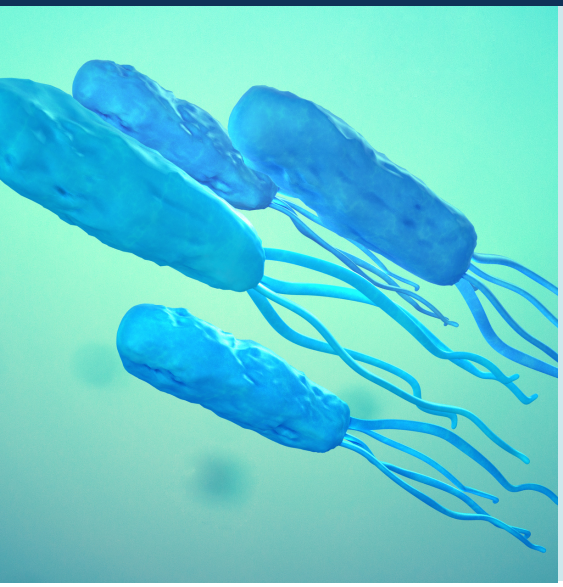
ESCHERICHIA COLI (E. COLI) ANTIMICROBIAL RESISTANCE (AMR) INFORMATION

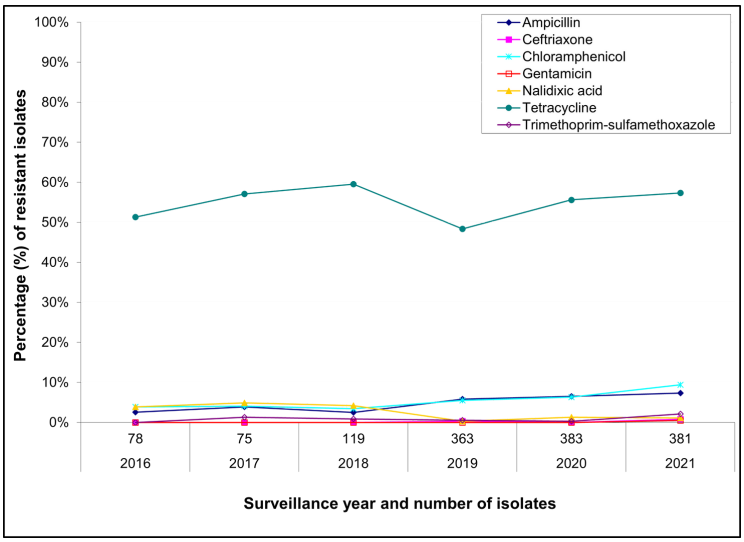


What are Escherichia coli (E. Coli)?

- *E. coli* are bacteria commonly found in the environment, food, and intestines of animals and humans.
- There are many different strains of *E. coli* bacteria, and most are harmless.
- Certain strains can cause disease in cattle e.g., *E. coli* K99 and calf diarrhea, or humans e.g., *E. coli* O157 and kidney failure in the young and immunocompromised.

Figure: Escherichia coli isolates in the manure of Canadian feedlot cattle from 2016 to 2021

Percentage of resistant *Escherichia coli* isolates by surveillance year and number of isolates.



E. COLI BACTERIA ARE COMMONLY FOUND IN THE FECES OF ANIMALS AND HUMANS AND MOST DO NOT CAUSE DISEASE.

Did you know?

• *E. coli* bacteria are easily isolated in about 100% of manure samples of cattle.

• *E. coli* bacteria are a good indicator of antimicrobial resistance (AMR) development in intestinal bacteria.

WHY IS MEASURING AMR IN *E. COLI* BACTERIA IN THE MANURE FROM FEEDLOT CATTLE IMPORTANT?

- *E. coli* in cattle manure or on cattle hides can be transmitted to other cattle and humans through various pathways, including the environment (water, soil, air), contaminated beef, and by direct contact between cattle and humans. See figure from the "**Bovine enteric pathogen summary**".
- If *E. coli* bacteria are resistant to antimicrobials, they can transmit their genetic resistance to other bacteria which cause disease in cattle or humans, making it harder to treat them.

WHAT CAN YOU DO AS A PRODUCER TO PROTECT YOUR HERD FROM *E. COLI?*

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 *E. COLI*?

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)