organisms
  - Prevent contamination of people
  - Decontaminate vehicles used for transporting poultry
  - Allow for safe repopulation of farm buildings and cages

5


**USAID** | **STOP AI**  
 FROM THE AMERICAN PEOPLE

---

**Survival of Avian Influenza Virus**

- Virus can survive:
  - Up to 4 days at 22°C
  - 35 days at 4°C in poultry manure
  - > 30 days at 0°C in water
 (Source: OIE Disease Cards)



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Survival of Avian Influenza Virus**

- Virus can survive several days in carcasses at room temperature or up to 23 days if refrigerated




7

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Virus Can Be Carried On:**

- Hands
- Skin
- Clothes
- Shoes
- Equipment
- Bedding
- Manure



8

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Live Bird Markets Are A Likely Source of HPAI Transmission**





**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Agents that can Deactivate the Avian Influenza Virus:**

- Some soaps when used with water
- Many household detergents / cleaners
- Disinfectants and Chemicals
- Sunlight
- Heat



10

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Decontamination = Cleaning + Disinfection**

1. Clean: remove organic material, dirt and grease
2. Disinfect: using an appropriate disinfectant for the job



11

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Cleaning is a Two Step Process**

**Dry cleaning:** Using a brush, a rag or tools such as blow dryers to remove dry organic material

- Dry cleaning should not be used for cleaning poultry houses which contained flocks infected with avian influenza (avian influenza)
- Dry cleaning may cause aerosolization of the virus and increase the risk of infection for humans

12

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Wet Cleaning

- Using soap and water, soak the area and scrub to remove remaining organic material as well as dirt and grease
- Wet cleaning reduces the risk of aerosolization of virus

13

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Cleaning is Improved With:

- Soaps
- Detergents
- Warm water
- Scrubbing
- Brushing
- Power washers



14

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Soaps and Detergents




- Destroy the fat in the virus membrane, killing the virus
- Membrane is double outer and inner white layer in diagram and the dark outer ring in electron micrograph

15

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### What is a Disinfectant?

- Disinfectants are chemical agents that slow microbial activities and their growth or kill the microbes
- We want to control disease and illness therefore we use disinfectants




16

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### How do Disinfectants Work?

- Disinfectants work by affecting the microbe's cells by:
  - Disrupting the cell structure
  - Blocking its ability to enter a new cell
  - Stopping reproduction

17

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Common Types of Disinfectants

- Disinfectants are divided into several groups based on their chemical structure
- Some of the more common disinfectants are:
  - Oxidising agents such as hydrogen peroxide and Virkon
  - Alcohols such as ethanol
  - Halogens such as sodium hypochlorite(bleach)

18

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfectants are Dangerous !**

- Disinfectants are hazardous chemicals 
- We have to be careful when we use disinfectants
- Acute toxicity with certain disinfectants may cause dizziness, nausea and itchy eyes or skin
- Slow toxicity may occur gradually over many years and is known as chronic intoxication

19

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Safe Use of Disinfectants**

- When using disinfectants, if you feel:
  - sleepy
  - dizzy
  - short of breath
  - sick
  - skin becomes itchy with lumps, rashes and blotches
- STOP and let supervisor know immediately

20

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Safe Use of Disinfectants: Use of Protective Clothing**

- All chemicals are hazardous – some are more hazardous than others!
- Disinfectant chemicals can be more hazardous than most.
- When handling chemicals you need to make sure you are wearing the right clothes and equipment for your protection.

21

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Eye Protection**

- Contamination of the eyes can result from:
  - drift, splash or spill of chemical
  - rubbing eyes with contaminated hands or clothing
- Always wear eye protection when handling or spraying chemicals.



22

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Protect Mouth and Lungs**




- Breathing in chemical vapors, dust or spray particles
- The main hazards exist when:
  - Mixing chemicals
  - Spraying in confined spaces
  - Using fumigants such as formaldehyde
- Accidental intake of chemical by drinking chemical is also possible.

23

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**Respirators**

- If the label states a respirator to be worn then **TOXIC vapors will be released.**
- Full face or half face respirators prevent intake of toxic dust and vapors if fitted with appropriate filters
- Dust masks are not designed to filter spray droplets and vapors
  - **Do not use when spraying chemicals.**




24

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Protect Hands and Arms

- Gloves that cover the forearms are the best
- Gloves come in a range of sizes
- Make sure they are resistant to chemicals.

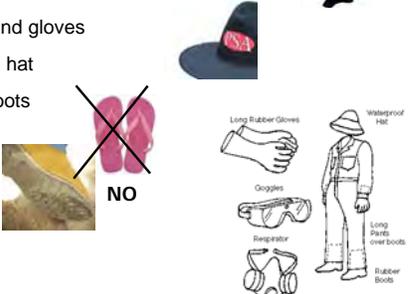


25

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Body Protection

- Overalls and gloves
- Wide brim hat
- Rubber boots



26

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Aprons for Extra Protection

- PVC or neoprene aprons extending from neck to ground give excellent front protection from spills and splashes
- Easy to put on and wash
- Use when mixing chemicals



27

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### ALWAYS WASH YOUR HANDS AND FACE WITH SOAP AFTER SPRAYING



28

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Summary

- Read the SAFETY DIRECTIONS on the label to determine the correct PPE
- When spraying chemicals ALWAYS wear:
  - Overalls or long trousers
  - Shirt buttoned at wrist and neck
  - Boots
  - Head covering
  - Goggles and Respirator
  - WASH ALL NON DISPOSABLE PPE WITH WARM WATER AND DETERGENT

29

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Exercise

- TRUE or FALSE? Organic matter increases the effect of disinfectants
- How would you define Decontamination?
- Name 3 essential pieces of protective clothing to be used when spraying.
- Under what 3 conditions can chemical vapors, dusts or spray particles be inhaled to cause poisoning?
- Would you store PPE in your chemical store or separately in another location? Why or Why Not?

30

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### READING THE CHEMICAL INFORMATION ON A DISINFECTANT LABEL

31

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Reading the Label

- Before handling any chemical the label **MUST** be read and understood.
- The label gives you valuable information that will reduce the risk of chemical contamination to you and the live bird market environment that you are trying to protect.

32

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Parts of the Label

Signal Heading	Product Name
Active Constituent	Net contents
Claims for Use	Directions for Use
Name and Address of Company	Withholding Period
Limitations on Use	Protection Statements
General Instructions	Safety directions and First Aid
Precautions	Emergency Information
Storage and Disposal	Expiry date
Reference to MSDS	Approval Number
Batch Number and Date of Manufacture	Conditions for Sale

33

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Choosing the Right Disinfectant

- The choice of disinfectant will depend on the following:
  - Cost
  - How efficiently it destroys viruses and other organisms
  - Temperature
  - Activity with organic matter
  - Toxicity - how safe is it for both animals and humans?
  - Contact time and residual activity
  - Effect on fabric and metal equipment
  - Solubility (acidity, alkalinity, pH)
  - Smell

34

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Choosing the Right Disinfectant

- Temperature:
  - Increasing the temperature of the disinfectant increases the speed of chemical reactions and the speed of disinfection
  - All disinfectants, whether sprays, foams, aerosols or fumigants work best at temperatures above 18.3°C (65°F)
  - Temperatures for chlorine and iodine-based disinfectants should not exceed 43.3°C (110°F) to prevent corrosiveness

35

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Important Points to Remember

- Disinfectants need to be mixed properly to be effective.
- Check label for instructions on safe use
- As a safety measure, never mix disinfectants from the different chemical groups
- Organic material such as excrement or dirt absorbs disinfectants and makes them less effective: clean before you disinfect
- Rinsing with water is not enough – **WATER CAN SPREAD THE VIRUS.**
- Both detergents and disinfectants must be used
- Bird feces is the biggest danger for spreading the avian influenza (avian influenza) virus
- Disinfect cages when moving birds
- Transmission of the virus has been strongly linked to transporting live birds, contaminated dead birds or litter in vehicles
- Be sure to decontaminate all vehicles and equipment!

36

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

### Exercise A

- Look at the labels provided:
- Complete the questions for Exercise A on page 13 in your *Participant Manual*.

37

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

### Reading the Label

- Refer to pages 8-9 in your *Participant Manual* for further explanations of the label parts

Product Name	Active Constituent	Rate of Mixing	Hazard / Toxicity Level
1			
2			
3			

38

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

### Calculations

- How much disinfectant do I need using Virkon S powder as an example?

39

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

### Spraying Mixing Rate

- We need 300mls (0.3 liters) of mixed chemical for every square meter of surface

Application
Using a pressure washer or other mechanical sprayer, apply Virkon® S solution at an application rate of 300ml/m <sup>2</sup>
Spray all equipment with Virkon® S solution at an application rate of 300ml/m <sup>2</sup>

Calculation to work out area to spray including all walls floor and ceiling:  
**MULTIPLY THE FLOOR AREA X 2.5**

So 10 m<sup>2</sup> of floor area = 25 m<sup>2</sup> of room area.

40

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

### How much WATER is needed?

Floor area = How long (m) X How wide (m) = A m<sup>2</sup>  
 Room area = A m<sup>2</sup> x 2.5 (walls, floors and ceiling) = B m<sup>2</sup>  
 (this is the area of the whole room)

**We use 300 ml (0.3 liters) / m<sup>2</sup>**

**SO B m<sup>2</sup> x 300 ml / m<sup>2</sup> = Amount of water to use.**

**Example: 200 metre<sup>2</sup> room area x 300ml = 200 x 0.3 liters = 60 liters of water.**

41

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

### Calculating Chemical Dilution Rate

Look at your **DISINFECTANTS** list for Virkon S

Use	Dilution Rate	Application
Routine disinfection for all surfaces, earth, wood and concrete	1:100 (1%)	Using a pressure washer or other mechanical sprayer, apply Virkon® S solution at an application rate of 300ml/m <sup>2</sup>
Routine cleaning and disinfection of movable equipment	1:100 (1%)	Spray all equipment with Virkon® S solution at an application rate of 300ml/m <sup>2</sup>

1% dilution = add 1 gram of chemical in every 100 ml of water.  
OR  
10 grams Virkon S in every liter of water.

**NOTE: MOST DISINFECTANTS ARE LIQUIDS SO**  
1% dilution = add 1 ml. of chemical in every 100ml. of water

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Dilution Rate

- If we are to spray 10 liters of solution how many grams of Virkon S are required?
- If we are to spray 100 liters of solution, how many grams are now required?

Volume of Solution (Liters)	Amount of Virkon S (grams)
10	300
100	3000

43

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Calculating Amount of Chemical: Exercise

If floor area is 40 m<sup>2</sup> and Virkon S powder is required to spray the floor, walls and ceilings at 1% dilution and sprayed at 300ml per sq. metre

**How many grams of Virkon S powder are required?**  
**ANSWER**  
Floor area X 2.5 = Total Area = 40 m<sup>2</sup> X 2.5 = 100m<sup>2</sup>  
**SO need 30 liters of spray for room (3% additive)**

**30 liters at 1% dilution rate = 300 grams Virkon S**

44

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Exercise B

- Now it's your turn:
  - With your team, calculate the amount of disinfectant on your table that would be needed to clean this room.

45

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### IMPORTANT MESSAGE

Mixing the required amount of disinfectant into a small 10 or 20 liters bucket.

How to prepare:

1. Add water first
2. Then add disinfectant
3. Add contents of bucket into the sprayer

46

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Applying Disinfectants and Cleaning

Steps in Cleaning Farms and Live Bird Markets and Disinfection Concepts

47

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

### Cleaning and Disinfection of Live Bird Markets

Steps to take before you start:

1. Check electric power is turned off
2. Check all cleaning and spraying equipment is ready for use
3. Ensure the availability of detergent and disinfectants at the required quantities
4. Ensure correct PPE is available
5. Ensure no unauthorized people, poultry or other animals present in the farm building or market area during cleaning and disinfection

48

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Step 1**

- Take out all movable equipment (buckets, drinkers, feeders, scales,) wash down with detergent
  - For example: Detergent 1-10% mixing rate and 300ml/sq.metre application
- Leave equipment in the sun (for 24 hours)
- When dry, wash with disinfectant
  - Can Use: Virkon S, Household bleach like Clotech® (sodium hypochlorite), Timsen®, Halamid®, Dettol®

49

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Step 2**

- Remove all old litter and store away from the farm building or market and other poultry.

Can Use:  
Detergent 1- 10% mixing rate and 300ml/sq. metre application

**Step 3**

- Hose down ceilings and walls and equipment with detergent to remove organic matter. Use high pressure hose starting at roof then walls and then floor.

50

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE



**Step 4**

- Wash down poultry barn or market stall with appropriate DISINFECTANT to sanitize the house and equipment. May need to rewash in 2 hours if still dirty.
  - Can use: Virkon S at 1%, Household bleach or Clotech® at (sodium hypochlorite) 10%, Timsen®, Halamid®, Dettol®.

51

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Step 5**

- Leave disinfectant in contact with surface for at least one hour to give time for the active constituent to work effectively.

52

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE



53

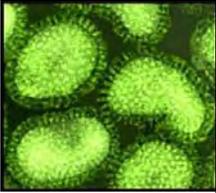
**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfection Concepts Review**

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfection Concepts**

- Viruses can be killed by
  - Sunlight
  - Heat
  - Drying
  - Most disinfectants




55

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**REMEMBER!**

Organic matter such as manure in bird cages or containers slows the ability of disinfectants to kill dangerous microbes.



56

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfection Concepts**

- Clean before you disinfect!




57

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfection Concepts**

- The virus survives well in water
- Rinsing with water is not enough--WATER CAN SPREAD THE VIRUS
- Both detergents and disinfectants must be used




58

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfection Concepts**

- Bird feces are the biggest danger for spreading avian influenza virus
- Disinfect cages whenever moving birds




59

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Disinfection Concepts**

- Transmission of the virus has been strongly linked to transporting live birds, contaminated dead birds or litter in vehicles.



60

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Wooden Equipment is Difficult to Clean and Disinfect – Soak and Leave**



61

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Review Questions**

- Why is the house washed with detergent before disinfectant?
- Why should poultry be removed from cages when cleaning?
- Why is the manure and litter taken a long way from the market?
- Why is the disinfectant left on a surface for at least one hour?
- How do you know which disinfectant to use?

62

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

List any chemical handling problems you can see.



63

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

- Spraying birds with disinfectant DOES NOT cure disease.
- Man is not wearing protective clothing,
- No hat or gloves.
- Motorcycle rider is being sprayed with chemical.
- Wind is blowing spray over non target area.

64

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

**Exercise C: Case Study**

- You are part of a team that has been asked to clean and disinfect (C&D) a poultry farm that was depopulated within the past 24 hour due to an outbreak of HPAI
- The poultry farm consists of one large building (35 x300 feet of 10.6 x 91.4 meters) and housed 20,000 4 week-old broiler chickens
- The farm owners attempted to do it with only one sprayer and formalin as a disinfectant (see picture in next slide).
- The government has agreed to subsidize the decontamination cost for the farmer

65

**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE



66



### Case Study

- At Your Tables
  - Review the case study and the following picture carefully
  - Answer the following questions (page 15)
    - How can you help the farmer do a better C&D (refer to the picture) with the funds the government has allocated?
    - What do you see wrong with this picture?
    - What disinfectants will you recommend?

67



## CLEANING AND DISINFECTION

### REFLECTION



**BIOSECURITY PLANNING FOR  
COMMERCIAL FARMS AND LIVE BIRD  
MARKET ADMINISTRATORS**

**BIOSECURITY FOR FARMS AND  
MARKETS IN NIGERIA**



**Module Objectives**

To provide an overview of biosecurity planning for commercial farms and live bird market administrators.

**Module Objectives**

*At the conclusion of this module, participants will be able to:*

- Assist poultry growers, sellers, and live bird market administrators in developing a biosecurity plan for their farm or market

2



**Suggested Process for Developing a Biosecurity Plan for Commercial Farms and Live Bird Market Administrators**

1. Define the objectives
2. Assess risk
3. Establish biosecurity procedures
4. Train staff
5. Monitor the effectiveness of the biosecurity plan

3



**Exercise: Biosecurity Planning**

- In this exercise, you will be evaluating the biosecurity efforts of a specific setting and creating a plan for improvements.
- Turn to page 7 your *Participant Manual* and follow the directions. Work with your group to complete the exercise.
- Choose a reporter and be prepared to share your answers with the group.
- You have 45 minutes for this exercise.

4



**Discussion**

- What are the important learning points that you're taking away from this discussion about how to increase biosecurity in commercial farms and live bird markets?

5



**ADDITIONAL INFORMATION**

- Checklist A – Commercial Farm Risk Assessment Checklist
- Checklist B – Biosecurity Checklist for Live Bird Markets
- Appendices

6



**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**BIOSECURITY PLANNING**

**REFLECTION**



# BIOSECURITY RISK ASSESSMENT

## BIOSECURITY FOR FARMS AND MARKETS IN NIGERIA

1a



### MODULE PURPOSE

To provide an opportunity to apply technical knowledge on biosecurity to a real world farm setting through farmer and market (municipal) administrator/seller interviews.

### MODULE OBJECTIVES

*At the conclusion of this module, participants will be able to:*

- Complete a risk assessment form;
- Identify biosecurity infractions on a farm or in a live bird market and recommend solutions for dealing with the infractions.

2



### Team Assignments

We will work in five groups:

GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5

3



### Team Task: Preparation

- With your team, review the risk assessment forms that you will fill out. Plan how you will organize yourself in your teams (how you'll use your time, share assignments to complete the forms, etc.).
- Identify what you want to pay attention to.
- Identify what questions you want to ask the owner/manager and workers.
- Do not limit yourself to the checklist, ask additional questions that will help you assess the biosecurity situation of the farm or market.

4



### Team Task: During the Interview

- Record biosecurity risks and strengths obtained from direct interviews
- Complete the checklists

5



### Team Task: Debriefing the Interviews

- Prioritize the biosecurity risks
- Develop recommendations to address the top risks
- Plan how you would communicate your findings and recommendations to the owners/managers and workers
- Be prepared to share your findings and recommendations with the group

6

 **USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Interviews**

	Name	Location
Farm		
Market		

7

 **USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Interview Debriefing**

With your team, discuss and record on flipchart paper:

- Some general observations and findings
- The top 3 biosecurity risks obtained from your interview
- Recommendations to address the 3 top risks
- Your communications approach for sharing your recommendations with the owners/managers and workers
- You have 1 hour to prepare. Each team will have 10 minutes to make a brief presentation on your findings.

8

 **USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Field Visit Debriefing**

GENERAL OBSERVATIONS FROM INTERVIEW	
TOP 3 RISKS	RECOMMENDATIONS
1.	1.
2.	2.
3.	3.
COMMUNICATIONS APPROACH	

9

 **USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Team Presentations**

As you listen to each group's presentation, think about these questions:

- What did you like about their recommendations and/or approach?
- What advice would you give them about their recommendations and/or approach?

10

 **USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Discussion**

- What are you noticing about the biggest biosecurity risks identified from the interviews?
- Does what you're hearing confirm what you've observed in the past or does it surprise you?
- What are you learning about what it will take to address these risks?

11

 **USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**BIOSECURITY RISK ASSESSMENT**

**REFLECTION**



# BIOSECURITY EXERCISE

## BIOSECURITY FOR FARMS AND MARKETS IN NIGERIA



### Module Purpose

To provide an opportunity to apply technical knowledge on biosecurity and surveillance planning to a real world farm setting.

### Module Objectives

At the conclusion of this module, participants will be able to:

- Complete a data collection and outbreak investigation form;
- Identify biosecurity infractions and recommend solutions for dealing with the infractions.

2



### Scenario

- The region of \_\_\_\_\_ has asked for your assistance in assessing the biosecurity risks and the development of recommendations to prevent the spread of HPAI H5N1 in three different settings:
  - Commercial Farms
  - Smallholder Farms
  - Feed Mills
- Given the current security situation we cannot go to the farms, but regional officials they have provided sample photos from each of these settings for your review.
- In addition, some of the owners/managers have agreed to come to our site to be interviewed. Those who cannot join us have submitted written statements.

3



### Team Assignments

We will work in three groups:

GROUP 1: Smallholder	GROUP 2: Commercial	GROUP 3: Feed Mill

4



### Team Task: Preparation

- With your team, review the field visit forms and checklists that you will fill out. Plan how you will organize yourself in your teams (how you'll use your time, share assignments to complete the forms, etc.).
- Identify what you want to pay attention to and take note of in the photos for your site.
- Identify what questions you want to ask the owner/manager and/or workers.

5



### Team Task: Identifying Biosecurity Risks and Strengths

- Observe and record biosecurity risks and strengths you see in the photos provided
- Gather additional information about current practices by reading the case study and/or interviewing owners/managers
- Complete the forms and checklists

6

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Team Task: Debriefing**

- Prioritize the biosecurity risks
- Develop recommendations to address the top risks
- Plan how you would communicate your findings and recommendations to the owners/managers and workers
- Be prepared to share your findings and recommendations with the group

7

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Your Packets Will Include:**

- Description of the site
- Site photos
- Data collection forms
- Checklists
- Case Study (if an owner/manager if not available for interview)

8

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Field Visit Debriefing**

With your team, discuss and record on flipchart paper:

- Some general observations and findings
- The top 3 biosecurity risks you observed
- Recommendations to address the 3 top risks
- Your communications approach for sharing your recommendations with the owners/managers and workers
- You have 1 hour to prepare. Each team will have 10 minutes to make a brief presentation on your findings.

9

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Debriefing**

GENERAL OBSERVATIONS	
TOP 3 RISKS	RECOMMENDATIONS
1.	1.
2.	2.
3.	3.
COMMUNICATIONS APPROACH	

10

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Team Presentations**

As you listen to each group's presentation, think about these questions:

- What did you like about their recommendations and/or approach?
- What advice would you give them about their recommendations and/or approach?

11

 **USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Discussion**

- What are you noticing about the biggest biosecurity risks in the field?
- Does what you're hearing confirm what you've observed in the past or does it surprise you?
- What are you learning about what it will take to address these risks?

12



**USAID** | **STOP AI**  
FROM THE AMERICAN PEOPLE

**BIOSECURITY EXERCISE**

**REFLECTION**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**TAKING THE LEARNING HOME**

**BIOSECURITY FOR FARMS AND  
MARKETS IN NIGERIA**



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Module Purpose**

- To provide participants with an overview on what it takes to change behavior and how to transfer the knowledge and techniques from this course to other audiences.

**Module Objectives**

*At the conclusion of this module, participants will be able to:*

- Transfer these concepts and techniques to various audiences (poultry transporters, consumers, sellers, and market administrators).



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Individual Task**

- Think of a time when you wanted to change your own behavior.
- What was hard about it?
- What helped you change your behavior?
- What got in the way?



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Behavior Change**

What do people need to be aware of to motivate behavior change?

- What's in it for me?
- Return
- Risks

What can you do to help?

- Recognize and articulate the return
- Articulate the risks of not changing behavior
- Counter their concerns or fears with examples and stories of benefits of change



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Target Audiences**

- Poultry dealers or transporters
- Municipal market authorities
- Live bird market sellers
- Poultry farmers (large commercial)
- Poultry farmers (smallholder)



**USAID | STOP AI**  
FROM THE AMERICAN PEOPLE

---

**Group Task - Audience Analysis**

- Choose one biosecurity concept to educate your target audience about (e.g., how to clean and disinfect vehicles)
- Identify your target group's interests, experience, educational level, risk, and return
- Choose the best method and setting for teaching your audience (e.g., one on one, classroom teaching, storytelling, posters, phone calls, etc.)
- You have 30 minutes

**Group Task - Demonstration**

- Prepare a short (10 min maximum) demonstration of how you would teach your selected topic to your audience. Feel free to use any of the tools in your participants binder.
- Be prepared to conduct the demonstration.
- The rest of the class will play the role of your target audience in the setting you've specified.

**Demonstrations**

As you observe and participate in the demonstrations, take note of:

- How effective was the group leading the demonstration in communicating the concept they selected?
- What advice would you give to them to improve?

**Application Planning**

- Please complete the worksheet in your binder.
  - What are the most important things you've learned as a result of this course?
  - What are one or two things you plan to do in the next two weeks to apply what you have learned here?
  - What skills or concepts do you feel will be the most difficult for you to put into practice?
  - What can you do to overcome those difficulties?

**Pair Task**

- Find a partner and share your responses to the application planning worksheet with each other

**Course Evaluation**

- Please complete the course evaluation.
- We value your feedback!

**Closing Remarks**

- TBD



**USAID**  
FROM THE AMERICAN PEOPLE

**STOP AI**

**Certificates**