

Avian Influenza: What You Need to Know, Not Fear

Nathaniel L. Tablante, DVM, MPVM, MS, DACPV
Professor and Extension Specialist-Poultry Health
Virginia-Maryland College of Veterinary Medicine
University of Maryland College Park
8075 Greenmead Drive
College Park, MD 20742
Tel 301-314-6810
nlt@umd.edu



Outline

- Update on recent HPAI outbreaks in U.S.
- Avian Influenza Overview
 - Definition and classification
 - “Bird Flu” vs. “Avian Influenza”
 - Sources of AI virus
 - Types of AI in domestic poultry
 - Incubation and survival of AI virus
 - Modes of transmission
- Prevention of AI in Poultry
- Final Thoughts



Recent HPAI Outbreaks in the U.S.

Date	Title	Type	Category
2/24/22	USDA Confirms Highly Pathogenic Avian Influenza in a Non-Commercial Backyard Flock (Non-Poultry) in Michigan	Press Release	Animal Health,HPAI
2/23/22	USDA Confirms Highly Pathogenic Avian Influenza in a Commercial Poultry Flock in Delaware	Stakeholder Announcement	Animal Health,HPAI
2/19/22	USDA Confirms Highly Pathogenic Avian Influenza in a Non-Commercial Backyard Flock (Non-Poultry) in Maine	Stakeholder Announcement	Animal Health,HPAI
2/19/22	USDA Confirms Highly Pathogenic Avian Influenza in a Non-Commercial Backyard Flock (Non-Poultry) in New York	Stakeholder Announcement	Animal Health,HPAI
2/14/22	USDA Confirms Highly Pathogenic Avian Influenza in a Flock of Commercial Broiler Chickens in Kentucky and Non-Commercial Backyard Flock (Non-Poultry) in Virginia	Stakeholder Announcement	Animal Health,HPAI
2/11/22	USDA Increases Efforts to Protect U.S. Poultry and Expands Wild Bird Surveillance for Avian Influenza	Stakeholder Announcement	Wildlife Damage,Animal Health,HPAI
2/9/22	USDA Confirms Highly Pathogenic Avian Influenza in a Commercial Turkey Flock in Dubois County, Indiana	Stakeholder Announcement	Animal Health,HPAI
1/18/22	USDA Confirms Additional Highly Pathogenic Avian Influenza Finds in Wild Birds	Stakeholder Announcement	Animal Health,HPAI
1/14/22	USDA Confirms Highly Pathogenic Avian Influenza in a Wild Bird in South Carolina	Press Release	Animal Health,HPAI

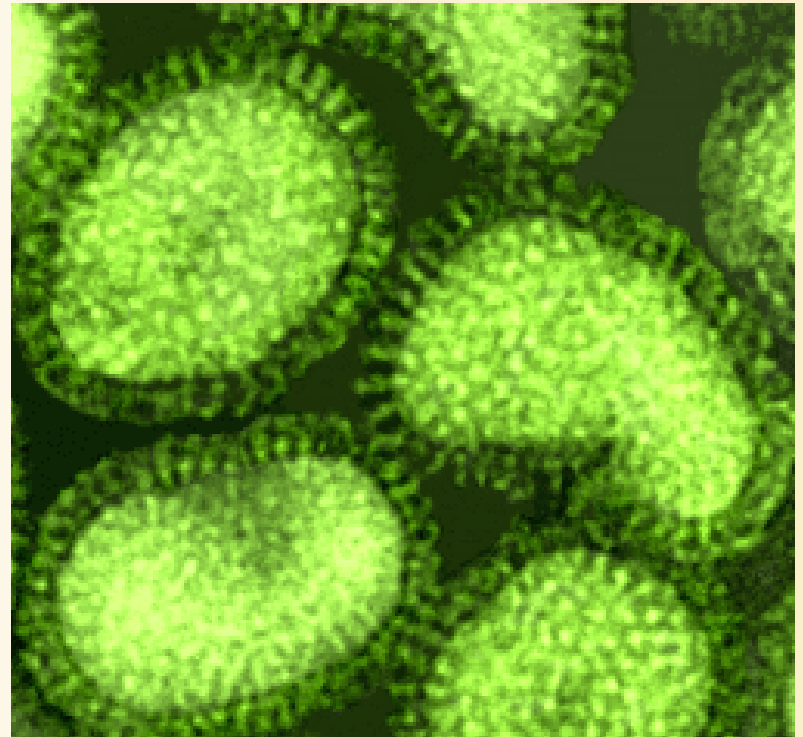
<https://www.aphis.usda.gov/aphis/newsroom/news/all-program-updates-by-cat?filters=News/HPAI>

HPAI Outbreak in Newcastle County, DE

- HPAI H5N1 detected in commercial egg layer flock on February 23, 2022
 - Flock being depopulated
 - No public health concern
- No outbreaks in commercial broiler chicken farms
- All poultry growers should take proper biosecurity precautions

What is Avian Influenza (AI)?

- Avian influenza (AI) is an infectious, viral disease of birds caused by several subtypes of the type A strain of the influenza virus
- Avian influenza viruses usually do not infect humans but several cases of human infection have been reported since 1997



What is “Bird Flu”?

- A highly pathogenic form of Avian Influenza virus subtype H5N1 that has caused severe disease in poultry and a number of human infections and deaths



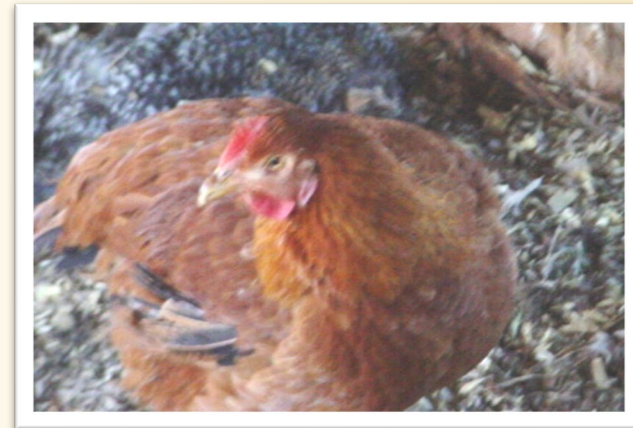
Where does AI virus come from?

- AI viruses circulate among wild birds, especially migratory waterfowl (e.g. ducks and geese) which are considered natural reservoirs for type A influenza viruses
- Domestic poultry e.g. chickens and turkeys are **not** natural reservoirs for AI virus and usually develop clinical disease when infected with AI virus



What are the types of Avian Influenza in domestic poultry?

- Low pathogenic avian influenza (LPAI)
 - mild or no clinical signs
 - low to moderate mortality
 - However, the *low pathogenic H5 and H7 strains are capable of mutating under field conditions into highly pathogenic strains*
- Highly pathogenic avian influenza (HPAI)
 - sudden onset
 - severe clinical signs
 - high mortality



What is the incubation period?

- Usually 3 to 7 days
- Depends on:
 - strain of virus
 - dose (amount of virus)
 - age and immune status of bird
 - management and environmental factors



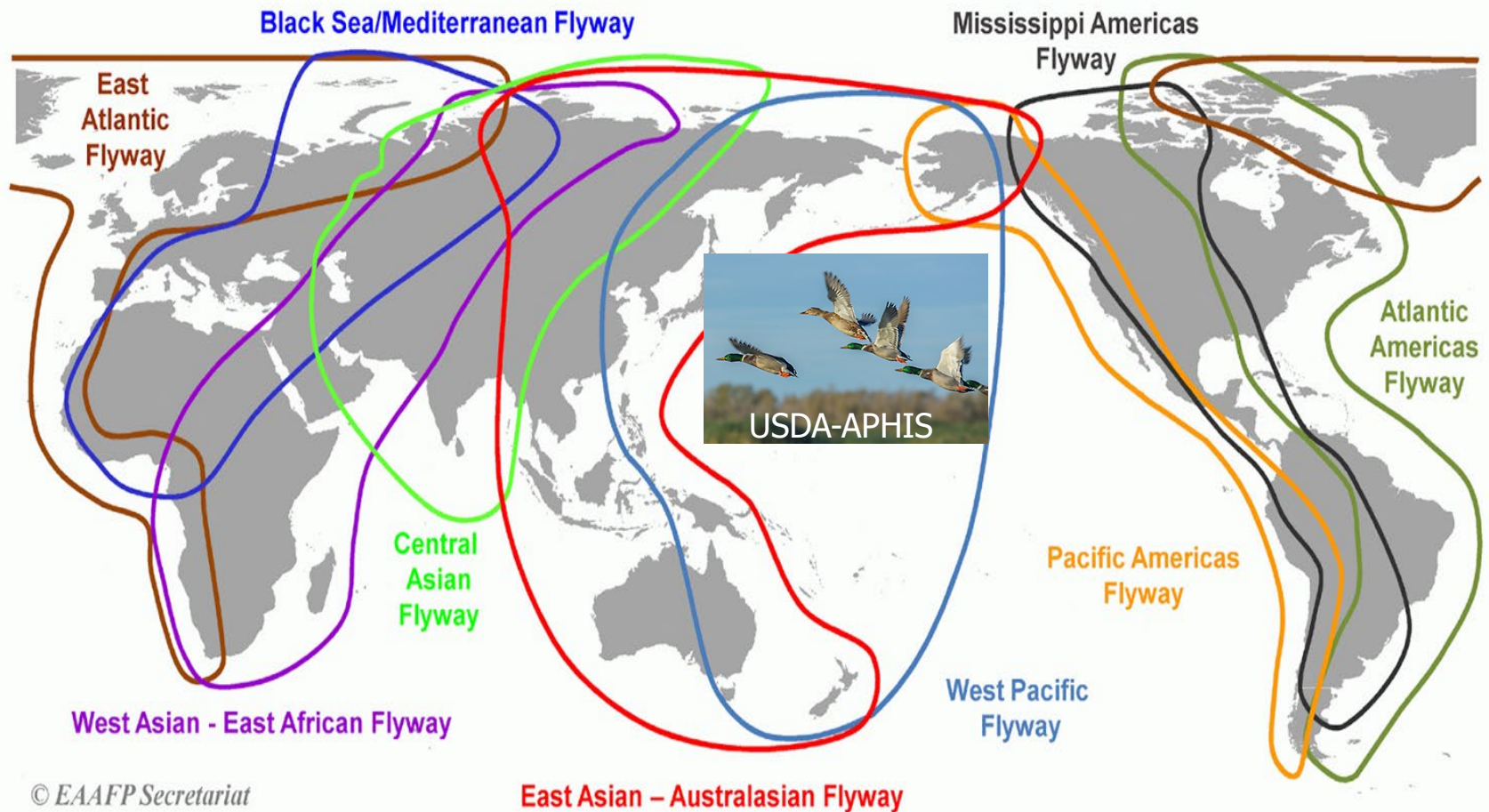
How long can AI virus survive?

- AI virus is shed in feces for 7 to 14 days after infection
- AI virus can survive in manure for up to 105 days especially with high moisture and low temperature
 - 1 gram of contaminated manure can infect 1 million birds
 - 1 gram of manure will cover the surface of a dime



How does AI virus spread?

- Exposure of poultry to migratory waterfowl



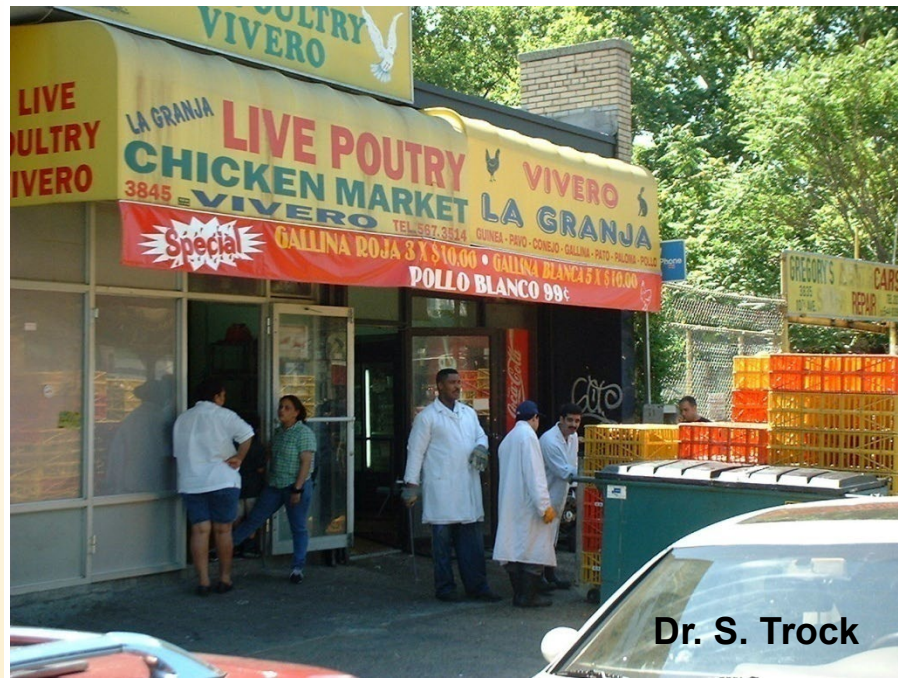
How does AI virus spread?

- Exposure of commercial poultry to AI-infected backyard, gamebird, or hobby flocks



How does AI virus spread?

- Contact with AI-infected live bird markets



How does AI virus spread?



- Bird to bird contact (through feces)
- Aerosol droplets

How does AI virus spread?

- Contaminated manure, equipment, vehicles, egg flats, crates, shoes and clothing



How does AI virus spread?

- Wildlife vectors/scavengers



Photos courtesy of G. Malone
University of Delaware

What can we do to prevent the spread of AI in poultry?

- Strengthen biosecurity practices

- What is biosecurity?

Bio = life

Security = protecting from harm or danger

Biosecurity = protecting life

- Preventing disease
- Methods to prevent the introduction and spread of infectious disease agents such as avian influenza virus

What are the major components of biosecurity?

- ◆ **Isolation** (confinement of animals within a controlled environment)
- ◆ **Traffic control** (movement of people, vehicles, and equipment onto and within the farm or live bird market)
- ◆ **Sanitation** (disinfection of people, materials, and vehicles entering the farm or live bird market; cleanliness of people on the farm or live bird market)

Biosecurity Control Points



- Personnel
- Visitors
- Vehicles and equipment
- Bird management practices
- Flock health
- Education

Image provided by USDA-APHIS

Personal Biosecurity

- Keep a separate pair of boots and coveralls in each poultry building.



Image provided by USDA-APHIS

Personal Biosecurity

- Use a separate set of footwear and clothing (those that you do not use on your farm) when visiting auctions or fairs.



Photo provided by USDA-APHIS

Keep non-essential visitors out



Require essential visitors to park at the farm gate/entrance, away from your poultry facilities



Photo provided by USDA-APHIS

Maintain a logbook and require essential visitors to sign in



Photo provided by USDA-APHIS

Require essential visitors to wear protective clothing



Require truck drivers to wear protective clothing or at least boot covers; never allow them to enter a poultry pen or coop



Photo provided by USDA-APHIS

**Avoid borrowing equipment from your neighbor(s);
In case you do, clean and disinfect the equipment before
and after using it**



Photo provided by USDA-APHIS

**Install and use a tire wash station
at the entrance to your farm;
provide a pump sprayer with disinfectant for added
protection**



Photo provided by USDA-APHIS

Do not keep birds of different ages and species in the same pen or coop



Keep your birds away from bodies of water which may attract waterfowl that may carry avian influenza virus



Educate your family members and workers on recognizing signs of diseases such as AI and practicing good biosecurity

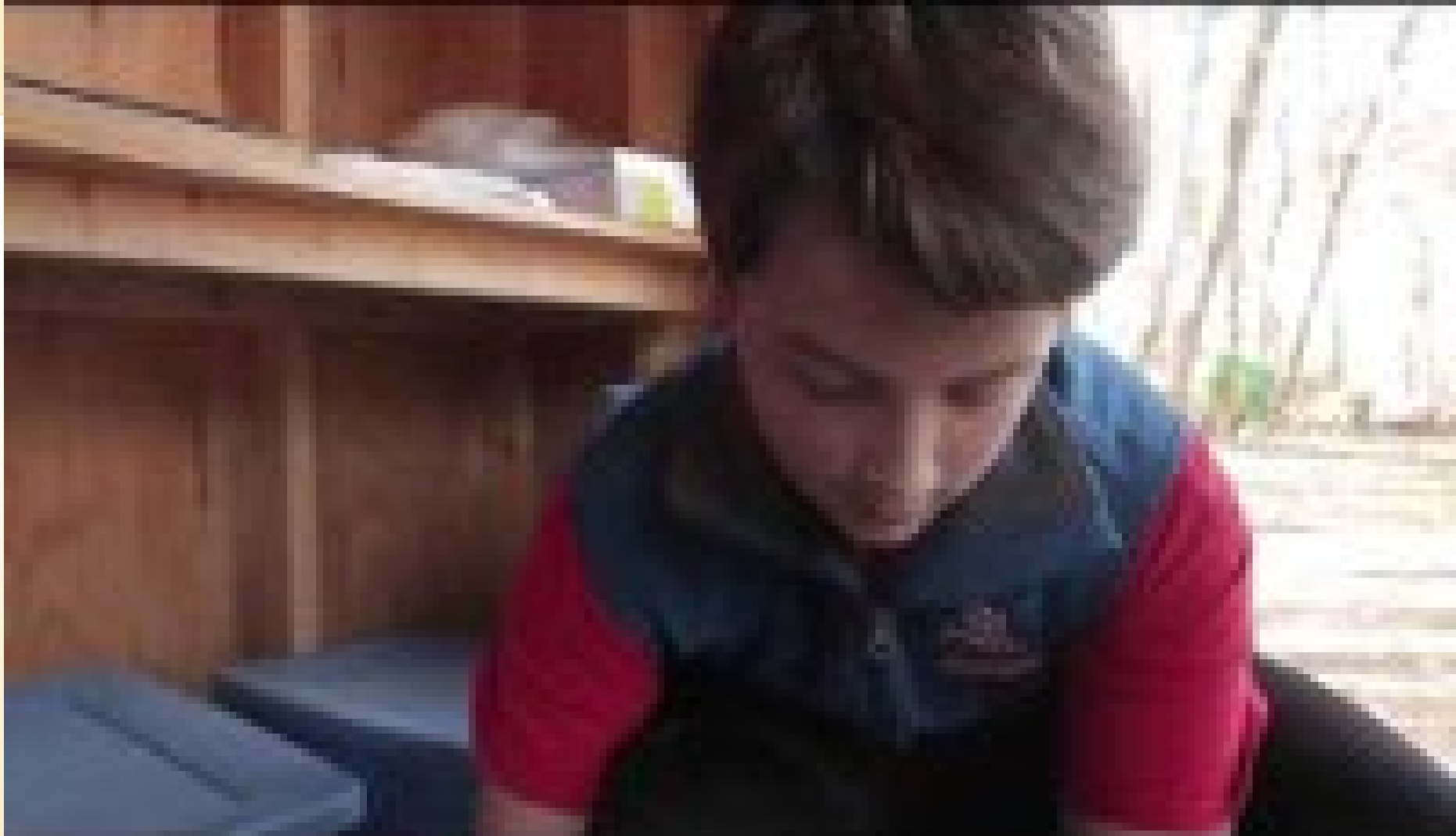


Photos provided by USDA-APHIS

Avian Influenza Biosecurity Videos

- The 2014-2015 HPAI outbreaks in the U.S. re-emphasized an urgent need to develop and disseminate practical, science-based information on avian influenza prevention.
- The University of Maryland Extension poultry team received funding from USDA-NIFA Smith-Lever Special Needs Program for production of short biosecurity videos for:
 - commercial poultry growers
 - technical service personnel
 - backyard flock owners
- Each video has an English master copy and versions with Chinese (Mandarin), Spanish, Korean, and Vietnamese subtitles.

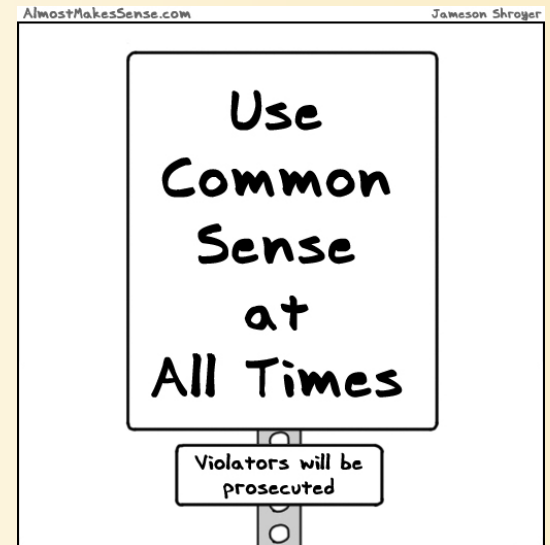
Preventing AI Outbreaks Through Science-Based Education of Backyard Flock Owners



<https://youtu.be/xwUkcqvFlbs>

Final Thoughts

- AI virus:
 - does not care about politics
 - does not recognize state or international boundaries
 - will spread if given the slightest opportunity
- Be prepared but don't panic
- Biosecurity is the key to AI prevention
- The best defense against AI is **COMMON SENSE!**



Thank you!



Questions?