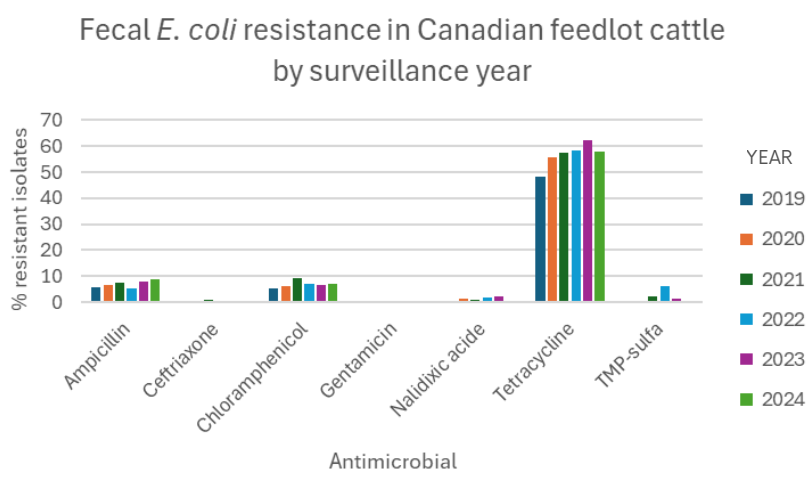
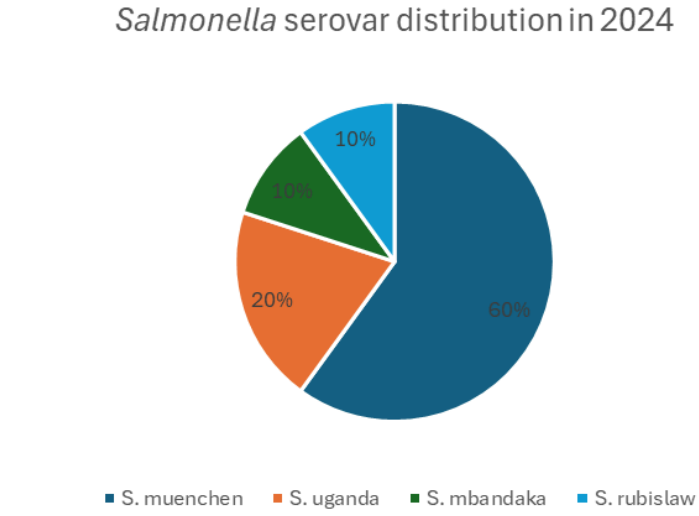
ENTERIC PATHOGEN ANTIMICROBIAL RESISTANCE (AMR) UPDATE - CFAASP 2024

- Fecal samples were collected from finished feedlot cattle within 30 days of slaughter from 18 feedlots in AB, SK, and ON.
- Apart from tetracycline, resistance to all tested antimicrobials remained low (<10%) for *E. coli* isolates since 2019.
- There were no significant changes in antimicrobial resistance in *E.coli* isolates from 2019 to 2024, or 2023 to 2024.
- In 2024, 41% of the *E. coli* isolates were susceptible to all tested antimicrobials; 8% were resistant to ≥ 3 antimicrobial classes.
- Resistance was highest to tetracycline (58%), which is not unexpected given this Class III* antimicrobial is administered to fall placed calves early in the feeding period to control BRD and Histophilosis. It is also used in some feedlots in the feed to control liver abscesses.



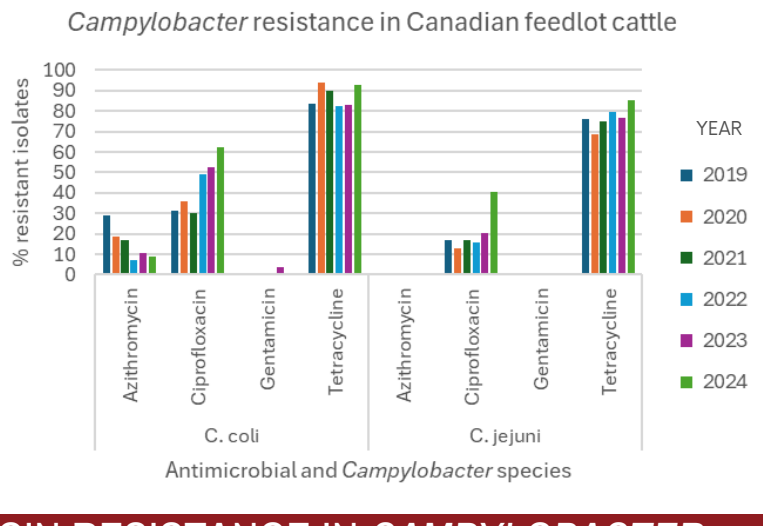
RESISTANCE TO ANTIMICROBIALS OF VERY HIGH IMPORTANCE* TO PUBLIC HEALTH IN *E. COLI* ISOLATES WAS LOW.



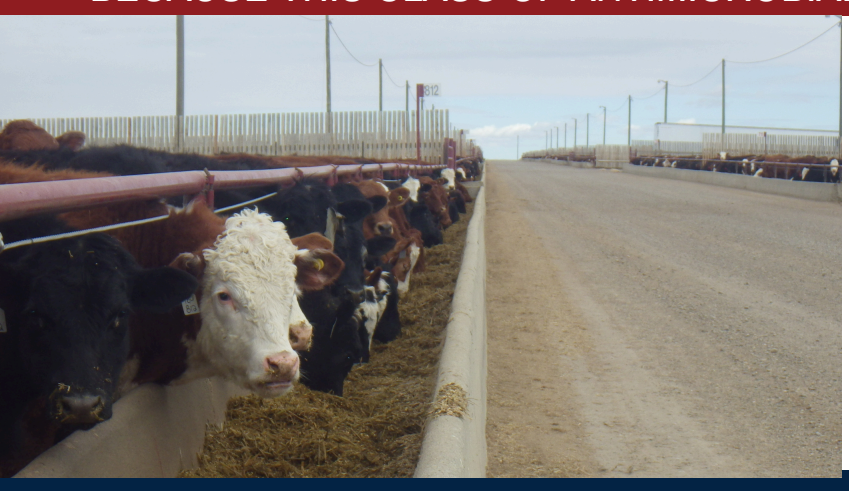
- From 2019 to 2024, the recovery of *Salmonella* varied from 2.9% to 7.1%, as did the number and type of serovars per year.
- In 2024, the recovery of *Salmonella* was 5.6%. Resistance was highest to tetracycline (TET, 80%), followed by sulfisoxazole (SSS, 70%).
- *Salmonella muenchen* was the most common serovar in 2024.
- 6 of the 10 total *Salmonella spp* isolates were from 1 feedlot and they had the same resistance pattern (SSS-TET).
- In 2024, there was no resistance to Class 1 antimicrobials and none of the isolates were resistant to ≥ 3 antimicrobial classes.

NO RESISTANCE TO ANTIMICROBIALS OF VERY HIGH IMPORTANCE* TO PUBLIC HEALTH IN *SALMONELLA SSP*. ISOLATES.

- *Campylobacter spp.* were isolated in 52% of fecal samples in 2024; 74% of the isolates were *C. coli*, 23% were *C. jejuni,* 3% were undetermined.
- No gentamicin resistance was detected in 2024.
- *Campylobacter spp*. resistance to ciprofloxacin increased significantly from 2020 (29%) to 2024 (59%); whereas, azithromycin resistance decreased from 2020 (13%) to 2024 (7%).
- Resistant to tetracycline peaked in 2024 (87%) but the increase was not significant.



ADDITIONAL RESEARCH IS NEEDED TO UNDERSTAND CIPROFLOXACIN RESISTANCE IN *CAMPYLOBACTER* BECAUSE THIS CLASS OF ANTIMICROBIAL WAS NOT COMMONLY USED IN CANADIAN FEEDLOT CATTLE.



- None of the *enterococci* bacteria isolated in feces in 2024 were resistant to vancomycin, a drug of very high importance* in human medicine.
- Resistance to QDA (quinupristin-dalfopristin) increased from 2019 to 2024 (13% vs 44%), which coincides with the introduction of virginiamycin on the market for liver abscess control. Both of these antimicrobials belong to the streptogramin class of antimicrobials.
- In 2024, *enterococci* resistance was most common to lincomycin, followed by tetracycline, tylosin, erythromycin, QDA, and streptomycin.
- Lincomycin, erythromycin, and streptomycin were not used in cattle.

LEARN MORE ABOUT AMU/AMR IN CANADIAN FEEDLOT CATTLE ON OUR WEBSITE.

QUESTIONS? EMAIL US! INFO@CFAASP.CA

* For more information on Health Canada Veterinary Drug Directorate's classes of antimicrobials of importance in human medicine, click **here** to view the **Antimicrobial and Antibiotic Backgrounder for Feedlot Cattle**.

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