

## LRIC Horizon Series Highlights: Antimicrobial use and resistance in livestock

### Highlights with Jean Szkotnicki

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, Jean Szkotnicki shares Canada's strategic direction to lead to more responsible use of antimicrobials. She is the former president of the Canadian Animal Health Institute, the recipient of its 2020 Leadership Award, and co-author of LRIC's white paper Antimicrobial Use and Resistance in Livestock.



*“There is just one given if we are going to be using antibiotics—we are going to develop resistance.”* Jean Szkotnicki

Resistance is a reality because when antibiotics are used, some bacteria die but some stay alive and are able to mutate and even multiply—resulting in treatment failure. When speaking about resistance, Szkotnicki focused on antibiotics, a class of antimicrobials that are active against bacteria and widely used in the treatment and prevention of bacterial infections in human and animal medicine. Antimicrobial is the broader category of substances that kill or prevent the growth of microorganisms that includes antifungals, antiparasites and antibiotics.

*“We haven't had any new classes of antibiotics developed in the last 30 years, and that's why we need to be sure we have these antibiotics and are able to treat human and animal diseases as they arise.”* Jean Szkotnicki

Penicillin was the first antibiotic developed and resistance started showing up almost 10 years later. Resistance has since showed up in other classes of antibiotics that have been developed. Szkotnicki stressed that's why global strategies on antibiotic use have been ongoing and are in place to ensure we have antibiotics that are effective in treating bacterial infections in human and animal medicine.



*“Canada has taken action on the use of medically important antimicrobials (MIA) that aligns with other countries to ensure they can only be sold by veterinary prescription and are no longer permitted to have any growth promotion claims.”* Jean Szkotnicki

Work on MIAs was done in consultation with the Veterinary Drug Directorate (part of Health Canada that has regulatory oversight for veterinary antibiotics) and in consultation with industry and the provinces. There are four categories of MIAs, three are very important. Some of the changes that the Veterinary Drug Directorate has put in place to help reduce antimicrobial resistance, including additional label claims for the use of Category 1 drugs. These are antibiotics of very high importance to human medicine—they are the antibiotic of choice for treating serious human infections, the only ones that work on the disease and there are no alternatives.

*“We need to continue doing research on alternatives to antimicrobials because there are no new classes of antibiotics.”* Jean Szkotnicki

Szkotnicki outlined a new class of drugs called veterinary health products that includes prebiotics, probiotics and other alternatives. Some of these alternatives are already available in the marketplace, and they colonize the gut with healthy bacteria to help keep animals healthy or prevent the growth of unhealthy gut bacteria that can make animals sick. The Canadian Food Inspection Agency is looking at how some of these ingredients can be incorporated into feed. The bottom line is that these alternatives will be an important part of the future and we are at early stages of working on discovery and getting viable products into the marketplace.

*“There are other risk management measures, besides government regulations, to help manage antimicrobial resistance.”* Jean Szkotnicki

Producers across Canada and around the world are taking biosecurity measures to make sure that diseases in the barn stay there, and diseases outside the barn stay out. It’s a lot like what the world is doing right now to help manage COVID-19 and prevent its spread. Szkotnicki reiterates Canada has excellent standards and has been managing bacterial infections fairly well without exposure in the food supply, but it involves biosecurity.

*“We need to research and innovate to lead to healthier animals.”* Jean Szkotnicki

There is a lot of agreement within the One Health scenario that healthy animals lead to healthy people and to a healthy environment. We need to continue to collaborate to be able to manage antimicrobial resistance and keep animals healthy. See the One Health webinar for more information.

*“Collaboration is key to managing antimicrobial resistance.”* Jean Szkotnicki

Szkotnicki reinforces that we can’t address this issue in isolation, stressing the need to have a holistic approach that brings together all livestock sectors to identify issues and figure out how to



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work together—just like the industry did in the transition of many animal drugs from non-prescription to prescription.

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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