

Highly pathogenic avian influenza (HPAI) in cattle

Highly pathogenic avian influenza (HPAI) has been recently reported in California dairies. Based on current data available, here are answers to some common questions:

When to suspect?

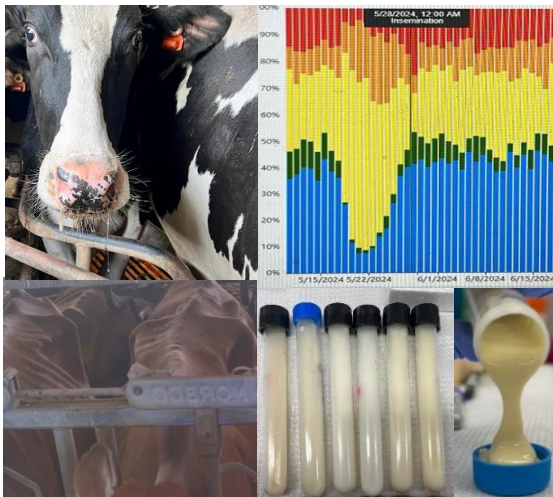
Herd-level

- Higher than usual cows in the hospital pen. Sick cows will “multiply” in the first days.
- Sudden drop in bulk tank milk yield.
- Sudden drop in pen feed intakes.

Cow-level

- Unspecific signs - dehydrated, depressed, fever, and weight loss.
- Mild respiratory signs – clear nasal discharge, difficulty breathing.
- Abnormal milk - thick, discolored.
- Abnormal feces - loose or tacky.

Nasal discharge, low BCS, rumination drop (one cow), abnormal milk.



What to expect?

- 3 to 50% of the herd can be affected. It is unclear what management factors may explain this variation. Some factors considered are housing (open-lot vs. mechanical ventilated), heat stress, overcrowding, dietary factors, biosecurity or other.
- Cows in their 3rd or greater lactation seem to be twice as likely to get sick than 1st lactation cows.
- Late lactation cows may not return to lactation and dry early.
- The drop in milk yield may last for two weeks. Milk may look abnormal for one week. Production recovery may take up to 2 months.
- Occasional reports of abortions, still under study.

Where is the virus?

Virus sheds in high quantities in milk from sick cows. This indicates the virus is actively multiplying in the udder.

Virus genetic material has been found in other samples but in lower quantities than in milk including:

Sick cows: nose (25%) urine (13%), blood (6%) of tested animals, but not in feces.

Healthy animals (subclinical infection): milk (6%), nose (32%), and urine (50%) of tested animals.

Dead animals: heart, udder, liver, spleen, lung and colon.

How long do cows shed after becoming sick?

- **3 days.** High concentration of virus is shed in milk
- **16 and 31 days.** No virus shedding. Only genetic material found in milk (83%, 16 days; 33% at 31 d). No viral genetic material in nasal secretions or blood.
This is data from a single study with limited sampling.

What is the route of transmission in a herd?

We are still learning, but our best understanding is:

- The udder is considered the main transmission route based on the high concentration of virus shed in milk.
- Nose-to-nose or mouth transmission is being investigated. *Some farms identified respiratory cases before the full outbreak.*

Experimental infection results:

- Two dairy cows were experimentally infected through the udder, and they became sick shortly after.
- Four calves were nasal sprayed with the virus, 3 had mild respiratory symptoms, 1 shed the virus and had lungs lesions.

When should I test cows?

Required Testing:

- Interstate animal movement. In April 2024, the California Department of Food and Agriculture (CDFA) added restrictions and increased inspection requirements for interstate animal movement. At least 30 cows within a lot need to be tested prior to moving.

Voluntary Testing

- **Screening.** USDA-APHIS offers a weekly voluntary bulk tank test. If no viral genetic material is found in three consecutive weeks the herd will be classified as “monitored unaffected herd”. This will allow the enrolled premises to move animals without additional testing. The virus might be found in bulk tank milk one to two weeks prior to outbreak. This will give farms some time to prepare.
- **Suspected or exposed.** Herds should contact their veterinarian if they suspect sick cows or if they have cows that have been exposed and need a test (new animals arriving, animals coming back from the fair).

How is HPAI testing done?

- Testing is done in milk samples. If animals are non-lactating, nasal swabs are used.
- To test cows, contact your Animal Health Branch District office. Testing will be done at NAHLN labs, using *PCR* to detect the genetic material of the virus.
- *No ELISA* test has been validated for HPAI in cattle yet.

CALL TO CONFIRM A HERD CASE

California Animal Health Official [\(916\) 900-5002](tel:916-900-5002).

Prevent introduction in your herd

- Minimize *animal movement* into your dairy from affected states or suspect dairies in your state.
- *Quarantine new animals* for two weeks (including those that were at the fair). Check for signs of mild respiratory issues (nasal discharge) and fever. Test with PCR at NAHLN lab.
- Ensure workers implement *biosecurity practices*. Always use PPE when handling sick (hospital pen) or dead animals (cattle, goats, cats, birds). Recommended PPE – goggles, gloves and a face mask.
 - Use clean coveralls and boots each day.
 - Ensure workers understand the risk of socially interacting with workers from affected farms.
- Monitor access of *shared personnel* such as breeders, consultants, or haulers. Use footbaths in entries.
- Use *shared equipment* only when properly cleaned and disinfected (i.e., trailers for moving cows).

30 days prior outbreak (15 Michigan dairies)

- Six dairies had purchased cattle, but 9 did not.
- All 15 dairies had visitors, consultants or haulers.
- Employees from three affected poultry flocks lived with employees from two affected dairies.
- Employees from three poultry flocks worked weekend shifts on two affected dairies.

- *Clean and disinfect* truck wheels and cattle trailers.
- Minimize access of *wild-life or peri-domestic animals*. Reports of *dead cats and mice* before outbreak.

MYTH ALERT: Wild birds are NOT considered the initial source of infection any longer.

Minimize spread in your dairy

- Consider if isolating suspected sick animals is appropriate for your dairy. Isolating sick cows may help reduce the exposure of non-affected animals; but it will increase the virus concentration where cows are recovering. As the number of animals may increase, isolation might not be an option.
- Evaluate and minimize stressors. Consider heat stress mitigation, reduce changes in feed, do not feed spoiled feed (poor quality silage or spoiled cull fruits).
- Milk from sick cows has a high viral concentration. Keep that in mind when revising your biosecurity plan. Revise your recommendations for frequency of cleaning and disinfecting milking equipment and changing glove.
- Pasteurize milk before feeding to calves.
- Identify at risk positions and provide PPE (i.e., treaters and milkers of the Hospital pen). Request to change or use clean clothing and boots before moving to a different area at the farm.
- If HPAI is detected prior outbreak (bulk tank), consider early dry-off of late lactation cows. Farmers reported that many do not pick-up their production (reduces overcrowding, less cows shedding virus).
- Communicate with feeders, breeders, pushers, milkers, etc. to watch for early signs of disease.
- Cows will need supportive therapy including anti-inflammatories and re-hydration (electrolytes and energy sources). Design treatments with your veterinarian. Train workers avoid aspiration pneumonia.

Worker/Owner/Consultant exposure:

- Only mild signs have been observed - check respiratory signs and eye redness for 10 days.
- If sick go to the doctor, isolate or use PPE.

Other information:

- [Link](#). USDA assistance programs for HPAI dairies.
- [Link](#). First HPAI human case reported by CDC not associated with animal transmission (Sep 6th).
- [Link](#). FDA study (August 2024) confirming again no live virus is present in milk or dairy products.
- [Link](#). References used to prepare this document.

REMINDER: Avoid raw milk and raw dairy products.

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