Dairy Biosecurity Recommendations – HPAI and More

It is suspected that wild bird exposure led to highly pathogenic avian influenza (HPAI) A H5N1 infected cattle in Texas and Kansas. A Michigan dairy reported HPAI in their herd after cattle were moved from a state that had reported HPAI in cattle. There are presumptive positive cases in three other states. The recommendations here are based on what is known about HPAI virus and additional best management practices for cattle and caretaker health. As more is learned, the recommendations may change.

Dairies are encouraged to appoint a **Biosecurity Manager**. Someone familiar with the operation to monitor the changing situation, work closely with their herd veterinarian to set up an operation-specific biosecurity plan to protect cattle health, and ensure biosecurity steps are put in place.

Spread of Virus

Waterfowl and other birds can shed HPAI virus in their oral, nasal, and fecal secretions. Exact transmission of HPAI to cattle is unknown at this time but it may be through direct contact, oral consumption, inhalation, and fomites (contaminated inanimate objects).

Infected cattle shed HPAI in milk based on initial samples. Other secretions (saliva, respiratory, feces) are unknown but plausible. These may serve as a source of virus for other cattle. Unpasteurized (raw) milk seems to be the most likely secretion for disease transmission to cattle at this time.

Small mammals (cats, raccoons, skunks) are susceptible to the wild bird strain of H5N1. Often referred to as a dead-end host, their role in transmission to cattle is unknown.

Initial testing of the cattle samples did not find virus changes that would make this strain of H5N1 more transmissible to **humans**. This indicates that the current risk to the public remains low. Precautions for people with direct contact with infected animals (cattle, birds, small mammals) and unpasteurized (raw) milk are warranted to lower the risk of infection.

More information on Avian Influenza can be found under “Additional Resources.”

Focus Areas

Biosecurity efforts to protect cattle and people should focus on:

- Minimizing access of wild birds to cattle and their environment.
- Managing movements of cattle and their transport, not feeding unpasteurized (raw) colostrum or milk to calves/cattle and other mammals.
- Putting precautions in place for caretakers and veterinary teams handling sick cows, sick/dead birds and small mammals, and unpasteurized (raw) milk.

Protecting Dairy from Exposure

Animals

- Delay or stop incoming or returning animals from herds with unknown or suspect health status.
- Separate (quarantine) all new or returning animals for a minimum of 21 days. The exact incubation period for H5N1 in cattle has not yet been determined; we will continue to monitor and update as needed.
    - Monitor health status at least daily.
    - Avoid continual introductions. Keep this group "closed" until they are ready to join the main herd.
    - Work with your veterinarian to determine testing, vaccination for endemic diseases, and other health needs. Guidance for sample collection and testing for HPAI is provided in another AABP guidance document and available from your State Veterinarian.
    - Dedicate caretakers and equipment to these animals or work with them last.
    - Clothing, footwear, and equipment worn/used around these animals should not be worn/used around other animals until cleaned and disinfected. Use an EPA-registered disinfectant effective against avian influenza (link below).
    - Milk this group after the resident herd. Follow milk system sanitation steps before milking other groups of animals.

Vehicles: Livestock Trucks/Trailers

- Limit the use of trailers to your own cattle.
- Clean and disinfect trailer interiors that were used to haul cattle from other operations with unknown health status.

People

- Delay or stop non-essential visitors.
- Limit cattle contact to those essential for the health and continued operation of the dairy.
    - Require or provide clean clothing and footwear to those entering.
    - Encourage use of hand-washing stations and provide gloves.
    - Require disinfection of handling, treatment, milk sampling/testing, breeding, and hoof trimming equipment.
- Milk haulers should not contact farm personnel, animal housing, animals, or milk products to be fed to calves. Unpasteurized (raw) milk seems to be the most likely sample for disease transmission to cattle at this time.

Wildlife Management

- Report findings of odd behaviors or increased numbers of dead wild birds, cats, skunks, or raccoons to animal health officials.
- Disrupt habitats like shelter, food, and water sources that may attract birds and small mammals (cats, skunks, raccoons) which can get HPAI H5N1. Complete elimination is difficult. Methods must follow state and federal regulations. Contact the U.S. Fish and Wildlife Service office, USDA Wildlife Services office, state agriculture or natural resources department for guidance on managing birds.
- The migratory bird treaty act protects migratory birds.
- Non-lethal methods like harassment, hazing, and removing empty nests are options for bird control.

Shelter Disruption: Install netting or screens on curtain-sided buildings to help limit bird entry. Consider using decoys or scare devices in common roosting areas; move/change as birds acclimate to their presence. Consider using perch deterrents like spikes on rafters.

Feed Management: Do not feed wild birds. Cover compost piles of carcasses whenever possible to prevent carnivores and wild bird scavengers.

Water Management: Never use untreated surface water as a source for drinking, to wet down dry lots/paddocks, in barn misters, or to clean equipment that contacts cattle. Fence off ponds/non-draining areas. Consult a wildlife or wetlands professional about managing ponds and drainage areas on farm.

Preventing Cattle/Calf Exposure

Unpasteurized (raw) Colostrum/Milk

- Feed only heat-treated colostrum and pasteurized milk and milk products to calves.
    - This includes beef calves that may get unpasteurized (raw) colostrum/milk from dairies.
    - The transmissibility of this H5N1 strain to other species (cats, pigs and other mammals) via unpasteurized (raw) milk is unknown.
- The effect of acidification on milk to inactivate H5N1 is unknown.
    - Published literature on inactivating HPAI virus is pH 1 to 3 and 10-14. Milk will curdle at those lower pH ranges.
    - Studies are needed to determine the effect of acidification on H5N1 in milk from cattle.
- There is a potential risk of feeding unpasteurized dairy products and milk components to adult cattle. Studies are needed to determine H5N1 transmissibility risk.

Fomites

- Do not walk or drive through areas where bird feces may be present before entering livestock areas. If this is not possible, use EPA-registered disinfectants on contact surfaces (footwear, tires, etc.) before entry.
- Provide clean water and waterers to cattle/calves.
    - Clean and disinfect waterers daily as supplies and resources allow. Remove bird feces and sediment as they can harbor. bacteria and viruses. Steps to properly clean water troughs:
        1. Shut off the water to the trough.
        2. Wear gloves suitable for the task*.
        3. Use a dedicated brush to loosen any bird feces and sediment along top edges, sides, and bottom of trough.
        4. Remove the drain plug and scoop/push the sediment and water out or tip waterer to dump out.
        5. Flush with water to remove the remaining sediment.
        6. With the trough empty, scrub the top edges/sides/bottom to remove buildup.
        7. Flush with water to remove remaining organic matter.
        8. Bleach (sodium hypochlorite) can be used to disinfect the trough.
            a. Concentrations vary. Follow label directions for safety in mixing, how to dilute it, and recommended contact time. Several labeled products are 5-6 minutes.
        9. Drain the solution and refill with water.
        10. Rinse and disinfect brush once all waterers are clean.
        11. Remove gloves and wash hands with soap and water.

        *If cleaning in areas with suspect or known infected cattle, additional precautions recommended. See below.

Managing Sick Animals

Move animals with clinical signs to a dedicated hospital or sick pen. The area should not share air space, panels/fence lines, feeding or watering space with other animals. Herd veterinarians should help clients determine testing and criteria for cattle recovery and return to herd.

- Dedicate caretakers and equipment to sick animals or work with them last. Provide gloves and encourage handwashing.
- Clothing, footwear, and equipment worn/used around sick animals should not be worn/used around other animals until cleaned and disinfected.
- Milk this group last. Follow milk system sanitation steps before milking other groups of animals.
- Dispose of unpasteurized (raw) milk in a manner that meets local, state, and federal regulations (contact your state department of agriculture, environmental or natural resources agency).
    - Do not allow unpasteurized (raw) milk consumption by humans or animals.
    - Do not dispose of it in areas where wild birds or mammals may contact it.

Precautions for Animal Caretaker & Veterinary Teams

Initial testing of the cattle samples did not find virus changes that would make this strain of H5N1 more transmissible to humans. This indicates that the current risk to the public remains low. Precautions for people with direct contact with infected animals (cattle, birds, small mammals) and unpasteurized (raw) milk are warranted to lower the risk of infection.

Federal agencies recommend NOT consuming unpasteurized (unpasteurized (raw)) milk, unpasteurized (raw) cheeses, uncooked or undercooked meat from animals with suspect or confirmed H5N1. This is a general recommendation for the prevention of several foodborne illnesses.

The CDC recommends the following to reduce the risk of HPAI A(H5N1) infection to people on livestock operations:

- Avoid unprotected direct physical contact or close exposure with sick or dead birds or other animals, carcasses, feces, milk, or litter from sick birds or other animals potentially infected or confirmed to be infected with HPAI A(H5N1) virus.
- Protections include an N95 filtering facepiece respirator, eye protection, and gloves, and perform thorough hand washing after contact.
    - This is based on poultry worker recommendations. Workers are encouraged to receive training in personal protective equipment (PPE).
- Self-monitor for new signs of respiratory illness, including conjunctivitis for 10 days after exposure. If seen, seek medical evaluation by a clinician or public health department.

This is an evolving situation involving H5N1 infection in cattle. Other precautions for people working with livestock to prevent zoonotic diseases include:

- Wearing gloves and avoid touching their eyes, nose, and mouth when working with sick animals.
- Washing hands with soap and water (preferred) or alcohol-based hand rub after contacting sick animals or their areas and before eating, drinking, smoking.
- Avoid eating, drinking, or smoking in areas with animals.
- Removing clothing that contacted sick animals – leave at work to launder or place in a garbage bag and transport to a washing machine.
- Showering at the end of the work shift.

Disinfectants for HPAI

Cleaning followed by disinfection of equipment and footwear helps protect cattle from many viruses and bacteria. Avian influenza virus is easily killed by several disinfectants.

Use EPA-registered disinfectants with label claims that are effective against Avian Influenza, listed here: https://www.epa.gov/pesticide-registration/list-m-registered-antimicrobial-products-label-claims-avian-influenza.

Additional Resources

Avian Influenza

- USDA APHIS
    - HPAI Detections in Livestock: https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections/livestock
    - Wild Birds: https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/ai-wild-birds
    - Wildlife Biosecurity: Improving Biosecurity with Wildlife Management Practices: Preventing Access to Barns and Other Facilities
    - Prevent Avian Influenza at Your Farm: Improve Your Biosecurity with Simple Wildlife Practices
- Center for Food Security and Public Health:
    - Factsheet: www.cfsph.iastate.edu/Factsheets/pdfs/highly_pathogenic_avian_influenza.pdf
- Centers for Disease Control and Prevention (CDC):
    - Recommendations for Worker Protection and Use of Personal Protective Equipment (PPE) to Reduce Exposure to Novel Influenza A Viruses Associated with Severe Disease in Humans: https://www.cdc.gov/flu/avianflu/h5/worker-protection-ppe.htm
    - Highly Pathogenic Avian Influenza A(H5N1) Virus in Animals: Interim Recommendations for Prevention, Monitoring, and Public Health Investigations: https://www.cdc.gov/flu/avianflu/hpai/hpai-interim-recommendations.html
- Food and Drug Administration (FDA)
    - Questions and Answers Regarding Milk Safety During HPAI Outbreaks: https://www.fda.gov/food/milk-guidance-documents-regulatory-information/questions-and-answers-regarding-milk-safety-during-highly-pathogenic-avian-influenza-hpai-outbreaks

National Milk Producers Federation (NMPF) Everyday Biosecurity Resources – Dairy: https://nationaldairyfarm.com/dairy-farm-standards/farm-biosecurity/

NOTE: Does not include specific guidance for HPAI prevention; created before risk was identified. Many biosecurity concepts still apply to this disease situation.

- Everyday Biosecurity Manual Version 1 (**English**)
    - Provides steps to get started and build additional protection for your cattle. Seven biosecurity building blocks with best management practices are described which contribute to improving animal health when put in place.
- Everyday Biosecurity: Step 1 – Movement Risks and Biosecurity (**English**)
    - Use this checklist to determine movement risks on your dairy. When completed, continue working on biosecurity with Step 2: Everyday Biosecurity Self-Assessment Checklist and Step 3: Everyday Biosecurity Plan Template to write your biosecurity plan.

- Everyday Biosecurity: Step 2 – Self-Assessment Checklist (**English**)
    - After completing the Everyday Biosecurity: Step 1 - Movement Risks and Biosecurity worksheets, use this self-assessment checklist to begin biosecurity planning for your dairy. Continue working on biosecurity with Step 3: Everyday Biosecurity Plan Template to write your biosecurity plan.
- Everyday Biosecurity: Step 3 – Everyday Biosecurity Plan Template (**English**)
    - Biosecurity actions are needed daily to help ensure animal health. This template can be used by any dairy operation to develop a daily biosecurity plan for their premises. It aligns with the Secure Milk Supply Enhanced Biosecurity Plan while not being specific to foot-and-mouth disease (FMD).

Secure Milk Supply (SMS) Enhanced Biosecurity Resources for Foot-and-Mouth Disease (FMD) Prevention: https://securemilksupply.org/milk-producers/biosecurity/

FMD virus (non-enveloped RNA) is not shed by waterfowl and wild birds. It is spread to cattle through direct contact, oral consumption, fomites, and aerosol from infected livestock (cattle, pigs, sheep, goats, cervids) through their secretions (vesicular fluid, breath, manure, urine, milk, semen). All transmission and exposure routes of HPAI A(H5N1) virus (enveloped RNA) in cattle have not been identified. Producers are encouraged to use enhanced biosecurity measures to limit the introduction and spread of H5N1 to cattle. Biosecurity steps described in the SMS resources could help protect cattle from H5N1 if the exposure routes are similar to FMD.

- Biosecurity Checklist for Dairy Operations
- Biosecurity Info Manual for Dairy Operations
- Biosecurity Performance Standards (BPS) for Unpasteurized (raw) Milk Collection and Transport
- Biosecurity Plan Template (**WRITE** premises info)
- Biosecurity Plan Template (**TYPE** premises info)

NMPF Enhanced Biosecurity Resources for FMD Prevention:

https://nationaldairyfarm.com/dairy-farm-standards/farm-biosecurity/enhanced-biosecurity/

1. Enhanced Biosecurity Prep Guide (**English**)
2. Enhanced Biosecurity Database User Guide (**English**) – to capture SMS Enhanced Biosecurity Plans
3. Request Database Access (requires completing a 45-minute training course) **LINK**

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