

Department of Animal Science

PRACTICE BACKYARD POULTRY BIOSECURITY

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Avian influenza (AI) continues to be a serious threat to all poultry in Tennessee and across the United States. It makes no difference whether you have three backyard chickens or 300,000 commercial chickens, they are all at risk of AI unless proper biosecurity practices **are in place and followed every time** on your operation. Do not think for a minute that the avian influenza threat is over because cases across the country in February slowed compared to December and January levels. Most migrating waterfowl have now gone south, and it's not time for them to return north just yet. When that time comes and the migration back north begins, **expect AI cases to increase** again. Consider this a warning and heighten your awareness of the importance of having and maintaining a strong biosecurity program. Protecting your chickens is serious business and you need to treat it as such. Otherwise, one mistake or lapse in biosecurity and you may find yourself without chickens. This could be devastating as many backyard poultry keepers see their chickens as more than just chickens, and their loss can be quite traumatic. Biosecurity means doing all you can to prevent an infectious disease from being carried onto your property by people, pets, wild animals, tools, equipment or vehicles. It also means taking steps to reduce the likelihood that disease will leave your property (should it occur there) and spread to other locations. Backyard biosecurity provides a measure of protection for you, other backyard poultry keepers and the multimillion-dollar commercial poultry industry in Tennessee. While you cannot control the biosecurity practices of anyone else, **you can ensure that you are not the weak link** and are not putting your chickens, other backyard flocks and the Tennessee commercial poultry industry at risk.

Why the concern?

The current AI outbreak has resulted in the loss of more birds than the 2015 AI outbreak, which, at that time, was the largest U.S. animal health emergency to date. Avian influenza is very much a concern for backyard poultry keepers and the Tennessee commercial poultry industry, as both sectors have been affected since the outbreak began in early 2022. Surrounding states are also on high alert. Our neighbors to the south in Mississippi saw an avian influenza break on a commercial broiler farm as recently as early February 2023, so the threat still exists. Numerous

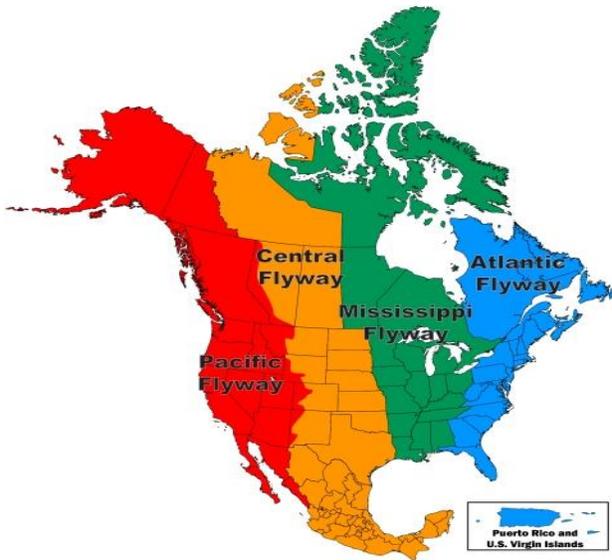


Figure 1. Migratory bird state and province flyways map. Source: Image courtesy of U.S. Fish and Wildlife Service.



Figure 2. Flock of migrating snow geese. Source: Image courtesy of U.S. Fish and Wildlife Service.

strains of AI virus exist worldwide that can cause varying degrees of illness in poultry (especially domestic chickens and turkeys that are extremely susceptible to avian influenza). Wild birds (particularly **migrating waterfowl like geese and ducks**) are natural carriers for AI viruses but often show no symptoms or mortality.

Avian influenza viruses are classified as either low-pathogenic (LPAI) or high-pathogenic (HPAI). Low-pathogenic avian influenza causes only mild disease in poultry. High-pathogenic avian influenza is a much more dangerous and deadly form of the disease, with **death rates as high as 95-100 percent** in domestic poultry. Tennessee is located in the Mississippi Flyway (Figure 1), one of four major migratory bird flyways in the United States. Migrating waterfowl (Figure 2) often carry LPAI that can sometimes mutate to HPAI in domestic poultry. Unfortunately, in the current outbreak, migrating waterfowl in all four major flyways are carrying HPAI that can easily infect domestic poultry. In addition, across the country, increased numbers of migrating waterfowl have been lost to HPAI and are being fed upon by scavengers such as vultures and raptors such as hawks and eagles. As a result, this has **increased the amount of AI virus in the environment** and increased the risk to domestic poultry.

This makes it critical to take biosecurity measures seriously. Backyard flock owners should **know their chickens and recognize their personalities**. This will make it easier to know when your flock has a health-related issue, or what poultry veterinarian friend and colleague, Dr. Dustan Clark, at the University of Arkansas refers to as chickens that are “ADR,” short for “Ain’t Doing Right.” Promptly recognizing disease symptoms and reporting numerous sick or dying birds to the proper officials is a critical first step in containing a devastating disease outbreak. Infected waterfowl can **shed the AI virus in eye and nasal secretions and excrete the virus in their droppings**. If infected waterfowl drop manure near a backyard chicken coop or a commercial poultry house and this manure gets unknowingly tracked inside, the virus has been delivered and the chickens will do the rest to infect themselves.

The most common means of bird-to-bird transmission is contact with contaminated droppings, particularly in flocks with outdoor access, although airborne secretions are another important transmission route, especially in commercial poultry houses. In many cases, the spread of AI between poultry facilities can be traced to the movement of infected birds or contaminated people and equipment (including boots, clothing, tools and vehicles). A **breach in biosecurity** on someone's part is often how an outbreak gets started. Strong biosecurity is the key to preventing avian influenza. Key steps to a sound biosecurity program include the following:

- 1) **Isolate your birds from all other birds (wild and domestic)**
- 2) **Ensure proper sanitation (clean first and then disinfect)**
- 3) **Control and limit the traffic flow near your birds**
- 4) **Recognize disease symptoms**
- 5) **Know whom to call for assistance if you have a sudden increase in sickness or mortality.**

Biosecurity practices

Isolate your birds

- Do not visit other individuals with backyard poultry or commercial poultry flocks.
- Confine your birds (under cover, if possible) and do not allow outdoor access.
- Post “No Visitors” or “Restricted Area” signs at driveway entrance.
- Minimize or eliminate contact with other people or birds at swap meets, chicken auctions, shows or fairs.
- Prevent wild birds (particularly waterfowl) from having contact with your birds.
- Remove possible shelter and food sources to discourage wild birds and animals from coming near your birds.
- Treat any dead wild bird as if it were infectious, and quickly dispose of it. Wash and sanitize your hands immediately after disposal.

Sanitation

- Clean first, and then disinfect, all tools and equipment that enters and leaves the property.
- Do not use wood containers or carriers for transporting poultry; wood is very difficult to clean and sanitize. Use plastic or metal poultry carriers.
- Manure, dirt, mud, or any organic material should be removed from boots before disinfecting them. You can't disinfect organic material. Cleaning first will ensure adequate contact time with disinfectant.
- Properly dispose of used bedding material and any mortality that may occur in the flock.

Traffic flow

- Manage traffic flow near your birds and know who comes and goes and why.
- Avoid visiting other backyard chicken pens, livestock sales where poultry are present, chicken auctions, swap meets, etc.
- Avoid moving tools and equipment off-farm, if possible. If this is unavoidable, make sure everything is cleaned first and then disinfected before it leaves and before it returns.
- If you have multiple-age birds, keep them separated and do not co-mingle them. Always work from youngest to oldest to lessen the disease risk to younger birds.

- To the extent possible, keep everyone away from your birds except for caretakers.
- Dedicate clothing and footwear to be worn only around the chickens, or use clean, disposable footwear, coveralls and hair nets when working with your birds.
- Ask any visitors if they have had recent exposure to other poultry. If so, do not allow them near your chickens.
- Keep a visitors log so that you know who comes and goes and when.
- Manage mortality disposal in a safe and timely manner.

Disease signs

Numerous respiratory diseases show similar signs, and the signs are often the same across species. For example, when people get a respiratory infection, the symptoms may include coughing, sneezing, runny nose, watery eyes and swollen sinuses. Chickens and other livestock show these same symptoms. Different respiratory diseases in chickens often show the same signs, making it **difficult to know the exact disease we are dealing with without the help of a diagnostic lab** that can determine what is causing the problem. There are a number of signs to watch for if we think we may have a disease issue in our flocks, including:

- Coughing
- Sneezing
- Nasal discharge
- Watery eyes
- Swollen sinuses
- Twisted neck
- Dehydration
- Decreased feed and water intake
- Misshapen eggs
- Decreased egg production
- Depression
- Decreased fertility and hatchability
- Huddling
- Lethargy
- Purple discoloration of comb, head, wattles and legs
- Increased mortality

Sources of help

There's no need to panic if what you are seeing is just normal mortality. Chickens don't live forever, and, like any other live critter, **keep them long enough and you'll lose one** now and then from natural causes, injury, predators, disease, etc. However, if you have chickens that seem to have a chronic problem that has lingered on for a week or more, that won't be AI. If they seemed to have a respiratory infection but then got better, that wasn't AI. If one bird has been sick for a few days but all the others are fine, that's not avian influenza. Although, if you go out one morning and suddenly have the unexplained death of multiple birds or more than 10 percent of the flock appears to be showing disease signs all at once, it's time to let someone know because assistance is available from several sources:

- Your local county Extension agent
- Your local veterinarian
- Tennessee State University Extension poultry specialist (615-963-5823)
- University of Tennessee Extension poultry specialist (931-486-2129)
- C. E. Kord Animal Health Diagnostic Laboratory (615-837-5125)
- Tennessee State Veterinarian's office (615-837-5120)

Summary

Biosecurity is the most effective method we have to keep avian influenza out of Tennessee poultry flocks. It is not the most exciting or interesting topic, but it does work when managed properly and that's what we must always remember. It does take **extra time and effort** on your part, but most biosecurity practices are nothing more than simple common sense. For example, don't visit the feed store, co-op, café, local restaurant or any other location where all the other chicken folks hang out and then go home and immediately check on your chickens. Change boots and clothes and wash your hands before checking your chickens to lessen the threat that you will track some disease organism to them. Consider keeping a two- or three-gallon sprayer of disinfectant solution such as quaternary ammonia in your vehicle to disinfect your tires and undercarriage upon returning to the farm after a trip to town. Keep a tub or container of disinfectant (dry chlorine bleach is a popular option) in front of the door to your coop or pen to step in prior to entering the coop or pen. Avian influenza will likely be a threat for some time to come, perhaps another year or longer, so we must be careful and take precautions to keep our flocks safe. A good biosecurity program is a critical best management practice for all backyard flock owners. Following **sound biosecurity practices every day can lessen the risk** of introducing AI or other infectious diseases onto your farm and help ensure the protection and safety of backyard and commercial poultry flocks across Tennessee.



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