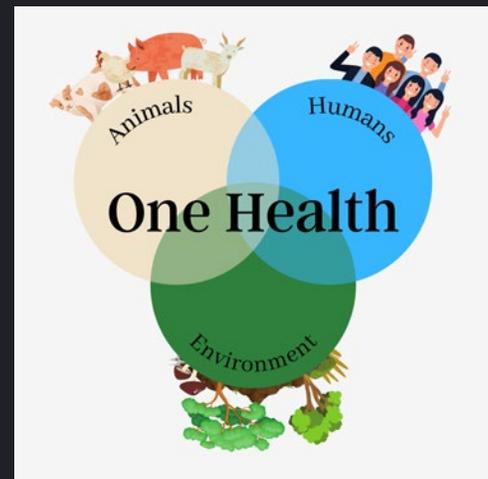


## LRIC Horizon Series Highlights: Understanding the One Health Approach

Highlights with Dr. Heather Murphy, University of Guelph

As part of its Horizon Series project, the Livestock Research Innovation Corporation (LRIC) is writing white papers on key issues impacting the livestock sector and the entire livestock value chain. Each white paper is complemented by a webinar featuring a subject matter expert.

In this issue of the series, Dr. Heather Murphy reviews the key components of One Health. She joined the University of Guelph in 2020 as associate professor and Tier II Canada Research Chair in One Health in the Department of Pathobiology, and is a co-author of LRIC's white paper One Health.



*“One Health is the collaborate effort of multiple disciplines to improve the overall health of the planet, including animal, human and environmental health.”* Dr. Heather Murphy

There are two parts to the One Health approach – having different disciplines working together and then tackling problems by accounting for the interactions between animals, humans and the environment. Murphy defines it as the sweet spot – the place where all three areas of health interact.

*“One Health matters to the livestock sector because it's critical to providing a safe and healthy supply of food.”* Dr. Heather Murphy

Murphy reiterates how One Health can help reduce the transmission of infectious diseases, help avoid the development of antimicrobial resistance while keeping animals and farm workers healthy, and address the impact of animal production on the environment and wildlife close to the farm.

*“The Public Health Agency of Canada reports about 20 million cases of enteric disease – causing acute gastrointestinal illnesses – every year, and about 4 million of those cases are from foodborne illnesses.”* Dr. Heather Murphy

Murphy is working on enteric diseases that can spread from animals through the environment and make their way into water – and also looking at disease of humans that go through the environment and into water. She looks at private well water and surface water and says livestock is

not always the issue, sometimes it's septic systems leaking human waste into wells. From a One Health perspective, she is looking at all sources of water contamination.

*“One Health and antimicrobial resistance are inextricably linked.”* Dr. Heather Murphy

Antimicrobial resistance (AMR) is one of the top 10 public health challenges facing the globe and moves directly through humans and animals, and also the environment. And 60% of emerging infectious diseases in humans have come from animals as zoonotic disease. Murphy stresses that if you only look at AMR through one pillar of One Health – animals – it won't solve the issue. AMR is a complicated issue and requires multiple disciplines and perspectives to solve. And it's estimated that drug resistance will be responsible for the death of 400,000 Canadians by 2050 – a situation that is already costing the national health care system \$1.4 billion every year.

*“We're working on a new pilot project using the One Health approach to AMR in beef cattle.”* Dr. Heather Murphy

The goal of the new research is to see if rotational grazing beef cattle can improve soil health – as well as human, animal and environmental health. They'll be looking to see if pathogens excreted by animals – that may be carrying AMR pathogens – are making their way into soil and water environments and could become an issue of human health. Using a multidisciplinary team to represent all three pillars of One Health, they'll be studying conventional and rotational grazing herds.

*“There are several One Health strategies to consider on the farm.”* Dr. Heather Murphy

Murphy reviewed several on-farm strategies that producers can use to use a One Health approach.

- Create a farm-level health plan for livestock, workers, environment and wildlife
- Develop good biosecurity practices
- Use proper vaccination programs
- Keep records on animal health and movement
- Use antimicrobials properly, only when needed, and dispose of excess and empties
- Ensure proper manure and deadstock management
- Use practices to improve soil health and water management
- Participate in research

Watch the full webinar or review the white paper at [livestockresearch.ca/white\\_papers](https://livestockresearch.ca/white_papers). For more information, contact LRIC at [info@livestockresearch.ca](mailto:info@livestockresearch.ca) or 519-766-5464.

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