



Small Flock Biosecurity for Prevention of Avian Influenza

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The highly pathogenic avian influenza (HPAI) outbreak has become the largest animal health emergency in U.S. history. Since December 2014, the United States Department of Agriculture (USDA) has confirmed more than 230 detections of HPAI in wild birds, captive wild birds, backyard poultry and commercial poultry affecting approximately 50 million birds in the U.S. These birds have either died or been euthanized to control disease spread. To date, states with reported cases include Arkansas, California, Iowa, Idaho, Indiana, Kansas, Minnesota, Missouri, Montana, North Dakota, Nevada, Oregon, Utah, South Dakota, Washington, Wisconsin and Wyoming. 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 close proximity of the disease to Oklahoma, it is imperative 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.

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



Figure 1. Turkey mortality resulting from highly pathogenic avian influenza.

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<http://osufacts.okstate.edu>

from entering a poultry flock. Biosecurity, teamed with proper vaccination, 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 and 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 have been contaminated with the virus (shoes, clothing, hands and vehicles), 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 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. The HPAI viruses recently detected in the U.S.

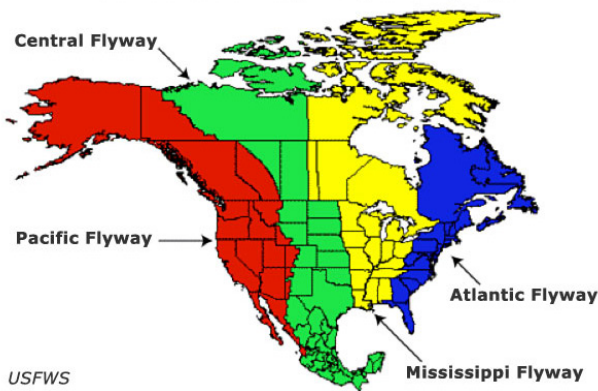


Figure 2. North American Migratory Bird Flyways.

Source: U.S. Fish and Wildlife Service

resulted from comingling of migratory waterfowl between northeast Asia and Alaska, which allowed for genetic re-assortment of Asian HPAI strains and North American LPAI strains. These new mixed origin viruses were then rapidly spread south along North American migration flyways.

In domestic poultry, HPAI is very contagious and causes serious illness and death. Once established, it can spread rapidly killing 95 percent to 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. Much of the U.S. outbreak has been focused in the commercial egg and turkey industry; however, HPAI has also been detected in backyard flocks. To prevent further spread of the disease, some states have taken precautions by canceling all poultry related shows and events through the calendar year. 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 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.

Tips for maintaining biosecurity in backyard poultry:

- **Keep your distance and restrict visitors.** The primary caretaker of the flock should not enter other poultry



Figure 3. Any necessary visitors should clean and disinfect their shoes or wear disposable boot covers prior to entering any pen.

facilities, and visitors should be kept at a minimum. Any necessary visitors should clean and disinfect their shoes or wear disposable boot covers prior to entering any pen. If handling birds, disposable gloves should also be worn.

- **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 coming in contact with the flock—even if they are housed outdoors. Be sure no other animals or pets come in contact with poultry or 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 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 14 days. This will give the bird time to show sickness. New birds should be kept from your flock for at least 30 days before putting them with the rest of the birds. After coming into contact with other birds, be sure to shower and wash clothing 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) in Stillwater, OK 405-744-6623. The OADDL works closely with the Oklahoma Department of Agriculture to test and identify contagious diseases. If avian influenza is suspected in an Oklahoma backyard poultry flock, please contact one of the sources listed below immediately.

Contacts:

Local County Extension Educator

Local Veterinarian

State Veterinarian (405) 522-6139 or (405)-522-0270

USDA toll free number: 1-866-536-7593

Biosecurity is a crucial best management practice for small flock owners. Producers following 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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Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 42 cents per copy. 0116 GH.