



Detection of Highly Pathogenic Avian Influenza (H5N1) in Dairy Herds: Frequently Asked Questions

Updated April 16, 2024

Since late March 2024, the U.S. Department of Agriculture, Food and Drug Administration, Centers for Disease Control and Prevention, and state veterinary and public health officials have been investigating the emergence of highly pathogenic avian influenza in dairy cows, with one human infection. USDA's Animal and Plant Health Inspection Service is maintaining resources, including a list of detections in cattle to date as well as biosecurity information for farmers, veterinarians and farmworkers at [Highly Pathogenic Avian Influenza \(H5N1\) Detections in Livestock | Animal and Plant Health Inspection Service](#).

This is a rapidly evolving situation and USDA, as well as state and federal partners, are committed to sharing updates as information becomes available. Here, we are answering some of the most frequently asked questions about these detections.

What is the appropriate nomenclature for this virus, now that it has appeared in dairy cows?

From USDA's perspective, highly pathogenic avian influenza or H5N1 are the most scientifically accurate terms to describe this virus. This is also consistent with what the scientific community has continued to call the virus after it has affected other mammals. As a reminder, genomic sequencing of viruses isolated from cattle indicates there is no change to this virus that would make it more transmissible to or between humans, and the CDC considers risk to the public to be low at this time. However, people with more exposure to infected animals do have a greater risk of infection. Since the virus is not highly pathogenic in mammals, H5N1 is the most fitting of the two scientifically correct options. It is important to note that "highly pathogenic" refers to severe impact in birds, not necessarily in humans or cattle.

How did these cattle contract H5N1?

Wild migratory birds are believed to be the original source of the virus. However, the investigation to date also includes some cases where the virus spread was associated with cattle movements between herds. Additionally, we have similar evidence that the virus also spread from dairy cattle premises back into nearby poultry premises through an unknown route.

As a reminder, analysis sequences of viruses found in cattle thus far have not found changes to the virus that would make it more transmissible to humans and between people. While cases among humans in direct contact with infected animals are possible, CDC believes that the current risk to the public remains low.

Is this the same virus that has been in circulation among wild and commercial flocks in recent months, or is this a different virus?

Tests so far indicate that the virus detected in dairy cows is H5N1, Eurasian lineage goose/Guangdong clade 2.3.4.4b. This is the same clade that has been affecting wild birds and commercial poultry flocks and has caused sporadic infections in several species of wild mammals, and neonatal goats in one herd in the United States. A full list can be found [here](#).

How is a case of H5N1 in cattle confirmed by USDA?

USDA encourages producers to work with their veterinarians to report cases of sick cattle to State Animal Health Officials and their APHIS Veterinary Services Area Veterinarian in Charge. Veterinarians should submit samples to a [National Animal Health Laboratory Network \(NAHLN\)](#) laboratory for initial testing. Samples with non-negative test results are then submitted to the

[National Veterinary Service Laboratories](#) in Ames, Iowa for confirmatory testing. USDA considers a positive test result from testing performed by the NVSL as confirmation, and NVSL carries out viral genome sequencing.

What types of samples from cows have been tested?

USDA and our NAHLN partner laboratories have tested unpasteurized milk samples from affected cows, as well as swabs and tissue samples.

Should we assume that other cattle that are showing similar symptoms, including decreased lactation, have also contracted H5N1?

We encourage producers to work with their veterinarians to pursue testing if their herds are demonstrating clinical signs of the current cattle illness event. Federal and state agencies continue to test samples from animals and conduct viral genome sequencing, to assess whether H5N1 or another unrelated disease may be part of the clinical picture.

Combined with the recent detections of H5N1 in baby goats in Minnesota, is there reason to be concerned H5N1 may spread to mammals more commonly than previously believed?

H5N1 has been found in wild birds, poultry flocks, several species of wild mammals, farm cats, and neonatal goats in one herd in the United States. A full list can be found [here](#). Many species are susceptible to influenza viruses, including wildlife that often come into direct contact with wild birds. Many of these animals were likely infected after consuming or coming into contact with birds that were infected with H5N1. In the case of the neonatal goats in Minnesota, they were exposed to domestic birds (ducks and chickens) infected with H5N1 through shared pasture and a sole water source. However, recent testing indicates the virus has also been spread by cattle movements between herds.

Why is USDA recommending caution when moving cattle? And, has the department considered requiring movement restrictions?

The spread of the H5N1 virus within and among herds indicates that bovine to bovine spread occurs,

likely through mechanical means. As a result, we are encouraging producers and veterinarians to minimize dairy cattle movement. USDA's latest biosecurity guide, available [here](#), contains more detail on potential pathways for this spread, and measures that producers can take to mitigate spread. At this time, we expect that minimizing movement, upholding good biosecurity practices, and [testing animals](#) before necessary movements will limit disease spread sufficiently to avoid the need for regulatory restrictions or quarantines. Unlike in poultry flocks where H5N1 is fatal, among the dairies whose herds are exhibiting symptoms, the affected animals have recovered with little to no associated mortality reported.

How is this cattle illness affecting the nation's overall milk production? What effect might this have on consumer prices?

At this point, we are not aware of impact on milk supply or consumer prices. Based on information available at this point, we do not anticipate that this will impact the availability or the price of milk or other dairy products for consumers. In addition, the U.S. typically has a more than sufficient milk supply in the spring months due to seasonally higher production. Markets continue to reflect normal movements. Surplus loads of milk for the past week are selling significantly below market value indicating supply remains very long.

What are the latest trends in H5N1 detections and virus mitigation?

Recent detections of H5N1 in poultry have slowed. As of April 15, 2024, there have been 26 detections of H5N1 in commercial poultry facilities in 2024, which is similar to the number in January-April of 2023 (19 detections). Both years are showing significant decreases in the number of detections compared to 2022, when we saw 165 detections in the January-April period, indicating that biosecurity practices and virus management have played a significant role in reducing impacts to commercial flocks.

What is the species of deceased wild birds that were found on the Texas farms?

At this time, three species have been identified among these cases: pigeons, blackbirds, and

grackles.

Will the H5N1 detection require herds to be depopulated, as is the case with detections in poultry flocks?

At this stage, we do not anticipate the need to depopulate dairy herds. Unlike HPAI (H5N1) in birds which is typically fatal, little to no mortality has been reported and the animals are reportedly recovering. The affected cows on the dairy farms are currently being isolated from other animals. We are continuing to learn more about the situation. Transparency and collaboration with and by dairy producers will be important to mitigate broader potential impacts to the industry.

Has this impacted beef cattle or the beef supply?

So far there have been no detections in commercial beef herds. USDA is confident that the meat supply is safe. FSIS veterinarians are present at all federal livestock slaughter facilities to inspect animals prior to slaughter and ensure sick animals are prevented from entering the food supply. As always, we encourage consumers to properly handle raw meats and to cook to a safe internal temperature. Cooking to a safe internal temperature kills bacteria and viruses in meat.

USDA encourages producers to work with their veterinarians to report cases of sick cattle to State Animal Health Officials and their APHIS Veterinary Services Area Veterinarian in Charge. We will continue to monitor the impact of H5N1 on supply and prices, while working with state and industry partners to ensure our nation's food supply remains safe.

How can farmers prevent the spread of H5N1 to their animals?

It is critically important that farmers practice good biosecurity measures. USDA's latest biosecurity guide, available [here](#), contains more detail on potential pathways for this spread, and measures that producers can take to mitigate spread. We are also encouraging producers with concerns to reach out to their veterinarian, [State Animal Health Official](#), and/or [Area Veterinarian in Charge](#).

If an animal is displaying signs of illness or tests

positive for H5N1, the animal should be separated from other animals on the farm and heightened biosecurity measures should be taken to ensure H5N1 does not spread to other species. Additionally, farmers are advised to avoid housing multiple species of animals together at any time.

More specific information on biosecurity practices is available:

- [Specific to dairy herds](#);
- [Specific to poultry flocks](#); and
- [General influenza biosecurity](#).

What signs of illness should farmers look out for in their herds?

Producers should report animals with the following clinical signs to their state veterinarian immediately: Decreased herd level milk production; acute sudden drop in production with some severely impacted cows experiencing thicker, concentrated, colostrum-like milk; decrease in feed consumption with a simultaneous drop in rumen motility; abnormal tacky or loose feces, lethargy, dehydration, and fever. Initial cases indicated older cows in mid-lactation may be more likely to be severely impacted than younger cows and fresh cows or heifers. Additional data indicates younger cattle have been affected; more data and reporting from impacted producers will help to clarify the range of animals affected.

Will there be a milk recall?

Based on the information and research available to us at this time, a milk recall is not necessary. Because products are pasteurized before entering the market, at this time there is no concern about the safety of the commercial milk supply, or that this circumstance poses a risk to consumer health. Pasteurization has continuously proven to inactivate bacteria and viruses in milk.

Could the consumption of raw milk from these states impact human health?

FDA's longstanding position is that unpasteurized, raw milk can harbor dangerous microorganisms that can pose serious health risks to consumers, and FDA is reminding consumers of the risks associated with raw milk consumption in light of the H5N1 detections. Food safety information from FDA,

including information about the sale and consumption of raw milk, can be found [here](#).

On its website that tracks updates in poultry flock detections, APHIS discloses a total number of birds affected. For dairy herds, APHIS discloses the number of herds, but not the number of individual animals. Why is there a difference in reporting?

H5N1 in poultry flocks is highly contagious, rapidly progressing, and typically fatal. APHIS reports the number of birds affected in a flock because farmers can be paid for the birds that die during an outbreak, and the county in which an outbreak occurs because it has implications for our export trade. The clinical signs observed in dairy cattle are relatively mild, and infected animals recover after about 7-10 days. At this time, there is less of a need to count affected animals—which may be at different stages of illness and recovery—and there is no impact on export markets that would require localizing herds to a specific county. USDA continues to share information with states, veterinarians, producers, and dairy farm workers so that they can understand the disease and take appropriate steps to protect themselves and their herd.

Has USDA confirmed at this point that cow-to-cow transmission is a factor?

Yes, although it is unclear exactly how virus is being moved around. We know that the virus is shed in milk at high concentrations; therefore, anything that comes in contact with unpasteurized milk, spilled milk, etc. may spread the virus. Biosecurity is always extremely important, including movement of humans, other animals, vehicles, and other objects (like milking equipment) or materials that may physically carry virus. USDA APHIS is continuing to examine herds that have diagnosed cows to better understand the mode of transmission. To date, we have not found significant concentration of virus in respiratory related samples, which indicates to us that respiratory transmission is not a primary means of transmission.

What is standard protocol for ensuring animals going to slaughter are safe to enter the food supply?

USDA is confident that the meat supply is safe and has a strong food safety system in place. Cattle must pass inspection and be clinically healthy to enter the food supply. FSIS veterinarians are trained to identify cattle exhibiting any sign of sickness that are presented for slaughter and prevent these animals from entering the food supply.

Is USDA monitoring for spread to beef cattle? Has there been any testing for H5N1 in beef cattle herds?

We are making sure beef producers have the same information about illness symptoms that we have shared with dairy producers, and similarly are encouraging ranchers and veterinarians to report symptoms and collect samples if needed. To date, we have received no reports of symptoms in beef herds.

What is the latest status of poultry vaccine for H5N1? Can it be used on cattle?

Vaccinations are one potential line of defense against H5N1. Recognizing this and the need for a response in case of wide-spread outbreak, USDA is exploring the possibility of developing a poultry H5N1 vaccine to stock and use in an emergency. Similar to USDA's stock of vaccinations against, for example, foot and mouth disease (FMD), this would bolster U.S. agriculture's biosecurity readiness. Vaccinating poultry against H5N1 comes with challenges, including responding to the latest strain, deployment within flocks, and cost. Further, there are trade restrictions, many with key trading partners, that prohibit the sale of vaccinated poultry meat, eggs, etc. overseas. USDA is exploring these questions while developing the science.

USDA's Agricultural Research Service (ARS) began testing candidate vaccines for H5N1 in poultry in 2023. ARS scientists evaluated one H5N1 vaccine developed in-house by USDA and four commercial HPAI vaccines. These studies showed that the five vaccines reduced oral and cloacal virus shedding significantly and provided near 100% clinical protection in chickens; however, they continue to rely on a two-dose regimen, which can be impractical for distribution to flocks.

ARS has begun to assess the potential to develop an effective vaccine for H5N1 in bovine. It is difficult

to predict how long development might take, as many outstanding questions remain about the transmission to cattle, characterizations of the infection, etc.

We are aware that vaccine manufacturers have expressed interest in development in new vaccines for HPAI in poultry and in bovine. We will continue to engage with these developers to better understand their vaccine development, the efficacy of potential vaccines, as well as the cost of development and production.

Why is APHIS taking a voluntary, rather than mandatory, approach to testing dairy herds?

It is important to keep in mind that while H5N1 is highly pathogenic in birds, that is not the case in cattle. At this time, APHIS does not think it would be practical, feasible or necessarily informative to require mandatory testing, for several reasons ranging from laboratory capacity to testing turnaround times. We are working actively to learn more about the emergence of H5N1 in cattle, but right now we are seeing that a small portion of the affected herds are becoming ill, and that the number of herds exhibiting symptoms is relatively small. For context, there are more than 26,000 dairy herds nationwide. We are strongly recommending testing before herds are moved between states, which should both give us more testing information, and should mitigate further state-to-state spread between herds.

Can you describe what efforts USDA and APHIS are conducting to determine how widespread the H5N1 virus is among U.S. cattle?

We have met several times with state veterinarians, state agriculture departments and private veterinarian associations to share information about what we know and to enlist their help in working with producers to encourage testing and reporting of symptoms. APHIS has extensive experience working with these groups on animal health diseases, and we are confident in their partnership to help us monitor the situation. APHIS also has its own network of veterinarians across the states who are helpful in this effort. We are posting all confirmed tests to our website by 4 p.m. ET daily.