

FDA reports fragments of avian influenza found in US commercial milk supply

Benjamin Mateus
29 April 2024

The detection of H5N1 viral particles by the Food and Drug Administration (FDA) in commercially sold milk last week has prompted the US Agriculture Department (USDA) to issue an order (effective April 29, 2024) to the dairy industry to begin testing dairy cows for the virus before they are moved between states.

The federal agency remarked that PCR testing showed one in five milk samples from retail stores nationwide had genetic traces of the virus. Such testing only confirms that the virus was in the milk but not necessarily that the virus was live and infectious. To date, there have been no confirmed cases of H5N1 infections from people drinking pasteurized milk.

The FDA has continued to assure the public that the commercial milk supply is safe, emphasizing that more than 99 percent of commercial milk supplies come from farms that follow the pasteurized milk ordinances.

The pasteurization process, which requires the milk to be raised to a specific temperature for a set time to destroy any potential pathogens, is highly effective at inactivating bacteria and viruses in milk. Preliminary work with egg inoculation tests, where milk samples are injected into eggs, haven't shown any viruses replicating thus demonstrating that pasteurization is effective in inactivating HPAI.

It does, however, raise the question of how pervasive is the outbreak among dairy cows if milk from infected cows is readily entering the commercial supply? Although rules are in place that milk from infected cows be discarded, if the animal is asymptomatic and there is no universal testing of the milk in place, then it is clear the problem is far larger than authorities had anticipated.

Also, there are economic pressures to produce milk which lower incentives to take cattle out of commission and discard their milk. In such instances, an infected cow may be in quarantine for three weeks. Sick cows also tend to produce less milk. Estimates suggest that anywhere

from five to 20 percent of the animals in the affected herd can become ill.

There has been a steep decline in the number of dairy herds over the last two decades from 70,375 to 29,842 in 2021. By 2022, that figure had dropped a further six percent to 27,932 herds. On average, that is a loss of 2,300 dairy herds per year. However, herd size has reached a record-high of 337 head in 2022 up from 129 cows in 2003. Also, production per cow has increased by 138 pounds from year to year with an average production of over 24,000 pounds per head of cow.

According to *Farm Progress*, total milk production has climbed 169 million pounds to a record total of 226.4 billion pounds in the US, or 12.5 percent since 2013. The largest current producers of milk by state are California, Wisconsin, Idaho, Texas, New York, Pennsylvania, Michigan, and Minnesota. By tonnage, the US ranks second in milk production globally, behind India.

In light of the missteps of the COVID pandemic, many scientists following these developments have pointed to paucity of details in their reports which do not indicate how many samples were taken, which markets were inspected, and if the affected milk came from areas of the country affected by the bird flu outbreak among cattle. Also, little if anything is known about the viral load present in milk sample.

Dr. Tom Inglesby, director of the Johns Hopkins Center for Health Security at the Bloomberg School of Public Health, told the *New York Times*, “the days when it was seen as a good plan or acceptable for a government agency to keep all data to manage on its own are gone long ago.” Others have also pointed out that USDA's position as both promoter of agricultural business and its regulator places it at odds with the public health interests of the population.

The evidence is clear that infected birds were the source of introduction into these herds, but how specifically the

virus was transmitted remains under investigation. Birds can shed the virus through their secretions or oral and nasal passages. The virus could have been transmitted through direct contact in contaminated feed or water. The cattle could have inhaled the virus.

The milk of infected cows can have high viral loads. But the USDA is doing little testing of animals with nasal swabs and is not testing the manure. Additionally, milk equipment and milkers' gloves can be contaminated and transmit to other cows. However, these epidemiological investigations need to be conducted with a sense of urgency to determine the scale of the infection and modes of transmission that include airborne routes. These also include systematic surveillance of other farm animals, such as pigs, and their handlers.

On Saturday, the USDA issued a clarification that the order did not apply to the interstate movement of these animals to a sale barn. They added, "Subsequent interstate movement for a lactating dairy cow from a sale barn directly to a slaughter facility requires only a Certificate of Veterinary Inspection (CVI) stating that the animal is clinically healthy; no testing is necessary."

It was late in March 2024 that the USDA, FDA, Centers for Disease Control and Prevention (CDC) and state veterinary and public health officials had issued statements confirming the presence of the Highly Pathogenic Avian Influenza (HPAI) H5N1 virus in dairy cows.

Since then, the virus has been detected in 34 dairy herds across nine states—Texas, Kansas, Michigan, New Mexico, Idaho, Ohio, North Carolina, South Dakota, and, most recently, Colorado. Additionally, they have confirmed the presence of the same genotype of the HPAI detected in dairy cattle among eight poultry premises across five states—Kansas, Michigan, Minnesota, New Mexico, and Texas.

However, based on the genetic analysis of 239 bio-samples from the ongoing outbreak of the H5N1 clade (strain) 2.3.4.4b influenza A virus among US cattle shared by the National Veterinary Services Laboratory (NVSL), Dr. Michael Worobey, professor and head of ecology and evolutionary biology at the University of Arizona, indicated there was a single origin of the virus that occurred in late 2023 or early 2024. This would mean that the HPAI H5N1 virus spilled over into bovines several months before it was detected. (Dr. Worobey is well-known for his important contribution to the study of the COVID origin with the epicenter of the outbreak beginning around the Wuhan wet market.)

If this is the case, it could explain why so much of the milk in retail stores recently tested by the FDA demonstrated fragments of the influenza virus.

As explained in a recent pre-print study by the Iowa State University's College of Veterinary Medicine, examining samples of the HPAI H5N1 clade 2.3.4.4b virus detected in dairy cows, migratory birds have played a significant role in transmitting the virus across long distances.

The origins of this clade can be traced back to 2020 at the height of the COVID pandemic when this lethal strain of the virus was detected in domestic poultry in Southeast Asia. Although the initial outbreak was confined to bird species, it demonstrated tremendous geographic spread and adaptation in multiple different wild animals, with at least 37 new mammal species infected since 2021. The virus was eventually introduced into North America via Eurasia in late 2021.

With respect to the initial detection of H5N1 among dairy cows, the report states, "Texas lies within the Central Flyway, a major migratory flyway stretching from Canada to Mexico in North America. Additionally, Texas experiences some overlap in bird migration with neighboring states that belong to the Mississippi Flyway. This convergence of flyways heightens the risk of HPAI viral transmission, as migratory birds traverse diverse landscapes and habitats, including dairy cattle operations."

Their analysis suggests that, presently, the strains derived from dairy cattle appear to pose a low overall risk to human health. But the authors warned, "It is imperative to recognize that influenza viruses have the capacity for rapid evolution within their host environments post-infection. A recent human case with direct contact with infected dairy cattle revealed a genetic change (PB2 E627K), indicating the potential for adaptation or transmission events. This underscores the dynamic nature of influenza viruses and the importance of continued surveillance and vigilance in monitoring potential threats to human health."



To contact the WSWs and the Socialist Equality Party visit:

wsws.org/contact