HIGHLY PATHOGENIC AVIAN INFLUENZA IN DAIRY CATTLE

Background of HPAI

Since 2021, the widespread circulation of highly pathogenic avian influenza (HPAI) H5N1 in wild birds in North America has resulted in multiple outbreaks in commercial and backyard flocks. Many new variant genotypes have spilled over into other species, including a variant that affects dairy cattle. Herds that were infected with HPAI H5N1 exhibited a rapid onset of the illness with high morbidity within the herd. Symptoms of the disease included anorexia, cessation of rumination, elevated body temperature, increased respiration rate, dry and tacky manure or diarrhea, and mastitis with inconsistent milk cultures. By late March 2024, the USDA confirmed the first case of HPAI in dairy cattle through milk samples from symptomatic cows.

How Prevalent is HPAI in Dairy Herds and How is it Spreading?

As of January 2025, there have been 950 confirmed cases of HPAI in dairy cattle across 16 states. Currently, Indiana does not have a confirmed case but neighboring states, including Michigan and Ohio, have had positive HPAI identified in dairy cattle. An up to date state map of where confirmed cases have been identified can be found at https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/hpai-confirmed-cases-livestock.

HPAI can spread from wild birds to livestock species. Other potential ways that HPAI is spread between dairy farms is through the movement of subclinically infected cows (cows that do not show symptoms), shared visitors, workers or equipment between farms, and proximity with infected wildlife. Additional information about HPAI in dairy cattle can be found at https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-livestock.

Regulations in Place for HPAI

Effective since April 2024, to reduce the spread of HPAI through the movement of cattle, the USDA enacted mandatory testing for interstate movement of lactating dairy cattle. As HPAI concentrates in the mammary gland of dairy cattle, milk is the preferred biological fluid to test for the presence of the virus. Therefore, all lactating cows that are moving across state lines and not going directly to slaughter will need to have a negative test for Influenza A virus, within 7 days of movement, at an approved National Animal Health Laboratory Network laboratory.

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Additionally, a Certificate of Veterinary Inspection needs to accompany the lactating animals if they are being shipped across state lines. Animals that have clinical symptoms of HPAI are not eligible for slaughter. At this time, nonlactating cows, which includes heifers, dry cows, and bull calves can be shipped across state lines with no additional testing. More information about testing for HPAI can be found at https://www.aphis.usda.gov/sites/default/files/aphis-requirements-hpai-livestock-eng-sp.pdf.

Effective since December 2024, a National Milk Testing Strategy (NMTS) is in place to test the milk supply and determine if and where HPAI is present. Most states are now enrolled in the NMTS and are either performing surveillance testing of milk or testing national plant silos within each state. Milk testing is being performed to determine if there are additional herds that are infected but either having subclinical symptoms or are not reporting. The overall goals of NMTS are to eliminate HPAI in U.S. dairy cattle and decrease the risk of transmission to other livestock species. For example, statewide testing of milk in Colorado successfully reduced the spread of HPAI over the summer of 2024.

Is Milk Safe to Consume?

As HPAI virus is concentrating in the mammary gland, questions about the safety of milk have arisen. The FDA and USDA have conducted studies testing the effects of pasteurization on HPAI virus. Milk samples were spiked with HPAI virus and heated to simulate pasteurization; heat treatment reduced HPAI virus to undetectable levels (Spackman et al., 2024). Consequently, dairy products from pasteurized milk are deemed safe to consume. It is highly advised to not consume raw (unpasteurized) milk because the pasteurization process inactivates HPAI and other pathogens that can be found in raw milk.

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HPAI in Humans

The Center for Disease Control and Prevention (CDC) has determined that the risk for the general public to contract HPAI is low. There have been confirmed cases of HPAI in humans, which typically cause symptoms, including conjunctivitis and upper respiratory tract infections. People who work with infected animals or in contaminated environments are at greater risk of infection. Some precautions that people can take to reduce the risk while working with animals are to disinfect clothes, shoes, vehicles, avoid touching your face, and wash hands. The CDC recommends that those working with animals that are susceptible to HPAI get a seasonal influenza vaccine to reduce the potential for HPAI and seasonal influenza to combine and create more harmful influenza viruses.

Conclusions

The spread of HPAI H5N1 among wild birds and its spillover into livestock, particularly dairy cattle, has raised significant concerns regarding animal health and public safety. While HPAI in dairy cattle presents a serious challenge, ongoing surveillance, testing, and biosecurity measures, along with pasteurization of milk, will play a critical role in managing and reducing the impact of this disease.

Reference

Spackman, E., N. Anderson, S. Walker, D.L. Suarez, D.R. Jones, A. McCoig, T. Colonius, T. Roddy, and N.J. Chaplinski. 2024. Inactivation of highly pathogenic avian influenza virus with high-temperature short time continuous flow pasteurization and virus detection in bulk milk tanks. J. Food Prot. 87:100349.