A Careful Look at the HPAI – Dairy Situation

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Written in collaboration with the BC Ministry of Agriculture and Food's Office of the Chief Veterinarian.

My experience with highly pathogenic avian influenza (HPAI) began more than two years ago when it was detected in poultry in BC. While we knew it could infect mammals, it was typically those species that likely scavenged wild infected birds. The confirmation of HPAI positive tests in Texas dairy cattle in late March was unexpected.

The first detection of HPAI H5N1 was in Texas on March 25, 2024, and as of May 27th, the disease has been found in 63 herds in 9 states. The situation continues to evolve, and the information provided here is current to May 27th. Testing indicates this HPAI H5N1 virus in dairy cattle is the same type that is currently infecting wild birds, commercial poultry flocks, and mammals throughout Canada and the U.S. Current evidence indicates the introduction of the virus to dairy herds was most likely a single wild bird-to-cattle transmission followed by secondary spread across dairy farms. Ongoing investigation continues into understanding disease transmission between dairy cattle. Current evidence suggests the virus is shed in milk at high concentrations, therefore cow to cow transmission is most likely occurring though the milking process and equipment.

The good news is that so far infected cattle show mild symptoms of disease. The initial U.S. cases indicated older cows in mid-lactation may be more severely impacted. Infected animals appear to recover within one to three weeks.

What to do if you are concerned or suspect HPAI H5N1 in your herd? Your farm veterinarian is the first point of contact for reporting symptoms. They can facilitate testing and notification to the CFIA of suspect cases. Producers should monitor cattle for the following signs of HPAI H5N1:

- **sudden decrease in milk production**
- **colostrum-like consistency of milk**
- **negative or trace positive California Mastitis Test (CMT) result**
- **decreased feed intake**
- **decreased rumen motility**
- **respiratory signs, including clear nasal discharge**
- **sometimes fever**

As of May 27, 2024, there have been no detections of HPAI in dairy cattle in Canada. HPAI is a reportable disease in Canada and all suspect cases in B.C. must be reported to the Canadian Food Inspection Agency (CFIA) and the BC Ministry of Agriculture and Food's Chief Veterinary Officer. HPAI affects dairy cattle differently from domestic poultry. Unlike in birds where it spreads fast and causes high death rates, cattle usually show mild symptoms, and only a small proportion of the herd is affected. Therefore, the regulatory approach to HPAI varies between the two industries. CFIA's role in HPAI in cattle is to provide scientific guidance, diagnostic assistance, and international reporting. CFIA is monitoring the situation closely and working with the veterinary community, industry, public health authorities, and provincial and territorial governments. This work includes expanded surveillance to include retail milk testing and facilitating the voluntary testing of dairy cows not presenting clinical signs. As of May 16, 2024, 303 retail milk samples from across Canada have tested negative for HPAI fragments.

As of April 29th, 2024, the CFIA requires all US lactating dairy cows imported into Canada to have tested negative for Influenza A virus. Additionally, those imported cows cannot have been on premises where HPAI has been detected during the 60 days immediately preceding exportation.

Pasteurized milk and milk products remain safe to consume. Pasteurization kills harmful bacteria and viruses (including influenza). Recent news articles indicate the U.S. Food and Drug Administration's retail milk testing in the United States has detected fragments of HPAI in the milk samples – this is not live virus and pasteurization remains an effective method for killing the virus. The United States Department of Agriculture's (USDA) testing of retail ground beef samples within those US states where herds had tested positive for HPAI, have tested negative. Ongoing testing and research continue at the USDA.

Dairy farmers are encouraged to evaluate their biosecurity protocols (see Table 1). The introduction of new animals into a dairy herd presents the greatest risk. If new animals must be brought in, or animals return from contact with other herds (for example, livestock shows) those animals should be isolated and monitored for 30 days. As always, milk from sick animals must be discarded.

If a farm is infected, producers should not feed waste milk to calves, and ensure other farm animals and wildlife do not consume the waste milk. No one should drink raw milk, including from sick animals.

Dead wildlife found on farms can be reported to the Wild Bird Mortality hotline in B.C. 1-866-431-BIRD (2473). In other provinces visit the Canadian Wildlife Health Cooperative for reporting contact information.

The Ministry of Agriculture and Food, led by the Office of the Chief Veterinarian, is actively collaborating with all levels of government and industry on this issue. The Animal Health Centre is prepared to test samples submitted from dairy farms in B.C.

There are still a lot of unknowns about HPAI H5N1 in dairy cattle and further research is ongoing to better understand this disease and its transmission to and within dairy cattle. On the vaccine front, the USDA began testing candidate vaccines for H5N1 in poultry in 2023. They are now in the preliminary stages of assessing the potential of a vaccine for bovines.

For up-to-date information, please visit the websites of the Canadian Food Inspection Agency or the United States Department of Agriculture.

TABLE 1. DAIRY FARM BIOSECURITY PRACTICES
Eliminate or minimize the entry of new animals into your herd (most important risk factor)
Isolate sick animals and sanitize shared equipment
Monitor cattle for symptoms and call your veterinarian for suspect cases
Wear personal protective equipment (PPE) when handling sick cattle, raw milk and sick/dead wildlife.
Minimize wild bird access to cattle and their environment
Limit visitors to your farm
Change your boots when entering barns
Regularly sanitize livestock pens, milking equipment, waterers, and feeders.

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A robust and sustainable industry is not a new goal

While the emphasis on sustainability feels like a more recent addition to conversations about dairy farming, or farming in general, it's really not so new. The idea of doing more, producing more, with the same **or less resources**, has always been something we work towards.

In recent decades, we've seen huge gains in genetics, nutrition, and technological advancement throughout farm systems. To put it in perspective, Agriculture and Agri-Food Canada (AAFC) wrote in 2021, "Between 1981 and 2016, the dairy cow population in Canada steadily declined from about 1.8 to 0.9 million head. This reduction was made without affecting total milk production in Canada thanks to productivity gains in milk production per cow."

This increase in efficiency clearly paints a picture of an industry that is adaptable and dedicated to improvement.

What's the link between animal health and sustainability?

Animal health is one area that intersects with sustainability by every definition, in particular - conserving natural resources, supporting long-term economic growth, and ensuring the dairy industry continues to uphold its strong reputation with consumers. Ensuring consumers see that animal health is a priority for farmers is key to the sustainability of the Canadian dairy industry. The continued adoption of best management practices for disease prevention, including working closely with a herd veterinarian, shows consumers that farmers strive to maintain healthy herds.

Environmental sustainability is often what people think of when it comes to sustainability; ensuring that we are not depleting more resources than our environment can produce for future generations. It can be hard to imagine how that ties into lameness or transition diseases in individual herds. However, disease can impact how many resources it takes to produce a litre of milk. Reduced production, both in the short-term and over a lifetime, means less milk compared to a healthy cow given the same resources. Disease also requires additional resources for treatment. Taking action to increase sustainability through animal health can be challenging; increasing efficiency in an already efficient system is tough! But experts estimate that even single digit percentage improvement in lameness rates or transition diseases can yield reductions in greenhouse gas emissions. For example, a 1% reduction in herd lameness could decrease total herd emissions by 1.5%.

Recent extreme weather events and challenging environmental conditions have placed additional stresses on animal health. Just as our actions can impact the environment, environmental changes can impact animal health (and human health).

Producers know well how heat and humidity can result in short-term production and reproductive losses, but it's also an animal welfare issue and can cause lifelong production decreases and increase disease susceptibility. Unfortunately, heat stress effects are even more pronounced with today's high production cows compared to their lower production counterparts from decades past. A recent paper from Dr. Andrew VanderZaag, a researcher from AAFC, emphasized that adapting to increased temperatures will be important as heat intensity will continue to steadily increase in coming years. Increasing heat presents a rising threat to animal health but also a threat to the sustainability of farms that are not anticipating and adapting to changing conditions.

Concluding thoughts

Farmers frequently face challenges that feel beyond their direct control, like extreme weather events, and changing regulations and consumer perceptions. These pressures often rest heavily on the shoulders of farmers. Recent history has shown how much progress is possible when it comes to increasing productivity and efficiency. The dairy industry has surpassed other commodities in scaling up production while reducing the total number of animals. Continuing to leverage the incredible adaptability that producers have already demonstrated will ensure that improvements in dairy sustainability continue – important for public understanding today, and for future generations.

See Acerconsult.ca for more interesting resources.

Sources available upon request.