



## EXTENSION

# Small Flock Biosecurity for Prevention of Avian Influenza

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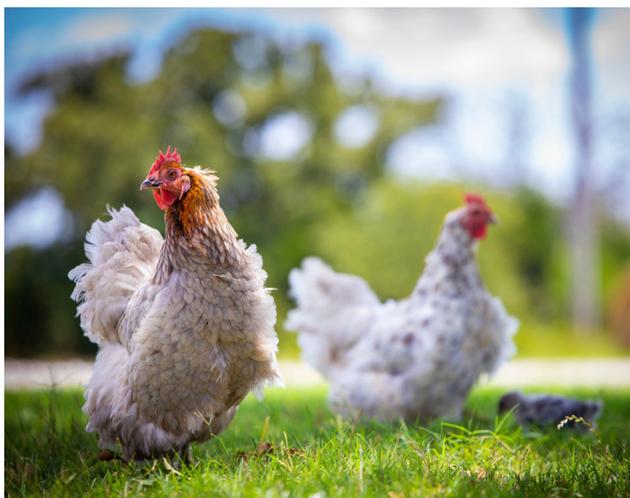
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Avian Influenza is caused by an Influenza A virus that can infect wild birds, captive wild birds, commercial poultry, and backyard poultry. The most notable outbreak that occurred within 2014-2015 was one of the most deadly animal health emergencies in U.S. history. In that particular outbreak, the United States Department of Agriculture (USDA) confirmed over 230 detections of high-pathogenic avian influenza (HPAI) in the U.S. affecting approximately 50 million birds. These birds either died or were euthanized to control disease spread. Since that initial outbreak, several smaller isolated outbreaks occurred in 2016 and 2017. In 2022, HPAI infections spread quickly across the U.S., impacting all types of both wild and commercial avian flocks in each of the four natural flyways within the continental U.S. The Centers for Disease control considers the health risk to humans from the HPAI outbreak to be low. Furthermore, no human infections have occurred from the current Avian Influenza viruses impacting North America.

Due to the proximity of the disease to Oklahoma, it is imperative that poultry producers be aware and understand the importance of biosecurity to prevent HPAI. Commercial poultry producers in and around Oklahoma are taking preventative measures against a potential outbreak; however, producers with small flocks may be less aware of the important role they can also play in preventing HPAI.



Oklahoma Cooperative Extension Fact Sheets are also available on our website at: <http://osufacts.okstate.edu>

### What is Biosecurity?

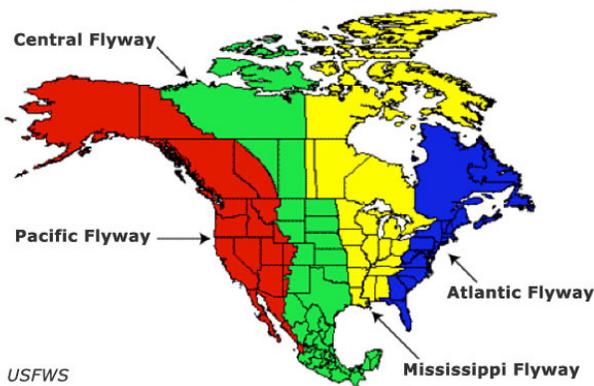
Biosecurity is a practice utilized to limit the spread of disease-causing organisms. In this case, biosecurity means doing everything possible in an operation to prevent disease from entering a poultry flock. Biosecurity, teamed with proper vaccination (when applicable), disinfection, and sanitation, helps operations prevent infection of disease-causing pathogens. By practicing good bird management and adhering to proper biosecurity guidelines, producers can reduce the chances of an infectious disease being passed into poultry flocks by people, other birds, mammals, equipment, or vehicles. Highly pathogenic diseases can strike very quickly, without warning, causing major economic losses. As a bird owner and a U.S. poultry producer, it is important to be alert of a disease threat.

### What is a Disease?

According to the USDA Biosecurity Guide for Poultry Owners, disease is an abnormal condition that is the result of infection, genetic defect, or environmental stress. Disease affects the normal functioning of a living organism which leads to reduced production or performance of the animal. In poultry, there are four main classes of infectious disease-causing agents: bacteria, viruses, fungi, and parasites. Viruses are the cause of the current HPAI outbreak and can be spread a variety of ways in the environment: directly, indirectly, or by vectors. Direct contact with sick or infected birds, manure, litter, debris, feathers, or bodily fluids can be the cause of virus transmission. Transmission also occurs through indirect contact with materials that themselves have been contaminated with the virus (shoes, clothing, hands, and vehicles) and then carried to healthy birds. Live vectors such as wild animals, rodents, and insects can also be major transmitters of the virus.

### Avian Influenza in the United States

Avian influenza is a disease caused by infection with avian (bird) influenza (flu) Type A viruses. These viruses occur naturally in wild migratory birds (such as ducks, swans, and geese) and can infect domestic poultry (such as chicken, ducks, quail, pheasants, guinea fowl and turkeys). Avian influenza viruses are categorized into two strains based on the ability of the virus to cause disease in poultry. These groups are low-pathogenic avian influenza (LPAI) and HPAI. Several



**Figure 1. North American Migratory Bird Flyways.**  
Source: U.S. Fish and Wildlife Service

different strains of LPAI can be found in wild birds across the U.S. Birds with “low path” forms of the virus typically show no signs of infection. However, LPAI viruses have the potential to mutate into HPAI which is why they are monitored closely by the USDA. Migratory birds from all over the world interact during migration which naturally allows for disease spread and increased likelihood of the development of HPAI.

In domestic poultry, HPAI is very contagious and causes serious illness and death. Once established, it can spread rapidly killing 95-100 percent of an infected flock. Possible signs of HPAI include decreased energy and appetite, decreased egg production, abnormal egg shape, respiratory distress, diarrhea and swelling or purple discoloration of the head, eyelids, comb, wattles, and legs. U.S. outbreaks have been focused within the commercial egg and turkey industry; however, HPAI has also been detected in backyard flocks. During outbreaks, some states may take steps to prevent the spread of HPAI by canceling poultry related shows and events. All vaccine development and approval is strictly regulated by the USDA. To date, there is no widely available and effective vaccine to prevent HPAI. Should the USDA authorize vaccine use, careful consideration will be given regarding vaccine efficacy, impacts of vaccine use in the field and potential impacts on poultry trade.

Improvement and maintenance of a proper biosecurity plan as a prevention method are much easier than implementing a plan amidst a disease outbreak. Implementation of biosecurity plans to prevent disease can reduce the economic losses associated with a disease outbreak. The goal is to improve small flock biosecurity to help prevent the introduction or spread of pathogenic diseases such as avian influenza in Oklahoma.

### Prevention of Avian Influenza

Transmission of avian influenza viruses occurs primarily through the feces and respiratory secretions of birds. The fecal-oral and respiratory transmission routes can rapidly spread the virus throughout a poultry flock; however, clothes, shoes, equipment, pests, and vehicles can also be major sources of transmission. For this reason, practicing biosecurity in all areas of a poultry operation, large or small, is key to the prevention of avian influenza.



**Figure 2. Any necessary visitors should clean and disinfect their shoes or wear disposable boot covers prior to entering any pen.**

### Tips for maintaining biosecurity in backyard poultry:

- **Keep your distance and restrict visitors.** The primary caretaker of your flock should not enter other poultry facilities and visitors should be kept at a minimum. Any necessary visitors should practice judicious hand washing before entering the poultry operation. Visitors should also clean and disinfect their shoes or wear disposable boot covers prior to entering any pen. If handling birds is necessary, disposable gloves should be worn. Any person who handles poultry or poultry equipment should follow the interaction with practiced cleanliness of handwashing and even a change of clothes in some instances.
- **Do not allow wild birds to commingle with domesticated poultry.** Game birds and migratory waterfowl can carry diseases that can be spread to domesticated poultry. At all costs, keep wild birds from having contact with your flock even if they are housed outdoors. Be sure no other animals or pets have contact with poultry or their feeding and watering receptacles.
- **Maintain cleanliness!** Clean and disinfect your hands, clothes, shoes, and equipment before and after handling poultry. A good biosecurity practice is to have a pair of shoes that are kept next to the pen door and only worn when inside the pen. Feed bins should be secured to prevent contamination by wild birds or rodents. Spoiled feed should be removed promptly to prevent attracting wild birds or rodents. Clean and disinfect all tools and equipment that are thought to have been contaminated. Promptly dispose of dead birds by burial or composting. Maintain effective rodent and insect control programs.
- **Don't haul the disease home.** If your birds have been near other poultry such as during a show or contest, clean and disinfect poultry cages and equipment before coming home. Birds that have been near other poultry should be quarantined from the rest of the flock for at least 14 days. This will give the bird time to show sickness if something was indeed picked up while they were off farm. New birds should be kept from your flock for at least 30 days before putting them with the rest of the birds. After interacting with birds other than your own, be sure to shower and clean clothing with detergent before handling your birds.

- **Be neighborly, but don't risk disease!** The health of your birds should be first priority. Do not share birds, borrow lawn and garden equipment, tools, or poultry supplies from other bird owners. Items that cannot be disinfected such as wood pallets or egg cartons should not be shared.
- **Know the warning signs.** Birds infected with HPAI may exhibit lack of energy and appetite, decreased egg production, abnormal egg shape, respiratory distress, diarrhea and swelling or purple discoloration of the head, eyelids, comb, wattles, and legs.
- **Report sick birds.** Keep in mind that isolated instances of mortality are common in a backyard flock and do not require reporting. However, be aware that drastic instances of sickness and mortality in large numbers of birds should be reported to officials. Prompt diagnosis of widespread sickness in flocks is a critical step in containing any devastating disease. For diagnosis of any widespread disease, contact the Oklahoma Animal Disease Diagnostic Laboratory (OADDL), the Oklahoma Department of Agriculture (ODAFF) or your local county OSU Extension Educator. These entities work closely together to test and identify contagious diseases. If avian influenza is suspected in an Oklahoma backyard poultry flock, please notify one of the contacts immediately.

## Contacts:

### Local Veterinarian

#### Local County Extension Educator:

Contact numbers for each OSU County Extension office can be found online <https://extension.okstate.edu/county/>

**OADDL Oklahoma Animal Disease Diagnostic Laboratory**  
(405)-744-6623

**ODAFF State Veterinarian**  
(405) 522-6141

**ODAFF-Subsidized Disease Surveillance Program**  
(405)-522-6139

Under the current program, ODAFF will pay the costs of necropsy and diagnostic testing, provided that the bird can be tested for Avian Influenza. Results of the diagnostic testing will be provided to owner, veterinarian (if involved), extension educator and ODAFF

**USDA Defend the Flock toll free number: 1-866-536-7593**

Biosecurity is a crucial best management practice for small flock owners. Producers that follow simple biosecurity practices can help reduce the risk of introducing a poultry disease, such as avian influenza, onto the farm resulting in healthy flocks and minimized economic losses.

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