

SALMONELLA ANTIMICROBIAL RESISTANCE (AMR) INFORMATION



What are Salmonella?

- *Salmonella* are bacteria that can be found in the **manure and saliva** of infected wild and domestic animals and people.
- *Salmonella* bacteria are not commonly isolated in the manure of healthy feedlot cattle in Canada (see charts below).
- *Salmonella* bacteria are more commonly isolated in dairy cattle than beef cattle in North America.
- Some animals are naturally more common sources of *Salmonella* e.g., wild birds, poultry (chickens, turkeys).

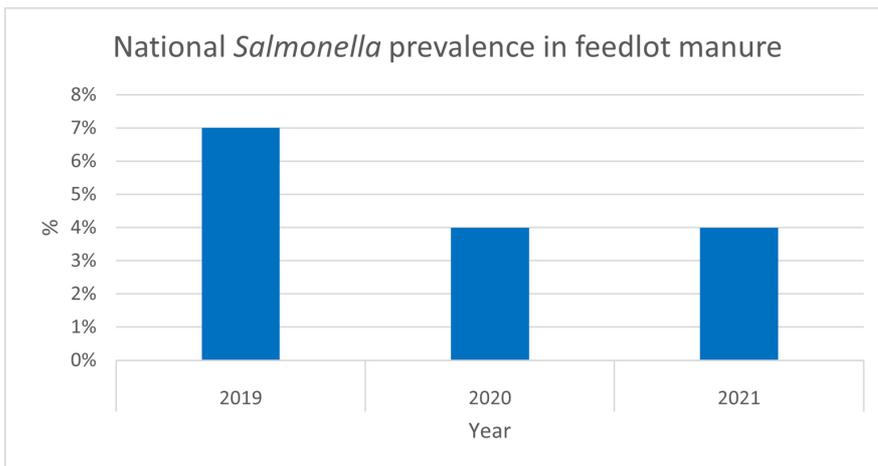


Figure: Prevalence of *Salmonella** in feedlot manure, 2019 to 2021

This plot shows the prevalence of *Salmonella* bacteria isolated nation wide from 2019 to 2021.

*Note: The prevalence of *Salmonella* varies amongst provinces, types of cattle (beef, dairy), housing (indoor, outdoor), and other factors, such as environment.

THERE ARE MANY DIFFERENT SEROTYPES OF SALMONELLA. SOME CAN CAUSE SEVERE ILLNESS, WHILE OTHERS CAUSE MILD DISEASE.

- The **five common *Salmonella* serotypes** associated with human disease are *S. enteritidis*, *S. typhimurium*, *S. newport*, *S. heidelberg*, and *S. I 4,[5],12:i: -*.
- Depending on the serotype of *Salmonella* found in cattle, the disease may be **reportable** under provincial animal health regulations (e.g., *S. dublin*).
- In cattle and humans, *Salmonella* bacteria most commonly cause gastrointestinal disease, although they have been associated with pneumonia and abortions in cattle and arthritis in humans.



WHY IS MEASURING AMR IN *SALMONELLA* BACTERIA IN THE MANURE FROM FEEDLOT CATTLE IMPORTANT?

- *Salmonella* bacteria in **manure** can be transmitted to other cattle and humans through various pathways, including the environment (water, soil, air), contaminated food, and by direct contact between animals and people. See figure from the "**Bovine enteric pathogen summary**".
- ***Salmonella* bacteria are hardy**, and they can survive in the environment for a long time.
- If *Salmonella* bacteria are resistant to antimicrobials of importance in medicine, or the bacteria can transmit its resistance genetically to other bacteria which cause disease in cattle or humans, it will be harder to treat these infections.
- Some *Salmonella* serovars are **naturally (intrinsically) more virulent and more resistant to multiple antimicrobials**, making treatment for Salmonellosis difficult e.g., *S. typhimurium* DT104.



WHAT CAN YOU DO AS A PRODUCER TO PROTECT YOUR HERD FROM *SALMONELLA*?



Talk to your Veterinarian!

Work with your veterinarian to reduce the risk of infectious disease; thus, the need for antimicrobials and risk of AMR development, by using good animal husbandry and on farm practices, such as: effective vaccination protocols, well-balanced rations, environmental management, health and performance monitoring, and staff training.



Practice good manure management practices as per provincial and federal regulations to prevent manure contamination of surface water bodies and leaching to groundwater.



Contain manure runoff from feedlot pens, stockpiled manure, and compost piles.



Do not apply catch basin liquid to crops grown for human consumption that are eaten uncooked.

WHAT CAN YOU DO AS A PRODUCER TO PROTECT YOUR HERD FROM SALMONELLA?



Follow provincial setback distances when applying catch basin water to land and when applying manure on land and incorporate in soil within 48 hours to reduce runoff.



Scrape, bed, and clean feedlot pens regularly to reduce tag build-up on cattle hides.



Monitor groundwater bacterial contamination with regular water testing.



Contain and divert runoff from deadstock to prevent contamination of feeding pens, feed, and water bodies, and leaching to ground water.



Implement a dust control strategy.

- Scrape pens of loose dust and remove regularly.
- Water feed alleys and feeding pens as needed to reduce dust.
- Consider use of tree shelterbelts around feedlot to collect/contain feedlot dust.



Educate feedlot workers on good hygienic practices e.g., wash hands well with soap and water before eating, drinking, or smoking.

The Canadian beef industry and multiple other stakeholders are working with the Canadian Integrated Program for Antimicrobial Resistance Surveillance (CIPARS) to implement and maintain a national feedlot antimicrobial use (AMU) and resistance (AMR) surveillance program in Canada. Collection of high-quality data over time will allow the feedlot industry to document appropriate information that ensures both animal and public health and welfare.



**QUESTIONS?
EMAIL US!**

INFO@CFAASP.CA

**SCAN CODE OR CLICK
ON LINK TO VISIT US:**



**CANADIAN FEEDLOT
ANTIMICROBIAL USE AND
ANTIMICROBIAL RESISTANCE
SURVEILLANCE PROGRAM
(CFAASP)**