

# Highly Pathogenic Avian Influenza in Dairy Cows

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## What is Highly Pathogenic Avian Influenza (HPAI)?

Avian Flu is a deadly pathogen to birds, often having 100% fatality in bird populations. In 2020, the highly pathogenic avian flu strain (HPAI) appeared as an outbreak in poultry across the U.S. In 2024, HPAI was reported in cows. The most recent strain H5N1 was first detected in dairy cattle in Texas. The pathogen spread infecting herds across the U.S. including herds in Utah, Idaho, Wyoming, and Colorado. Research is currently being done to try and combat the virus's spread, including full genotyping of the virus present in cattle.

## HPAI in Cows

Most often cows will endure temporary sickness from HPAI. Cows do not have to be culled when infected, as HPAI will not cause fetal abortions like other cattle diseases.

The initial symptom farmers often notice is thickened fecal material. Dairy cows will show a decrease in milk production and milk quality, colostrum like thickened milk, and reduced feeding. The virus will also give cows a low-grade fever and potential dehydration. Cows that are infected typically display symptoms for a period ranging from 7 to 10 days before experiencing a recovery. Approximately 10% of afflicted cows do not fully recuperate and fail to return to their previous levels of milk production, particularly those exhibiting the most severe symptoms.

## Human Impact

Animals infected with HPAI shed the virus in large amounts in the milk. The virus is also shed in the manure, mucus, and saliva.

Although human infections with HPAI A (H5N1) is rare, those with unprotected exposure to infected animals can contract the disease. Symptoms include fever, cough, sore throat, difficulty breathing, eye irritation, headaches, runny nose, body aches, diarrhea or vomiting. Those experiencing any of these symptoms should contact their local health department.

After pasteurization, milk from cows infected with HPAI is deemed safe to drink. Raw milk can contain the virus for several weeks when stored in the refrigerator. Do not drink unpasteurized milk as it may contain HPAI.



Figure 1. Pasteurized milk is safe to drink

## Transmission of HPAI

The most likely introduction point for HPAI to enter dairy farms is through feed contaminated with bird feces. Additional transmission pathways include bird feces tracked into the facility via contaminated boots, equipment, and mice and wild bird populations.

Once infected, dairy cows shed the virus in large amounts in the milk. The virus is also shed in the

mucus, saliva, and fecal matter. Healthy cows coming into contact with these materials from an infected cow may also become infected.

Within a cow population, there is evidence to suggest the disease is being spread via milking machines. HPAI may also be transmitted to workers when handling raw milk and feces. Respiratory movement of the virus through coughing and nasal fluids is still being studied.

### **Clue: On-farm Cat Mortality and Sickness**

Recent reports note that dairies which found multiple cats dead on the premises were linked to outbreaks of the highly pathogenic avian influenza. If you find an abnormal number of feline fatalities on your property, please get your cows tested. Infected domestic cats have a mortality rate of up to 67%.

Further research has found that “domestic cats affected by the virus ... could offer the potential for HPAI H5N1 to evolve into a more dangerous version of the virus” and may provide a pathway to human transmission as companion animals. Use caution if you believe a feline has been infected with the virus.

### **Prevention of HPAI**

Methods to prevent entry of HPAI into an operation primarily include minimizing bird access and sterilization of boots and equipment before entry into the facility and when going between multiple operations.

Within a cow population, there is evidence to suggest the disease is being spread via milking machines. The virus is significantly present in the raw milk of infected cows. Healthy cows coming into contact with these materials from an infected cow may also become infected. HPAI may also be transmitted to workers when handling raw milk and feces. Respiratory movement of the virus through coughing and nasal fluids is still being studied.

Best practices should be used to manage manure and bedding of floors. The virus can be stable in organic matter such as manure. It is essential that manure is removed from boots and equipment

before disinfecting. Once the organic matter is removed, most disinfectants and detergents will neutralize the virus. Operators should wear gloves and frequently wash hands.

Bio-secure manure management should also be practiced as we are learning about HPAI transmission in cattle. Prevention is the best medicine. Be open with neighbors regarding disease status, and plan separate dedicated routes of movement to an application field if two farms use the same pathway. Wear dedicated applicator clothing and boots, and clean and disinfect these as well as equipment after spreading. Disinfectants will kill HPAI. Keep records of applications.

Avoid interstate movement of cattle when possible. Quarantine new cattle entering the operation before entry into the herd. Monitor your cattle for symptoms and have them tested as soon as signs appear.



Figure 2. Monitor your cattle for symptoms.

### **Milk Disposal**

If cows infected with HPAI cannot be sold to a processor, then other disposal methods will be necessary. It is important that any milk disposal methods used prevent HPAI exposure to other animals. Milk from cows infected with HPAI should be heat-treated or pasturized before disposal. Once heat-treated, the milk can be disposed of using the same methods a dairy uses for manure.

### **On-Farm Lagoons and Anerobic Digesters**

Milk should be heat-treated or pasturized before dumping in lagoons or anaerobic digestors.

Ensure biosecurity around any lagoons. Milk managed this way should follow any requirements for Animal Feeding Operations (AFOs) or Concentrated Animal Feeding Operations (CAFOs).

### **Land Application**

After heat treatment, milk from HPAI infected cows can be applied to the soil and incorporated. This was a common disposal tactic for excess milk during the COVID pandemic. Consult a state nutrient management specialist to find out if this is an option in your area and what permitting may be required. Applications should be incorporated into your nutrient management plan. *Note: Most states will not allow this disposal method if the raw milk has been tested and declared infectious. Heat treatment is essential for killing the virus.*

It should also be noted that it is highly likely that this will not be your only disposal method, as milk is nutrient dense – a small amount will go a long way to fulfilling soil nutrient needs. Over application on a field will result in environmental concerns such as groundwater contamination, and increased potential for surface water contamination.

Milk needs to be applied so that it does NOT enter ground or surface water. Any accidental spills should be immediately reported to Utah's Department of Environmental Quality to ensure appropriate mitigation measures and avoid potential citations.

### **Waste Water Treatment Plant or Landfill**

Before any milk can be dumped down the sewer drain, or at the landfill, you should check with your local Waste Water Treatment Plant (WWTP). Pre-treatment and permitting will likely be required, and may not be allowed in some areas. They will likely need to know the location and volume.

### **Incineration by an Infectious Waste Disposal Facility**

If using an infectious waste disposal facility, the milk will likely need to be solidified before being incinerated by adding saw dust or other organic materials. If the milk is tested and declared infectious, it will legally have to go through

medical waste level treatment. If not declared infectious through testing, it will be processed under construction or hazardous waste treatment protocols.

### **Testing for HPAI**

If cow(s) are suspected to have HPAI, owners should isolate those cows to a separate pen that does not share confined air space, feeding and watering space, or fence lines with other animals. And, they should call their veterinarian.

In April 2024, U.S. Department of Agriculture mandated that dairy cows must be tested for HPAI within seven days before being transported across state lines.

And in October 2024, UDAF mandated routine surveillance of HPAI in all dairies in Cache County. If a test is taken by a licensed vet, the Utah Department of Agriculture and Food (UDAF) may cover the cost. Current development is underway for a bovine vaccine for this illness.

### **Additional Note:**

It is still unknown how long a cow contains the virus in its milk and must be isolated. Some believe it may be more economical to put the cow down if containment and milk disposal lasts multiple months.

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