



For immediate release — Thursday, April 1, 2021

U of L researcher earns funding to pursue a suite of critical studies supporting area beef industry

With more than \$700,000 in funding over two years from the province's new Results Driven Agricultural Research (RDAR) fund, Dr. Kim Stanford, a research associate at the University of Lethbridge, will continue her research studies that support the beef industry. Further funding from the Beef Cattle Research Council (BCRC) will allow Stanford and her collaborators to produce a series of podcasts called *Cows on the Planet*.



“This funding allows me to continue my work investigating cattle feed and food-borne pathogens,” says Stanford. “My research looks at ways of improving detection and control of pathogenic *E. coli* and ways to reduce ergot in cattle feed. The *Cows on the Planet* podcast will provide science-based information to Canadians to help them understand the cattle industry in a balanced way.”

Stanford is involved in several research projects involving *Escherichia coli* (*E. coli*). *E. coli* bacteria are commonly found in the gut of humans and warm-blooded animals like cattle. Most types of *E. coli* are harmless, but a few strains can cause serious illness. The most common way to contract an *E. coli* infection is by eating contaminated food, such as undercooked ground meat or fresh produce that has been contaminated by runoff from cattle farms. Better detection of the harmful strains can help improve food safety in meat-processing plants and in fresh produce.

One of Stanford's studies involves analyzing the genome of *E. coli* to better detect pathogenic strains. Throughout her years working for Alberta Agriculture and Forestry, Stanford has collected many *E. coli* from cattle. She's working on developing a better way to classify those strains that are capable of producing Shiga toxins, which cause illness in people.

Another project, in collaboration with Alberta Health Services, investigates the relationship between human disease and persistence in the environment of pathogenic *E. coli* shed by cattle. And yet another study being conducted with scientists at Agriculture and Agri-Food Canada looks at the presence of pathogenic *E. coli* throughout the production chain. The

researchers are testing the bacteria's ability to tolerate heat, to form a biofilm and resistance to sanitizers. While they haven't found any increased resistance to heat, their work on biofilm has shown a different result. Certain strains of *E. coli* can grow together in layers, forming a biofilm that is much more resistant to stress and sanitizers. When biofilms get onto meat-processing equipment, meat can be contaminated.

"One thing we found is that the sanitation procedures used by slaughter plants are actually selecting the strongest biofilm formers to remain on processing equipment," says Stanford. "Chilling carcasses at zero degrees really reduced biofilm formation. We may need to incorporate some kind of chilling as the final step in sanitizing the processing equipment."

Another focus of Stanford's research looks at ways of reducing the toxicity of cereal ergot in cattle feed.

"Ergot is a fungus that can grow on grain. It creates these purplish ergot bodies that are packed full of ergot alkaloids, which are some of the most toxic mycotoxins," says Stanford. "Ergot didn't used to be a problem in Western Canada, but in recent years more and more grain is contaminated with ergot."

Grains used for human food are cleaned to remove any ergot, but the grain that doesn't meet the standard for human consumption is typically directed to livestock feed. If a lot of ergot is present, the feed can be toxic for the animals and produce symptoms that are hard to diagnose. It can present like pneumonia, interfere with reproduction or cause tissue death in the tips of ears, tail or hooves.

"A series of ergot studies is being conducted and the one I am leading is looking at finding a simple means of detoxifying the ergot," Stanford said. "We've found that pelleted feed was less toxic than non-pelleted feed. We're also examining heat treating the ergot. Once the ergot alkaloids have been analyzed, we'll know which treatments worked best and we'll move on to an animal feeding study."

Stanford will be a co-host on the Cows on the Planet podcast. Planning the topics for the series is underway and the first podcast should be ready sometime in late spring.

This news release can be found online at [research supports beef industry](#).

—30—

Contact

Caroline Zentner, public affairs adviser
University of Lethbridge
403-795-5403
caroline.zentner@uleth.ca

