UNIVERSITY OF CALIFORNIA
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Golden State Dairy Newsletter

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Golden State Dairy Management Conference

November 18, 2024
Stanislaus County Ag Center – Harvest Hall
3800 Cornucopia Way, Modesto, CA
11:00 am – 3:30 pm

California research to address California dairy needs

We're excited to welcome **Corey Geiger**, Lead Dairy Economist of CoBank's Knowledge Exchange as our keynote speaker to discuss dairy's bright future.

Scientific sessions will provide research updates from University of California Farm Advisors, Specialists and Faculty.

Scan the QR code (or visit https://ucanr.edu/goldenstatedairy) for conference details, including the full agenda, registration link, and sponsorship opportunities.

The UC Golden State Dairy Management Conference occurs every other year. We hope to see you in Modesto this November!

Questions: jmheguy@ucdavis.edu or 209-525-6800

Register early for the best rate!

In this Issue…

Newsletter Editor:
Jennifer Heguy
UCCE Dairy Advisor
jmheguy@ucdavis.edu

Submitted by:
Betsy Karle
UCCE Dairy Advisor
Sacramento Valley & Northern California
bmkarle@ucanr.edu
(530) 865-1156

Minimizing HPAI Risk on Your Dairy: Key Practices to Protect Your Herd

Noelia Silva-del-Rio - UC Dairy Herd Health Extension Specialist, Maristela Rovai, SDSU Dairy Extension Specialist & Richard V. Pereira, UC Davis Population Health & Reproduction

Highly Pathogenic Avian Influenza (HPAI, a.k.a., H5N1) has been recently confirmed by testing in California dairy farms. It has been six months since the first outbreak of HPAI in Texas cattle, but there is still much to learn about this disease. To reduce risk, it's important to implement biosecurity measures. Current protocols should be revised, and an updated outbreak action plan prepared. Milk remains the primary source of virus shedding. The National Milk Producers' Federation website provides many resources on biosecurity guidelines. Here are some additional considerations:

Animal Movement. Several HPAI outbreaks (nation-wide) were linked to bringing infected cattle into the herd. To minimize the risk of HPAI:

- Avoid bringing animals from states with HPAI outbreaks or farms of uncertain health status (no biosecurity protocols, no testing).
- Quarantine animals at arrival - interstate animal transport requires testing for HPAI in at least 30 cows per group before they can be moved. Because not all animals are tested, new arrivals should be quarantined. Quarantine pens should be designed so cows do not have contact with other cows from the herd. During quarantine cows should be observed for signs of illness such as nasal discharge, fever, lack of appetite, or abnormal milk (i.e., colostrum-like). This also applies to animals brought to the fair or that commingled with animals from other herds.
- Test animals that are suspected of HPAI or have been potentially exposed. Testing of pooled milk samples (if lactating) or nasal swabs (if non-lactating) by a National Animal Health Laboratory Network (NAHLN; Davis, California) lab can detect viral genetic material with PCR (test that detects genetic material of virus), providing results within days. Check with your veterinarian for testing recommendations.

Some farms affected by HPAI did not report new animal introductions 30 days prior to the outbreak. This suggests other potential virus carriers, such as workers, visitors, local wildlife, pets, or vehicles/equipment. Consider the following to reduce HPAI in your herd:

Safeguarding Workers. Workers, visitors, shared personnel, and consultants should:

- Keep up with personal hygiene. This includes regular showers, nasal and ocular hygiene. They should wear clean clothes and boots every day (if possible, do not take those outside the farm).
- Wear personal protective equipment (PPE) such as goggles, gloves, face masks, face shields, regular coveralls, disposable coveralls, aprons and shoe covers. Red and watery eyes are common symptoms of HPAI, goggles may provide protection. PPE is most important in high-risk positions [e.g., treating sick cows, milking in the hospital pen, handling dead animals (cattle, goats, cats, birds)]. Consider that PPE, like face masks, may be uncomfortable in extreme heat for long periods.
- Teach employees how to remove and dispose of PPE. Ensure workers in high-risk positions (i.e., hospital milkers, hospital treaters) do not interact with other workers until they remove their contaminated attire.
- Social interactions. Train workers on the danger of interacting with employees from farms undergoing an outbreak, even when their acquaintances do not feel sick. Recently (Sep 6th), the first HPAI human case not linked to animal transmission was reported.
- Use caution when handling milk. Reduce milk splashing in the milking parlor. Workers should not touch their faces with gloves contaminated with milk. Milk spilled on the floor of the parlor, milk house, or maternity areas should be cleaned immediately.
- Place footbaths at various farm entrances. Limit unnecessary worker and visitor interactions with cows.

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- Visiting several farms a day: Use disposable coveralls and a clean pair of boots at each dairy. Disinfect/clean your equipment/vehicle. In between farms, thoroughly wash your hands and face (nose and eyes).
- Free PPE: County public health emergency preparedness branches have distributed free PPE; check with your office for future distribution schedules.

Wildlife and Peri-Domestic Animal Control: Although no conclusive evidence links wild birds to HPAI transmission, limiting wildlife and farm pet (cats) contact with your herd is advised, especially for dairies near an outbreak. Some farmers have reported finding dead farm cats in the weeks leading up to an HPAI outbreak. Train workers to look out for non-farm dead animals and teach them how to dispose of them safely and communicate findings to the manager.

Early Identification.

- Engage with breeders, feeders, feed-pushers, and hospital pen workers to watch for clinical signs; they play a key role in early outbreak detection. If your cows wear rumination collars or you track daily milk yield, use that data to identify health alerts.
- Detect HPAI early through the voluntary USDA-APHIS free weekly bulk tank surveillance program. The main goal of this program is to reduce the spread to nearby dairies and to give affected farms some extra time to prepare before clinical signs appear. After three weeks of no viral genetic material in the milk, your herd will be classified as a "monitored unaffected herd," allowing animal movement without further testing.

We are learning about the importance of early surveillance as two states have mandates: 1) Iowa (July 1st) mandates intensive bulk tank milk testing if dairy farms are within a 12.5-mile radius of an infected poultry flock; 2) Colorado (July 22nd) mandates all licensed dairies submit a weekly bulk tank sample for HPAI testing.

We are still learning about HPAI, and recommendations on how to prevent the introduction of the virus on dairy farms may evolve as more is understood about the disease. While HPAI can be shed in milk, milk consumption remains safe. Pasteurization has been shown to inactivate the virus effectively. In August, the FDA published findings from a new study confirming that no live virus was present in pasteurized milk or dairy products. The Centers for Disease Control and Prevention (CDC) and the FDA have long-standing recommendations that consumers should avoid consuming raw milk or dairy products made from raw milk, which remains important during an HPAI outbreak.

Assessing Navel Size Variability in California Dairies

Yael Alonso-López – UC Davis, Grace Jardon – South Dakota State University, Noelia Silva-del-Río – UC Davis & UC ANR, Daniela Bruno – UC ANR & Rúbia Branco-Lopes – UC ANR

Navel disease can lead to serious complications, such as liver and kidney abscesses, septic arthritis, peritonitis, and even death. The umbilical cord connects the cow to her fetus, allowing the exchange of nutrients, oxygen, and waste products. After calving, the umbilical cord dries within 2 to 5 days, then detaches and falls off. Before the cord is fully dried, it can become a gateway for pathogens to enter the calf's body, potentially leading to infections. Earlier literature suggested that 1.3% to 14% of dairy calves develop a navel infection, but more recent studies indicate a higher incidence (~28%).

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California study. We aimed to describe navel size variability and potential navel disease in calves raised in the same calf ranch but sourced from 9 different dairies located in the San Joaquin Valley. The study included Holstein (n = 136) and Crossbred (n = 178) calves [female (n = 192) and male (n = 122)], ranging from 1 to 10 days of age. Measurements of navel diameter were performed with a digital caliper. Following criteria from previous studies, we defined navel disease based on its diameter and classified it as follows: **normal** (≤0.51 in), **uncertain** (>0.51 to 0.78 in) and **abnormal** (>0.78 in).

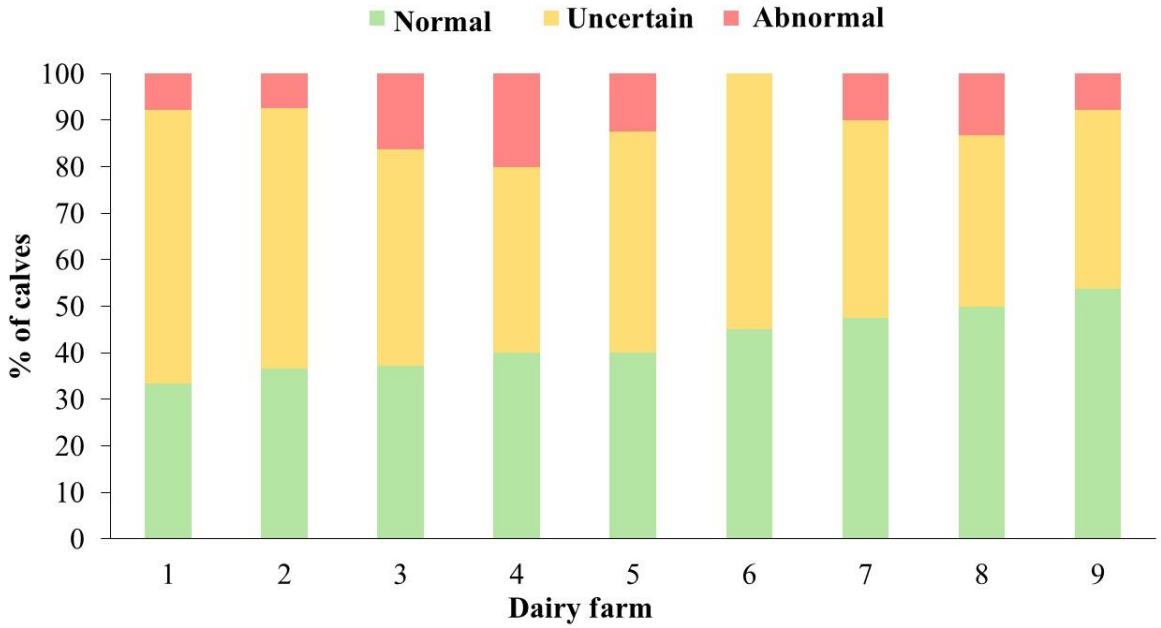

Fig. 1. Distribution of navel size (an indicator of navel disease) in calves raised in a single calf ranch, with each bar representing a different source dairy. Navel size was classified according to the following categories: normal (≤0.51 in), uncertain (>0.51 to 0.78 in), and abnormal (>0.78 in).

Results. Out of the 314 calves, 131 (41.8%) had navel size classified as normal, 151 (48.0%) uncertain, and 32 (10.2%) abnormal. The distribution of navel size of calves from the 9 source dairies is shown in **Fig 1.** The proportion of calves classified with normal navel size per farm ranged from 33.3 to 53.8%, whereas those with abnormal navel size ranged from 0 to 20.0%.

Take-home message. This study identified important variation in the distribution of navel disease classification between source dairies, suggesting that maternity-specific practices may affect navel health.

Remember – industry-recommended practices for navel health include:

- Maintain clean and dry maternity area.
- Disinfect the umbilical cord shortly after birth.
- Keep calves in a clean, dry environment until the umbilical cord has dried.
- Use clean navel dip cups and scissors.

For more detailed information on best practices for navel care, refer to our previous newsletter article, "Keeping up with navel infection."

Bovine Respiratory Disease in Calves: Risks and Management Solutions

Betsy Karle- UCCE Sacramento Valley & Northern California &
Sharif Aly- UC Davis Veterinary Medicine Teaching & Research Center

As the seasons change, we oftentimes see an uptick in calf health issues, with pneumonia and other respiratory ailments requiring additional attention and resources. Several years of UC research efforts have yielded practical management solutions to help mitigate some of the challenges associated with bovine respiratory disease (BRD). Detecting disease early improves treatment outcomes and animal well-being. Working with your herd veterinarian to have prevention and treatment protocols in place is imperative. Protocols should be herd specific and employees should be trained to identify which animals need to be treated. The California BRD Scoring System (ucanr.edu/cabrd) is a useful tool for identifying calves with respiratory disease and was designed to be an efficient solution to quickly identify animals that need to be treated. The system uses six clinical signs, each categorized as normal or abnormal: nasal discharge, eye discharge, cough, fever, breathing difficulty/rate, and ear & head position. If the sum of points is 5 or more, the calf is likely positive for BRD.

California BRD Scoring System	
Clinical Sign	**Points (if abnormal)**
Eye Discharge	2
Nasal Discharge	4
Ear Droop or Head Tilt	5
Cough (spontaneous)	2
Breathing Difficulty/Rate	2
Fever*	2

*Rectal temperature only required if sum of score of other signs = 4
BRD Positive if Score ≥ 5 points

Fortunately, we have identified many management practices that can mitigate the incidence of BRD and help reduce unnecessary use of antibiotics. Some of the most effective BRD management practices from our studies are:

- Vaccinating cows
- Clean and dry maternity pens
- Testing colostrum quality
- Pasteurizing milk fed to calves
- Feeding > 4 quarts of milk daily
- Dust control
- Secondary protection from elements (shade cloth/roof over hutches)
- No flush or freshwater only flush under hutches

In herds where BRD is a challenge, implementing positive management changes can have positive economic impacts and help prevent antibiotic resistance. Because it is a complex disease and management practices are variable across the industry, producers are encouraged to use the University of California BRD risk assessment app (see page 3 of the December 2020 newsletter for more info) to monitor BRD prevalence and evaluate the effectiveness of herd management practices. Our research emphasizes that a focus on the foundation of calf health and attention directed at prevention of disease is worthwhile and necessary.

Picture: Drooping ears indicate a calf is likely positive for BRD and should be treated according to herd protocol.

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CE Agriculture and Natural Resources
Cooperative Extension · Glenn County

P.O. Box 697
Orland, CA 95963

Dairy Newsletter

Betsy Karle, Dairy Advisor
Sacramento Valley & Northern California

Golden State Dairy Newsletter

September 2024

Look Inside:

UNIVERSITY OF CALIFORNIA
Agriculture and Natural Resources

UCDAVIS VETERINARY MEDICINE

September 2024

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.**

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 – googles, 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.

Prepared by Noelia Silva del Rio CE Specialist, Maristela Rovai SDSU Specialist.
Revised by UC ANR Dairy Advisors.
Noelia Silva del Rio, VMTRC nsilvadelrio@ucdavis.edu