



Biosecurity: Five Steps to Protect Poultry from Avian Influenza (and Other Diseases)

Authored by Leonie Jacobs, Associate Professor, School of Animal Sciences, Virginia Tech, and Michael E. Persia, Professor, School of Animal Sciences, Virginia Tech

Introduction

Biosecurity refers to measures to prevent the introduction or spread of harmful organisms and disease that pose a risk for human or animal health. Biosecurity serves three important functions: It can help protect your flock from bacteria, viruses, and other microorganisms that can make your birds sick; it can reduce the risk of transmission of diseases to neighboring flocks; and it can protect human health by reducing the risk of zoonotic (i.e., spreading between animals and humans) infections.

Why is Avian Influenza a Big Deal?

A highly pathogenic strain of avian influenza (H5N1), or bird flu, is currently present in the United States. The outbreak started in early 2022 and continues as of this writing in 2024. So far, the disease has infected commercial and backyard poultry flocks resulting in the loss of over 90 million birds. Virginia has been spared to an extent, with approximately 40,000 birds affected to date. This specific strain is considered highly pathogenic because it causes major losses among flocks, with over 75% mortality rates reported. In addition to high mortality, other symptoms of infected birds may include swelling of the head, eyelids, comb, wattles, and hocks; purple discoloration of the wattles, combs, and legs; and nasal discharge, coughing, or sneezing. Domestic poultry, including chickens, ducks, turkeys, geese, quail, and pheasants, can become infected with avian influenza. In a 2022 report, the U.S. Department of Agriculture advised that this strain shows a tremendous ability to spread through contact with wild migrating waterfowl. More recent reports of avian influenza spreading to mammals, including wildlife and livestock, has created added concern, especially for animal production and human health.

You can learn more about avian influenza in the March 2022 [Poultry Extension Collaboration](https://bit.ly/poultrynews0322) newsletter (<https://bit.ly/poultrynews0322>). Also, the U.S. Department of Agriculture's Animal and Plant Health Service regularly posts updated information on [Detections of Highly Pathogenic Avian Influenza in Mammals](https://bit.ly/usdamammals) (<https://bit.ly/usdamammals>) and on [Highly Pathogenic Avian Influenza Detections in Livestock](https://bit.ly/usdalivestock) (<https://bit.ly/usdalivestock>).

Biosecurity Measures

Here are five steps you can take to protect your birds from avian influenza (and other diseases).

1. Limit exposure to wildlife, including wild birds and rodents.

Avian influenza is spread by wild birds, mostly migratory waterfowl. To protect domestic poultry, keep them away from areas where wild birds congregate, especially water features that attract migratory waterfowl. Do not incorporate decorative water ponds and features into poultry enclosures. Provide all feed and water within a covered shelter area. Feed, water, eggs, nest material, and bedding material may attract wildlife to visit your birds. These animals may carry pathogens, infecting your flock via droppings, particles in the air, or through physical contact with the flock.

Here are some additional practical steps you can take to limit your birds' exposure to wildlife:

- Store feed in closed bins and feed your flock inside the coop (chicken house) or enclosed run (covered outdoor area).
- Keep coops and runs wildlife-free by using appropriate fencing and overhead cover. Burying fences about 1-2 ft or adding fence skirts may

prevent animals from digging under fencing. This step will also reduce flock predation.

- Keep your flock away from wild bird feeders, bird baths, and other places that attract wild animals
- Remove debris and other items near your coop to reduce the risk of animals nesting or hiding there
- Develop and implement a rodent control plan.

2. Clean, sanitize, and disinfect.

Remove excess feed and waste products from the coop in a timely fashion. Any equipment or tools used in the coop should be cleaned, sanitized, and disinfected before being used around the flock. This is especially important for tools and equipment that are shared between different flocks. Cleaning includes removing debris and organic material from surfaces with soap and water. Sanitizing involves killing bacteria on surfaces using chemicals, while disinfecting kills bacteria and viruses on surfaces using chemicals. The U.S. Environmental Protection Agency has a list of products that are effective against avian influenza: <https://www.epa.gov/pesticide-registration/epas-registered-antimicrobial-products-effective-against-avian-influenza>.

3. Quarantine new birds and sick birds.

New birds should be kept separate from the existing flock. Purchase poultry from reliable, certified disease-free hatcheries. These are certified by the National Poultry Improvement Plan (NPIP), which has a list of certified hatcheries by state on its [NPIP Participants by State/Territory](https://www.poultryimprovement.org/statescontent.cfm) web page (<https://www.poultryimprovement.org/statescontent.cfm>).

When adding new birds to your flock, keep them separated for two to four weeks before introducing them to the existing flock. New birds may carry pathogens you do not want to introduce to your current birds. Monitor the new birds' health and behavior twice daily to ensure the birds are healthy and behaving normally. If abnormalities are observed, veterinary care may be required.

In addition, when your existing birds show signs of disease, separate them from the others immediately to reduce the risk of spread. Keep in mind that chickens will hide signs of disease when they can, so once they do show signs, the disease is likely in the later stages and very serious.

Signs of illness include

- Dullness or depression.
- Fatigue (lethargy).
- Inattentiveness.
- Anorexia.
- Isolating.
- Hunching.

Flocks that contain multiple poultry species are especially vulnerable as various poultry species have differing susceptibility to disease.

To learn more about sickness behaviors, see the September 2021 issue of the [Poultry Extension Collaboration](https://bit.ly/poultrynews0921) newsletter (<https://bit.ly/poultrynews0921>).

4. Keep dedicated shoes for the poultry area and wash/sanitize your hands.

There are two parts of our bodies that are primarily used to interact with the world. The first is our hands, as we manipulate and move everyday objects within our daily routines. Washing hands, or at the minimum using hand sanitizer, before and after handling poultry will greatly reduce the risk of inadvertent disease transmission to and from the flock. The second, less obvious interaction occurs through our feet, including each step taken in the world. Dedicated footwear or disposable shoe covers that is changed immediately before entering the coop will reduce transmission of microorganisms from the bottom of shoes worn throughout the day and will limit the risks of people bringing in pathogens from elsewhere.

5. Avoid transmission between flocks.

Whenever you, your family or friends interact with your flock or outside flocks (other birds), there is a chance for disease transmission. Therefore, you should leave a 72-hour period between visiting your flock and other birds. This rule should be in effect to protect your birds (before you reenter your flock) and to protect other birds not in your flock (wait 72 hours before you interact with other birds). As noted above, hand and shoe sanitation is critical, but in addition, always wear clean clothes when interacting with your birds.

When Birds Get Sick

If your birds do get sick, seek veterinary treatment. If high and unexplained mortality is present, report the disease for verification and additional resources.

If a veterinarian with poultry experience is available in your area, bring your bird(s) to them for an appropriate diagnosis.

Some infectious and contagious diseases, such as avian influenza, are serious for poultry health and are limited in treatment options, which means that they are required to be reported to state or federal authorities.

Examples of national reportable poultry-specific diseases include:

- Highly pathogenic avian influenza.
- H5 and H7 sub-types of low pathogenic avian influenza.
- Duck viral hepatitis.
- Fowl typhoid.
- Turkey rhinotracheitis.
- Pullorum disease.
- Virulent Newcastle disease.

In Virginia: Contact the Virginia Department of Agriculture and Consumer Services at 804-692-0604 or vastatevet@vdacs.virginia.gov to report a case of disease.

Additional Resources

Archer, G. 2024. "Specialist: Biosecurity is the 'Cheapest, Most Effective' Tool for Disease Management." Modern Poultry: Solutions for Sustainable Production. <https://modernpoultry.media/biosecurity-for-your-chickens-health/?mp=1711394434369>.

Jacobs, L., and M. E. Persia. 2022. Maintaining the Health of Your Flock. Video. <https://www.youtube.com/watch?v=PMEIWUIC8hw>.

U.S. Department of Agriculture (USDA) Animal and Plant Health Inspection Service. 2022. "Highly Pathogenic Avian Influenza (HPAI): Improving Biosecurity With Wildlife Management Practices: Reducing Water Access." USDA Program Aid No. 2209. PDF available at https://www.aphis.usda.gov/publications/wildlife_damage/fsc-hpai-wildlife-practices-reduce.pdf.

USDA Animal and Plant Health Inspection Service. "Avian Influenza." Last modified May 9, 2024. <https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza>.

USDA Animal and Plant Health Inspection Service. n.d. "Defend the Flock." Biosecurity Resource Center. <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/defend-the-flock-program/df-resources/df-resources>.



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