

Department of Animal Science

BIOSECURITY MEASURES TO FIGHT AVIAN INFLUENZA THREATS

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The recent discovery of highly pathogenic avian influenza (HPAI) H5N1 in commercial turkeys in Indiana has been a wakeup call to the commercial poultry industry and backyard flock keepers throughout the country that biosecurity measures must not be sacrificed or taken for granted.

Commercial and backyard flock producers must not only have created, but also diligently follow, a strict biosecurity program to keep their flocks safe and prevent HPAI from entering their premises. It does little good to have a plan that isn't followed. While the commercial industry and their contract growers understand biosecurity quite well, many backyard flock keepers are less familiar with biosecurity protocols. A strong, comprehensive biosecurity plan has many moving parts and includes multiple practices to abide by to protect the flock from disease transmission routes.



Photo credit: Tom Tabler

Two main pathways for disease transmission in flocks

1. **Direct transmission** (physical contact between sick and healthy birds)
2. **Indirect transmission** (disease agent is carried to susceptible individuals) by:
 - People
 - Feed
 - Water
 - Environment (contaminated pens, pastures, or coops)
 - Shared equipment
 - Rodents and other wild animals
 - Pets

Two sets of biosecurity practices everyone should follow

1. **Prevent direct transmission** (this is especially critical for backyard poultry keepers)
 - Acquire birds only from National Poultry Improvement Plan (NPIP) flocks.
 - Do not mix multiple species, particularly waterfowl and chickens, or ages.
 - Do not allow your flock contact with wild birds (difficult if you free-range) or wild bird droppings.
 - Quarantine birds for 30 days after purchase or returning from shows/fairs, chicken auctions, swap meets before putting them with the rest of the flock.
2. **Prevent indirect contact**
 - Post “No Visitors” and “Restricted Area” signs at road entrance to farm.
 - Have dedicated clothing and footwear for use when working in/near your flock.
 - If one of your birds becomes sick or dies, **do not** move the other birds offsite to a different farm, even if they appear healthy. Flock exposure has already occurred.
 - Maintain an effective rodent control program (rodents can carry many diseases).
 - Do not allow visitors access to your birds and do not visit other poultry farms.
 - Essential visitors should wear disposable coveralls, boots and headgear; multi-house farms should practice this between individual houses.
 - Backyard producers should clean and disinfect feeders and drinkers every day. Clean and disinfect poultry houses and equipment at least once a year.
 - Clean/disinfect all coops, crates and other poultry containers or equipment before and after use. Use plastic or metal, not wood; wood is difficult to effectively clean.
 - Do not keep feeders or other sources of food for wild birds on your property.
 - Use sound deterrents to keep wild birds from roosting on your property.
 - Dispose of dead birds in an approved manner (composting, incineration, burial).
 - When possible, cover pens and vents and openings in the poultry house or coop with narrow-mesh wire screen to keep out wild birds.
 - Monitor all vehicles entering the farm to determine if they have been properly cleaned and disinfected, including the tires and undercarriage.
 - Do not share equipment with friends or neighbors. If you do, make sure equipment is clean and disinfected when it leaves and before it comes back.
 - Purchase feed from a trusted source; keep it safe from wild birds and rodents.
 - Use foot baths and hand sanitizers. Wash hands and arms after caring for birds.
 - Bird- and varmint-proof your coop, pens and houses.
 - Keep poultry houses securely locked; lock from inside while working inside.
 - Hunters and anyone handling wild game (especially waterfowl) should completely change clothing and shower or bathe before entering flock area.
 - If you hunt waterfowl, avoid contact with your flock for 72 hours.

USDA’s six biosecurity steps to lessen disease risks

1. **Keep your distance.**
2. **Keep it clean.**
3. **Don’t haul disease home.**
4. **Don’t borrow disease from your neighbor.**
5. **Know the warning signs of infectious diseases.**

- Coughing, sneezing, watery eyes, nasal discharge and gasping for breath.
- Lethargy, depression and extreme decrease in feed and water intake.
- Swelling around the eyes, neck and head.
- Purple discoloration of the wattles, comb and legs.
- Watery or green diarrhea.
- Drop in egg production or increase in soft- or thin-shelled and misshapen eggs.
- Sudden increase in bird deaths in your flock.

6. Report sick birds.

- If you suspect a problem, say something immediately. Don't wait for things to get worse. Sick and dying birds should be submitted to a diagnostic laboratory for proper diagnosis of the problem.
- Normal, everyday mortality should not be reported as it will only slow officials attempting to determine actual disease status. However, any drastic change in health status or mortality in the flock should be reported. Early reporting is vital to protect your flock and the Tennessee poultry industry.
- If you are a commercial producer, contact your service tech for guidance and assistance at the first sign of a potential disease issue.
- If you are a backyard producer, contact your local county Extension agent, local veterinarian, Tennessee State Veterinarian's Office (615-837-5120), or Middle Tennessee AgResearch and Education Center (931-486-2129) and ask for the poultry specialist.

USDA's five-step plan to deal with avian influenza cases

1. **Quarantine** — Restrict movement of poultry/equipment into and out of the control area.
2. **Depopulate** — Humanely euthanize the affected flock(s) to stop virus spread.
3. **Monitor region** — Test wild/domestic birds in a broad area surrounding quarantine zone.
4. **Clean and disinfect** — Kill the virus in the affected locations.
5. **Test** — Confirm that the poultry farm is AI virus-free before allowing repopulation.

These steps will limit the exposure of healthy, non-infected flocks to the AI virus in order to help contain the disease and ensure a safe food supply by humanely euthanizing infected flocks, thus removing them from circulation. We can't control where wild migrating waterfowl that carry the HPAI virus may travel and deposit the virus, but each of us can follow strict biosecurity practices to prevent the virus from entering our commercial poultry houses or backyard chicken pens. Prevention is our best defense and protection against avian influenza.



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