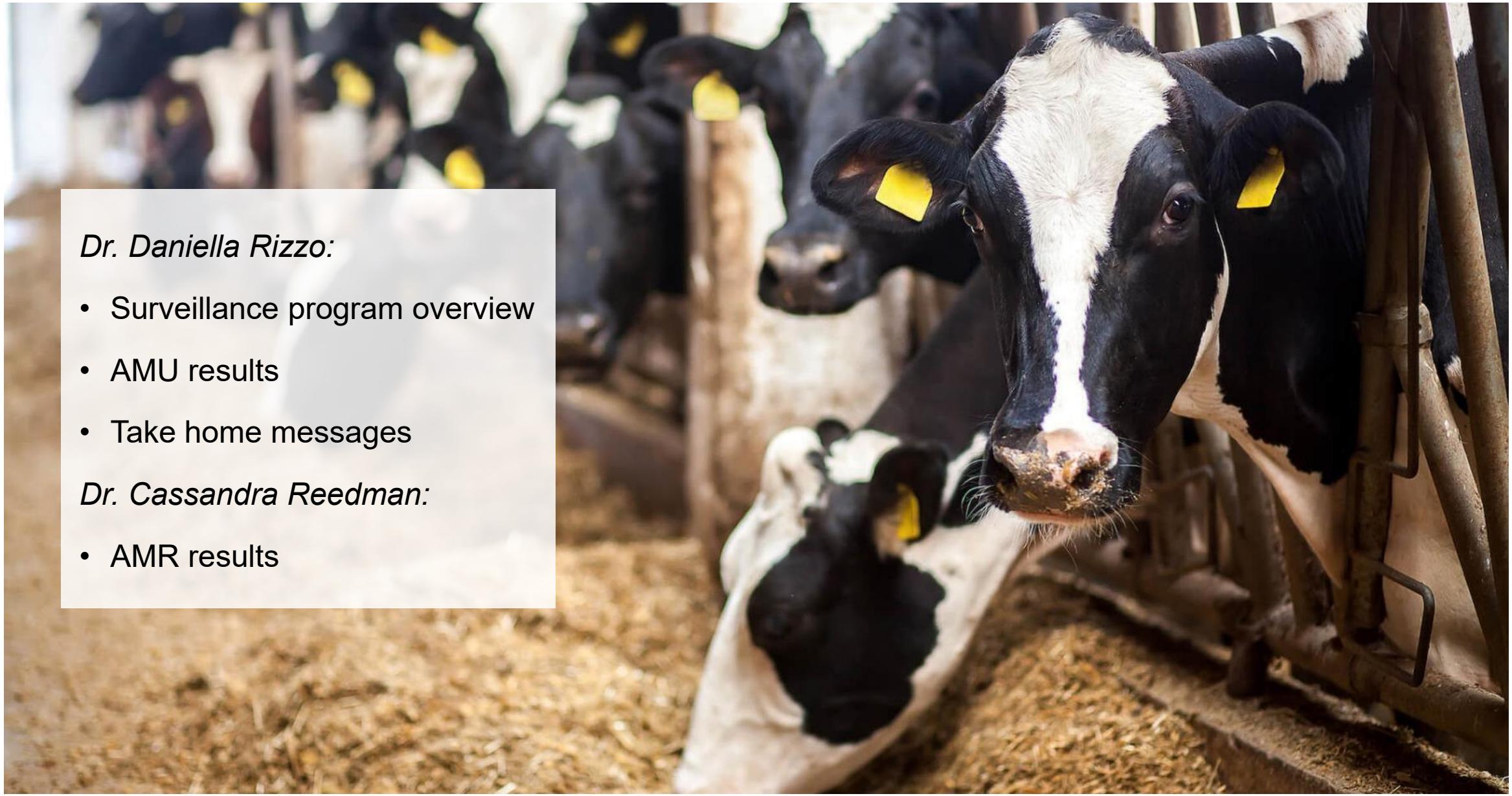


# CIPARS Farm Surveillance Component: Dairy Cattle

Presented by:
Dr. Daniella Rizzo, DVM, MPH &
Dr. Cassandra Reedman, PhD

World Antimicrobial Resistance Awareness Week
November 23, 2026

# Agenda



*Dr. Daniella Rizzo:*

- Surveillance program overview
- AMU results
- Take home messages

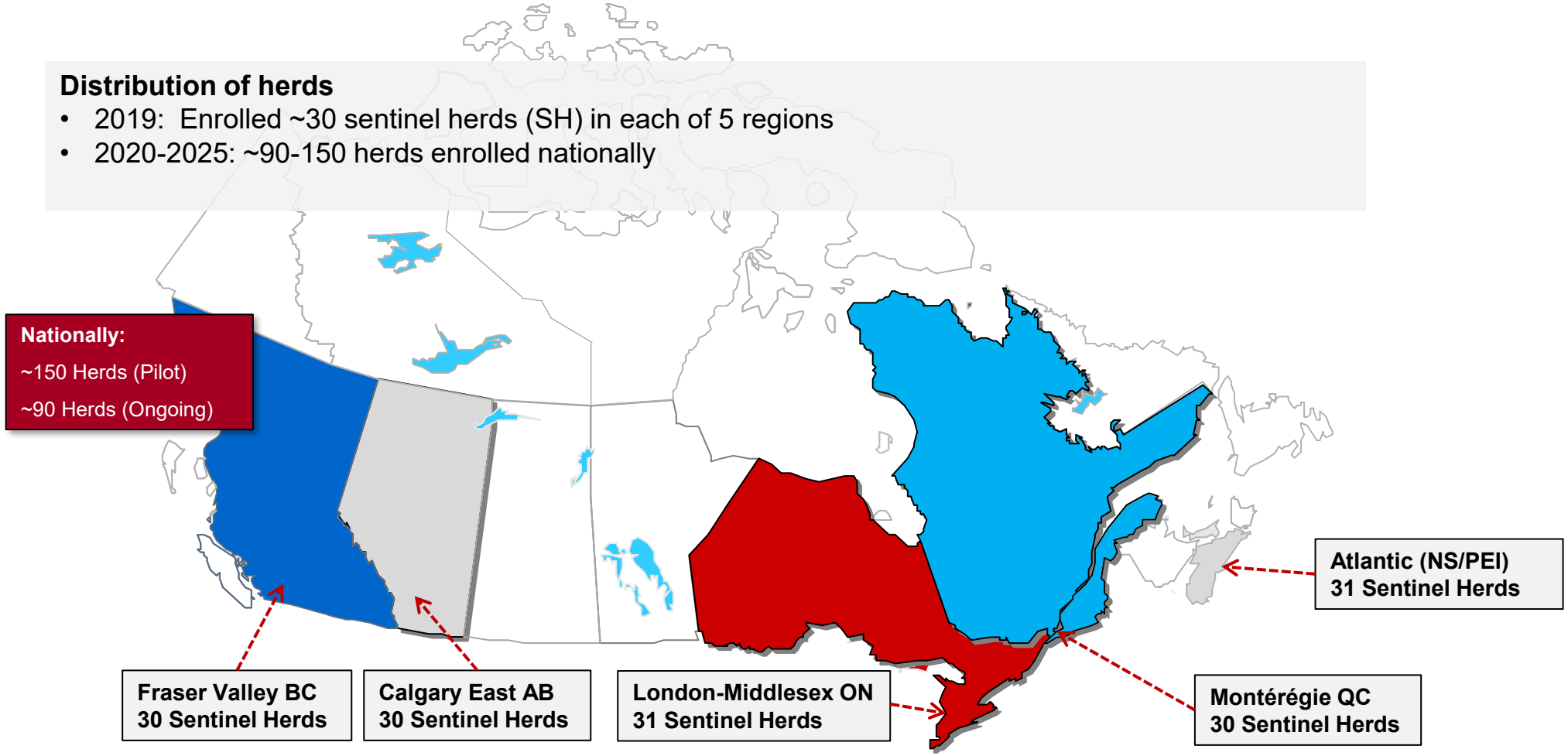
*Dr. Cassandra Reedman:*

- AMR results

# Canadian Dairy Network for Antimicrobial Stewardship and Resistance (CaDNetASR)-2025

**Distribution of herds**

- 2019: Enrolled ~30 sentinel herds (SH) in each of 5 regions
- 2020-2025: ~90-150 herds enrolled nationally




Component design: https://doi.org/10.3389/fvets.2021.799622

# CaDNetASR Herd Demographics, 2025

## Similar to the national average

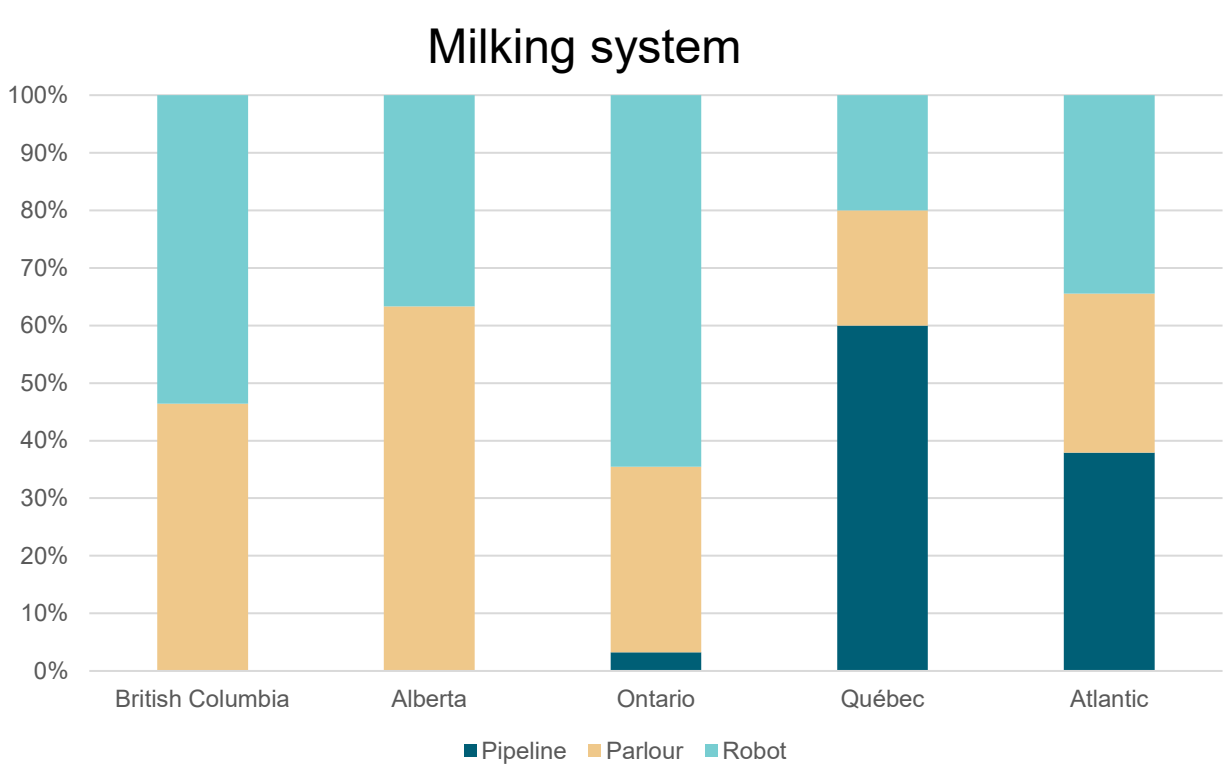
- Overall median (120) and mean (147) are similar to the national average of 107 milking cows per farm[1]

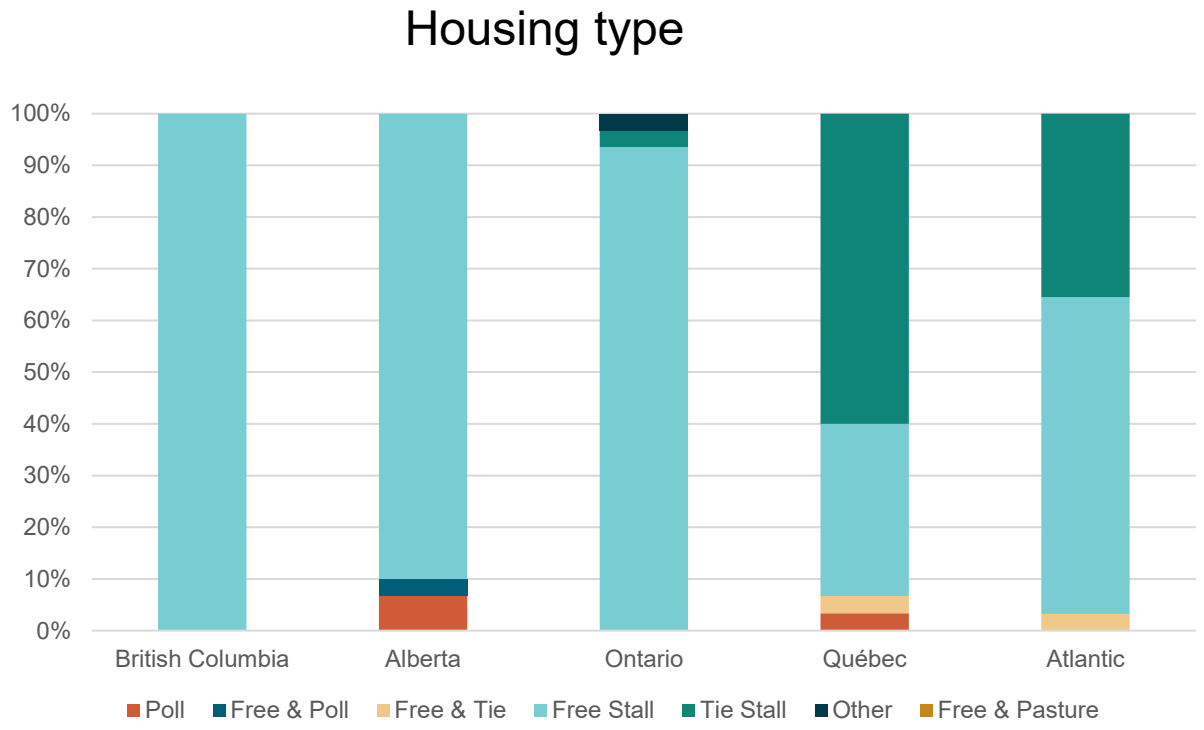
| Livestock Group | | British Columbia | Alberta | Ontario | Québec | Nova Scotia/PEI | Overall |
|---|---|---|---|---|---|---|---|
| Lactating Cows | Median | 178 | 142 | 130 | 89 | 90 | **120** |
| | Mean | 184 | 170 | 169 | 99 | 117 | **147** |
| | Min | 35 | 64 | 60 | 48 | 40 | **35** |
| | Max | 350 | 400 | 500 | 320 | 420 | **500** |
| Dry Cows | Median | 48 | 40 | 32 | 15.5 | 20 | **30** |
| | Mean | 44 | 48 | 39 | 19 | 27 | **35** |
| | Min | 10 | 12 | 12 | 8 | 8 | **8** |
| | Max | 70 | 300 | 85 | 50 | 78 | **300** |
| Heifers | Median | 142.5 | 155 | 129 | 55 | 75 | **100** |
| | Mean | 176 | 186 | 159 | 65 | 105 | **138** |
| | Min | 35 | 40 | 50 | 20 | 20 | **20** |
| | Max | 550 | 470 | 460 | 190 | 360 | **550** |
| Calves | Median | 29 | 28.5 | 30 | 12 | 14 | **20** |
| | Mean | 44 | 35 | 32 | 14 | 20 | **29** |
| | Min | 6 | 10 | 10 | 4 | 6 | **4** |
| | Max | 300 | 140 | 75 | 25 | 65 | **300** |
| **Total Herds** | **N** | **28** | **30** | **31** | **30** | **31** | **150** |

1: https://dairyfarmersofcanada.ca/en/canadian-goodness/ask-dairy-experts/how-big-average-dairy-farm-canada

# CaDNetASR Milking System & Housing Type, 2025

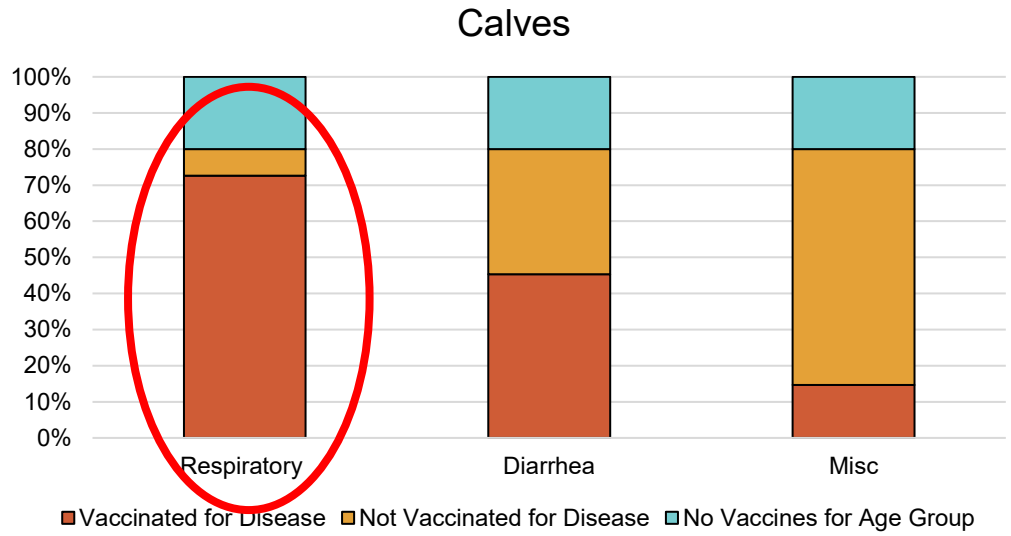
## Transition to robotic milking systems over time

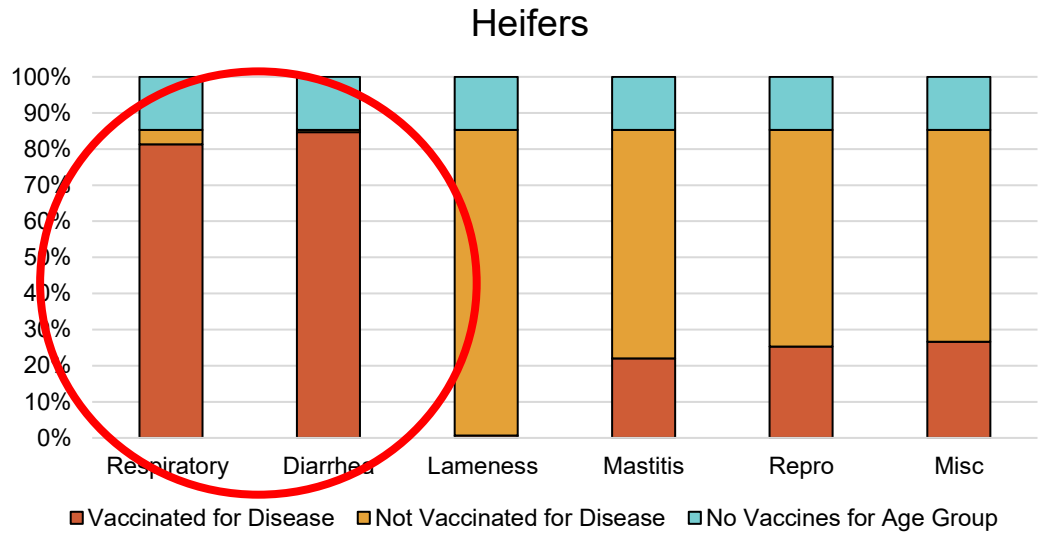


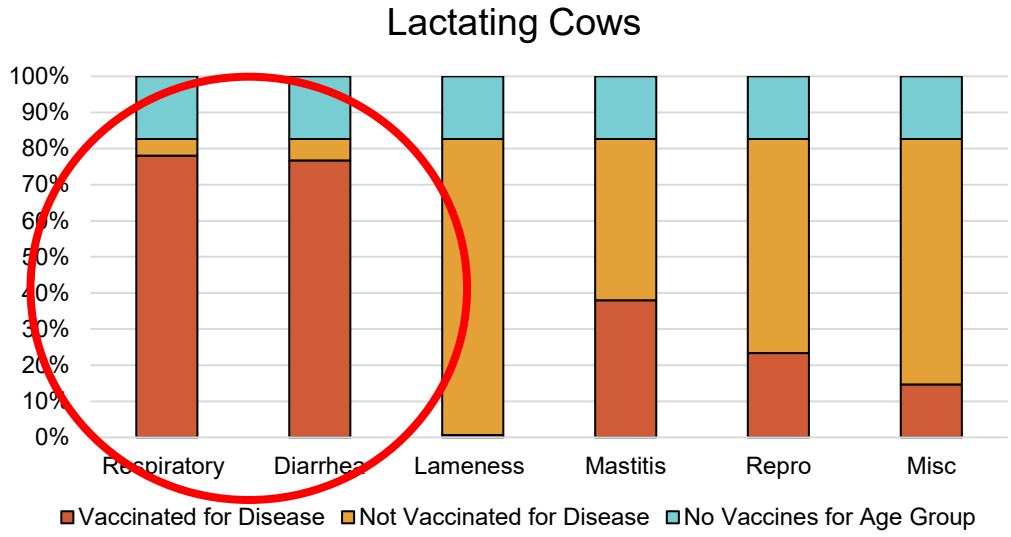



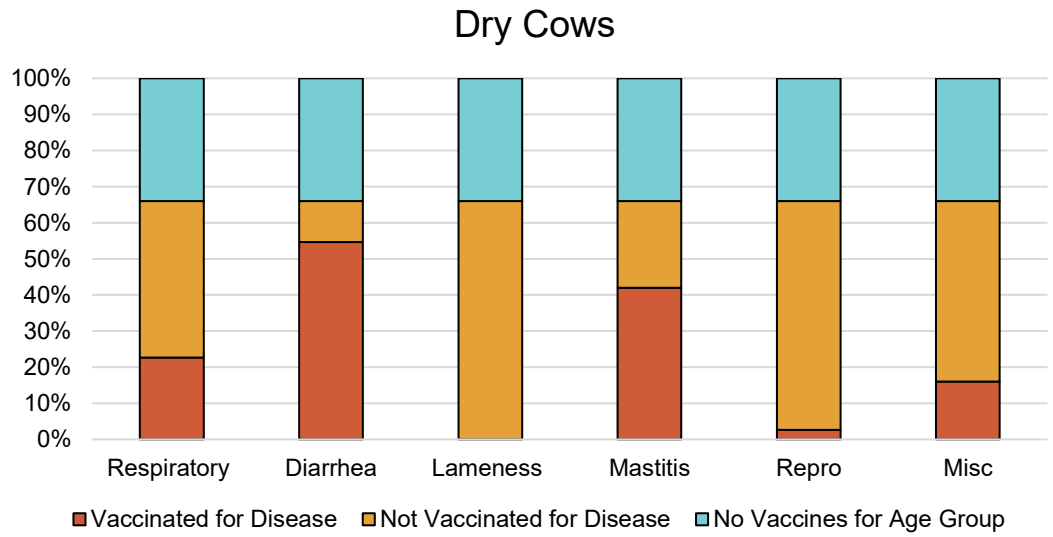
# Vaccine Use 2025 – By Disease Category

## Highest vaccine use for respiratory and diarrhea pathogens



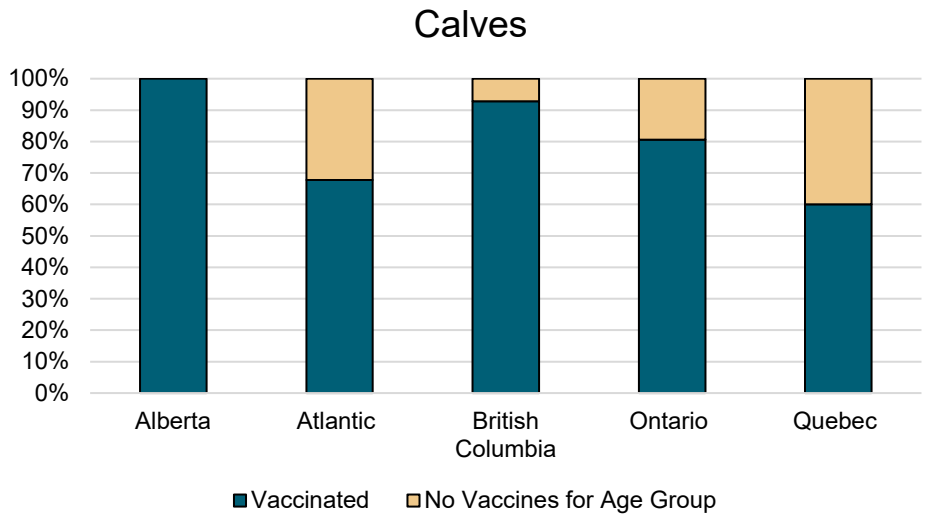



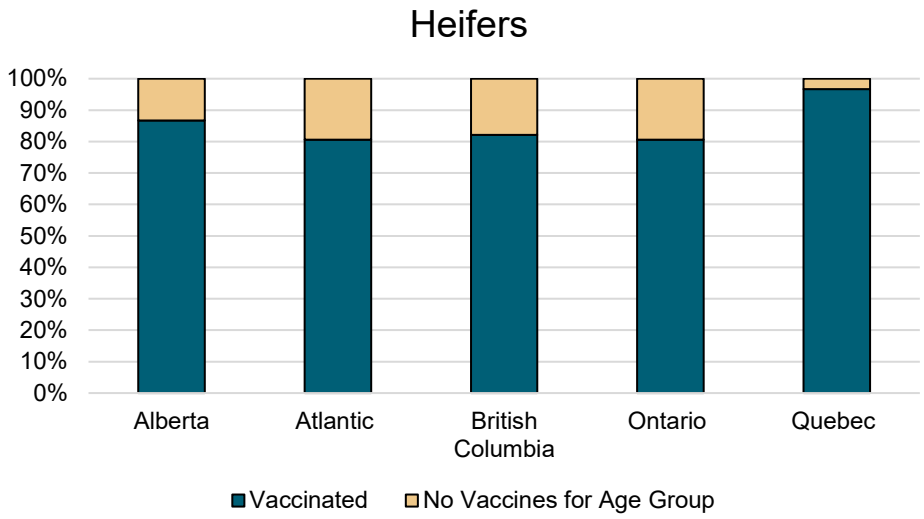



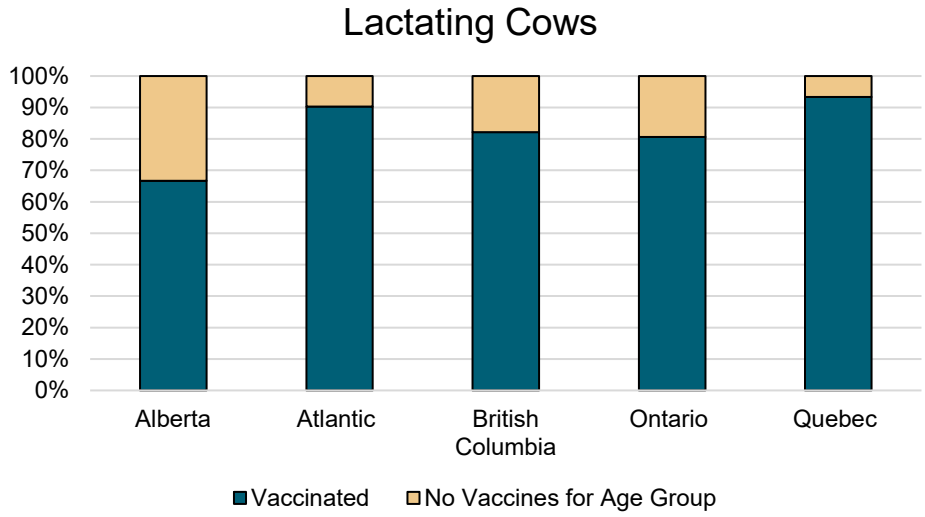



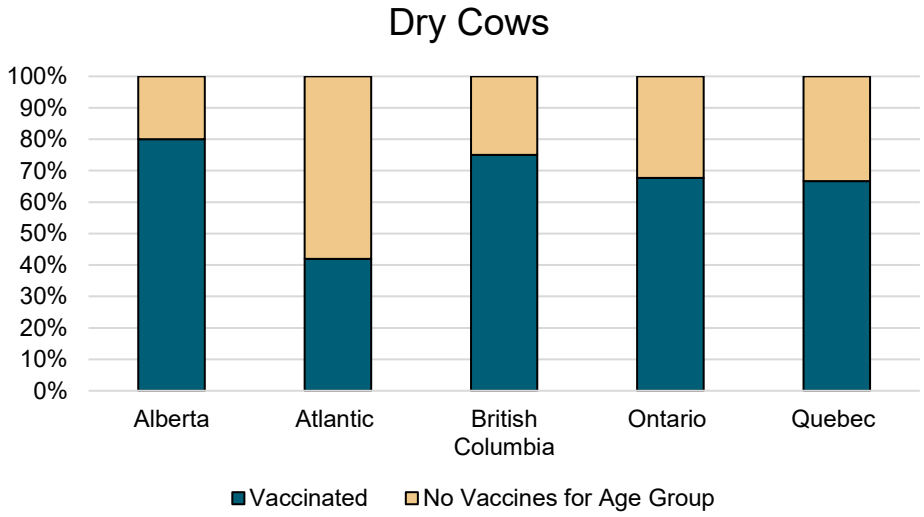
# Vaccine Use 2025 – by Province

## Vaccine use varies by province and age group




- % of herds who report at least 1 vaccine for age group
- Alberta has highest use in calves but lowest in lactating cows
- Quebec has highest use in heifers and lactating cows but lowest in calves

# Biosecurity Practices, 2025

## High usage of vaccination programs, pest control, and avoiding purchase of animals from unknown status

| Province | Signage visible from parking area | Minimize Visitors and Restrict their Access | Provide Coveralls for Visitors and Vets | Provide Boots for Visitors and Vets | Avoid Purchase of Animals from Markets of Unknown Status | Isolation Areas on Farm | Regular Pest Control | Maximize Herd Immunity with Vaccination Program | Other |
|---|---|---|---|---|---|---|---|---|---|
| AB (n = 30) | 75% | 50% | 21% | 46% | 79% | 39% | 89% | 96% | 11% |
| BC (n = 28) | 70% | 41% | 19% | 44% | 56% | 48% | 93% | 89% | 19% |
| NS (n = 23) | 52% | 39% | 9% | 22% | 57% | 22% | 52% | 87% | 43% |
| ON (n = 31) | 84% | 55% | 6% | 65% | 97% | 45% | 94% | 94% | 6% |
| QC (n = 30) | 70% | 17% | 0% | 80% | 70% | 7% | 60% | 90% | 0% |
| Total (n = 142) | 71% | 40% | 11% | 53% | 73% | 32% | 78% | 91% | 14% |

Note: producers were able to select more than one response.



# Farm-Level Antimicrobial Resistance Results

# Relevance of antimicrobial panel

| Category | Antimicrobial in panel | Relevant products used on dairy farms |
|---|---|---|
| I | Cefriaxone/Ceftiofur | Excenel, Excede, Spectramast (LC and DC), Eficur, Cevaxel |
| | Ciprofloxacin | A180, Baytril, Forcyl |
| | Colistin | Special Formula |
| | Amoxicillin-clavulanic acid | - |
| | Meropenem | - |
| II | Ampicillin/penicillin/penicillin-novobiocin | Depocillin, Novodry, Polyflex, Procaine, Procillin, Duplocillin |
| | Azithromycin/Erythromycin | Draxxin, Micotil, Tylan, Zactran, Zuprevo |
| | Gentamicin | Cocci scour bolus, Calf scour bolus, Neo sulfalyte |
| | Cefoxitin/Cephalothin | Metricure, Cefa-Lak, Cefa-Dri |
| | Trimethoprim-sulfamethoxazole | Borgal, Trimidox, Norovet, Super Booster |
| | Oxacillin | Dry Clox |
| | Pirlamycin | Pirsue |
| | Nalidixic acid | - |
| | Streptomycin | - |
| III | Tetracycline | Cyclospray, Tetra-250, Onycin, Oxymycin, Oxyvet, Bio-mycin, Kelamycin, Liquamycin |
| | Chloramphenicol/Florfenicol | Nuflor, Resflor, Florkem |
| | Sulfisoxazole/Sulphadimethoxine | After calf bolus, Calfspan, Sustain bolus |

Categorization system developed by Health Canada's Veterinary Drugs Directorate

# 2025 Dairy Recovery Summary – Fecal Samples

## Pathogen recovery levels are stable

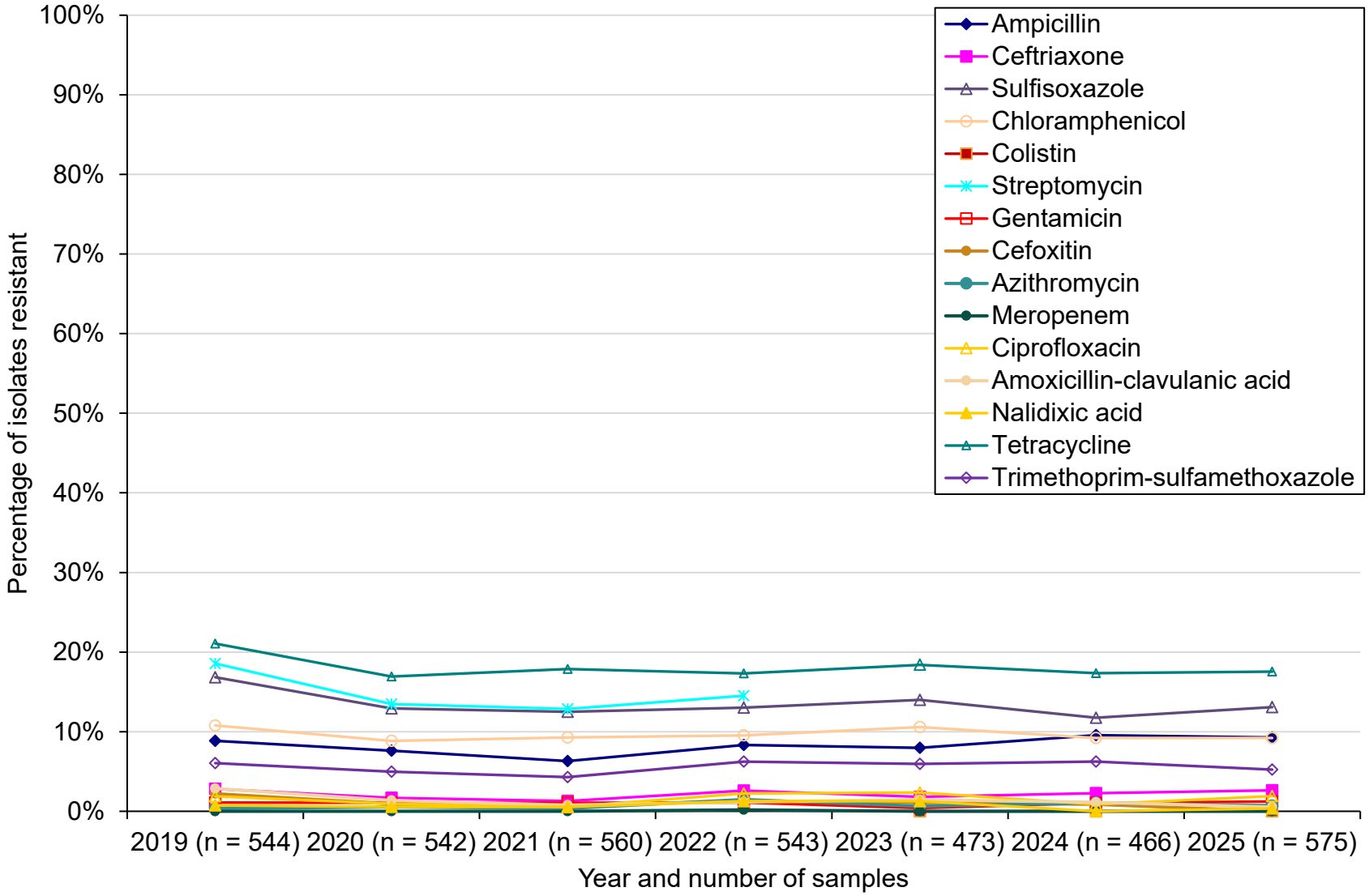
| | *Escherichia coli* | | *Salmonella* | | *Campylobacter* | |
|---|---|---|---|---|---|---|
| | % | n pos/total | % | n pos/total | % | n pos/total |
| Calf | 98.67% | 148/150 | 4.67% | 7/150 | 25.33% | 38/150 |
| Cow | 100.00% | 150/150 | 4.00% | 6/150 | 78.67% | 118/150 |
| Heifer | 99.33% | 149/150 | 3.33% | 5/150 | 66.67% | 100/150 |
| All fecal samples combined | 99.33% | 447/450 | 4.00% | 18/450 | 56.89% | 256/450 |
| Manure Pit | 85.33% | 128/150 | 6.00% | 9/150 | 44.67% | 67/150 |
| All samples combined | 95.83% | 575/600 | 4.50% | 27/600 | 53.83% | 323/600 |

- Samples collected in ON, BC, AB, QC, Atlantic (NS/PEI)

# Temporal trends in national *E. coli* resistance, 2019-2025

## *E. coli* resistance remains low with stable trends

- Graph includes composite manure samples taken from pre-weaned calves, post-weaned heifers, lactating dairy cattle, and the manure pit.




Note: In 2023 there was a panel change, streptomycin is no longer tested, and colistin was added

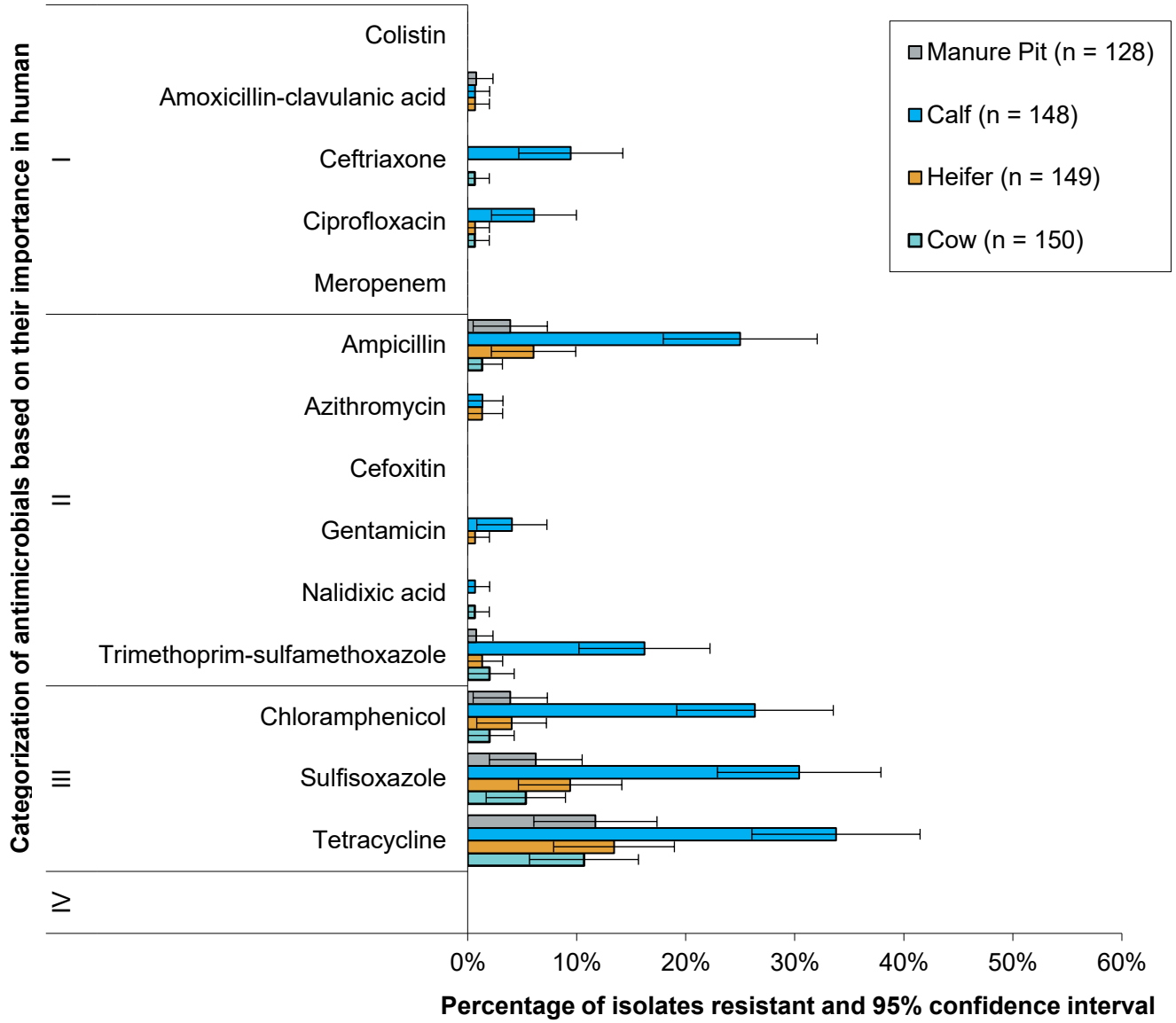
# National *E. coli* Resistance by Sample Type, 2025

## Resistance is most prevalent among isolates from calves

- Category III antimicrobials had the greatest resistance for all sample types
- This is consistent with what has been reported over the past 5 years

*Percent of isolates showing multidrug resistance (≥ 3 antimicrobial classes)*

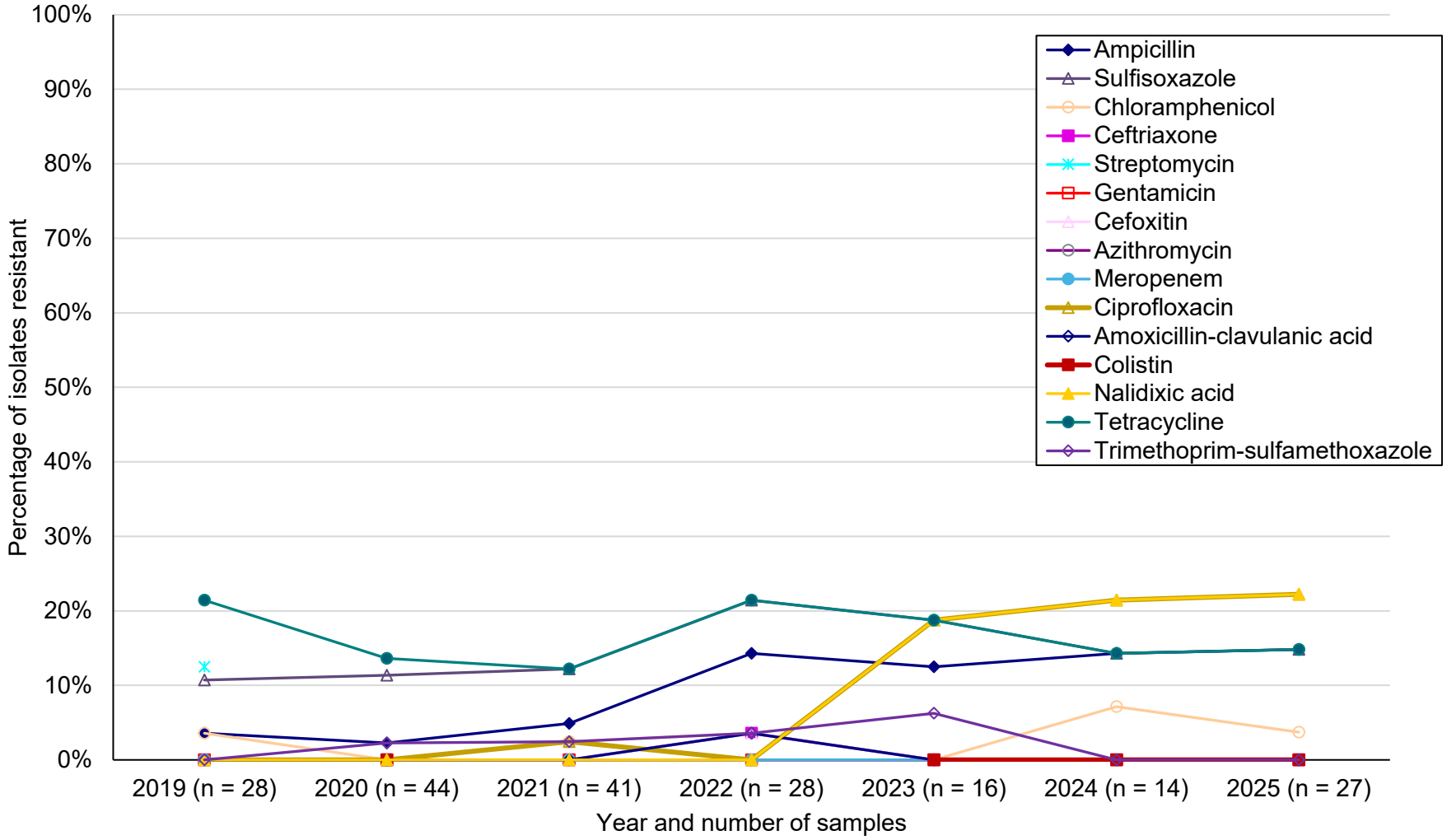
| | 2021 | 2022 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|
| Manure pit | 5% | 3% | 4% | 7% | 5% |
| Heifer | 6% | 6% | 4% | 7% | 6% |
| Calf | 36% | 39% | 34% | 25% | 29% |
| Cow | 4% | 4% | 5% | 2% | 2% |



# Temporal trends in national *Salmonella* resistance, 2019-2025

## Monitoring the increase in nalidixic acid and ciprofloxacin resistance

- Low sample numbers make trend interpretation difficult
- Resistance to ciprofloxacin and nalidixic acid has increased over time and is higher than tetracycline resistance in 2024 and 2025
- Ciprofloxacin resistance in 2025 came from Enteritidis isolates
- Switch from AST to WGS for all data from 2019-2025




**Isolates represented in these graphs include composite manure samples taken from pre-weaned calves, post-weaned heifers, lactating dairy cattle, and the manure pit.*

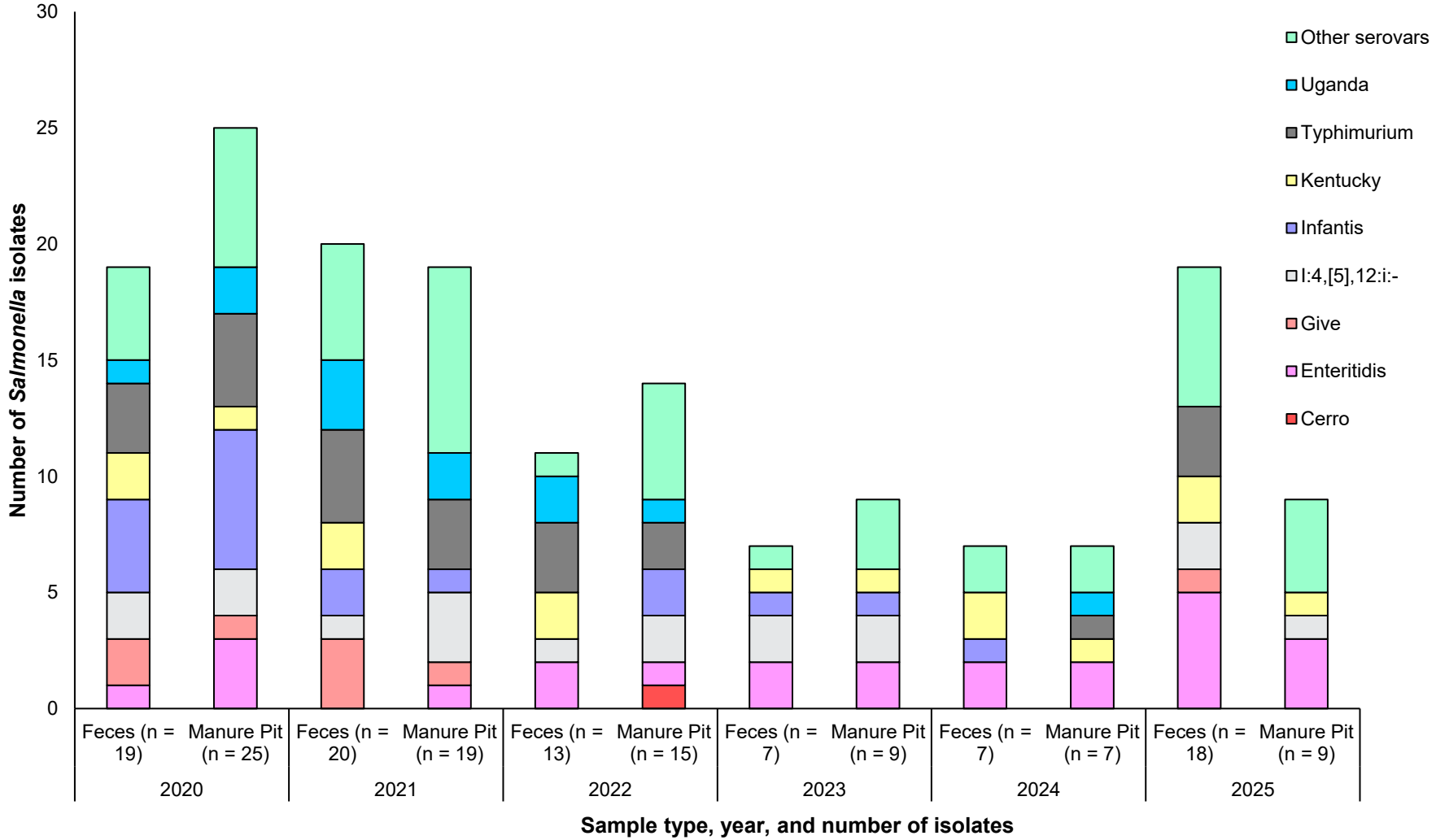
Note: Change to CMV5 panel in 2020 (due to samples being tested in a different lab). In 2023: Streptomycin was no longer tested, and Colistin added

# Temporal trends in national *Salmonella* serovar distribution

## Fecal vs. manure pit sample types

### Consistent recovery of *Salmonella* Enteritidis and Kentucky

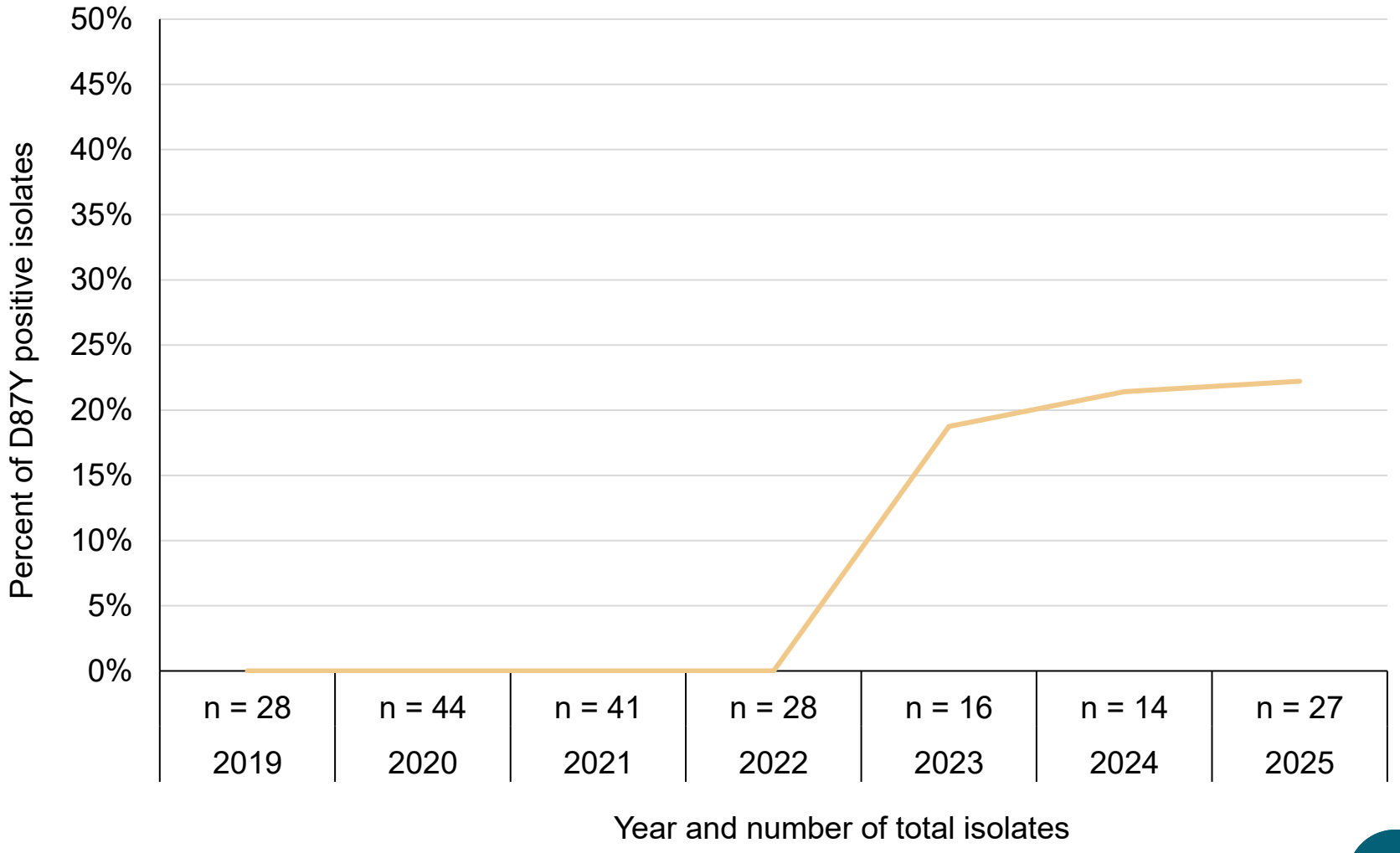
- *Salmonella* Dublin has not been recovered over the 7 years




*Feces category includes composite manure samples from lactating cows, heifers and calves, combined.

# Increase in gyrA(D87Y) mutation over time, will continue to monitor

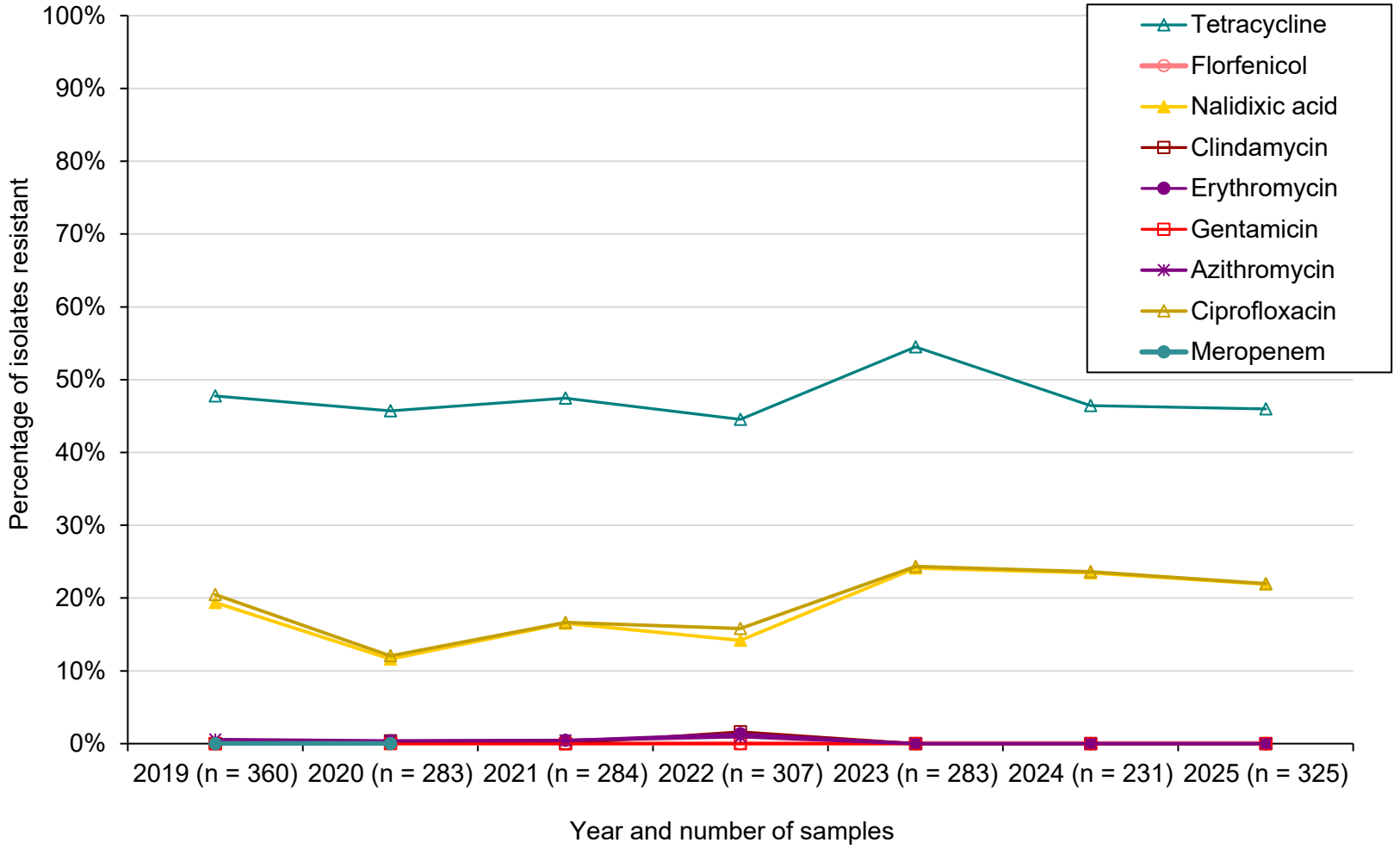
- Along with increase in ciprofloxacin resistance, WGS results show increasing trend in gyrA(D87Y) gene over time in Enteritidis samples.



# Temporal trends in national *Campylobacter* resistance, 2019-2025

## Emerging ciprofloxacin resistance

- Emerging ciprofloxacin resistance beginning in 2023
- 2025 ciprofloxacin resistant isolates: 7 *C. coli*, 59 *C. jejuni*
- Tetracycline resistance remains the highest
- 94% of resistant isolates were *C. jejuni*

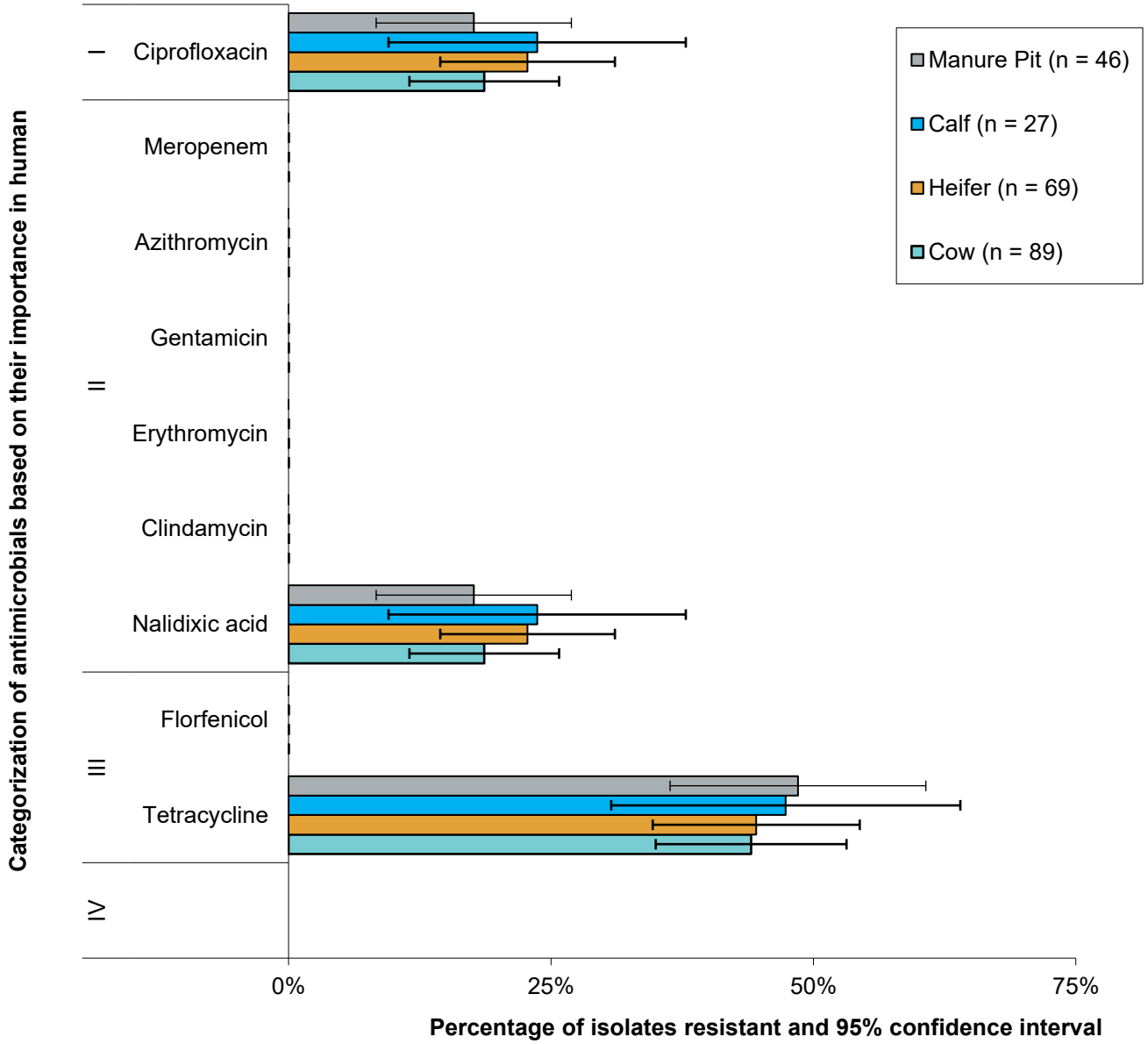



**Isolates represented in these graphs include composite manure samples taken from pre-weaned calves, post-weaned heifers, lactating dairy cattle, and the manure pit.*

# National *Campylobacter* resistance by sample type, 2025

## Resistance levels are similar across all sample types

- All sample types contributed to the ciprofloxacin, nalidixic acid and tetracycline resistance increase



# 2025 Dairy Recovery Summary – Bulk Tank Milk (BTM)

## Recovered bacteria include intramammary species of interest, both potential pathogens and contaminants

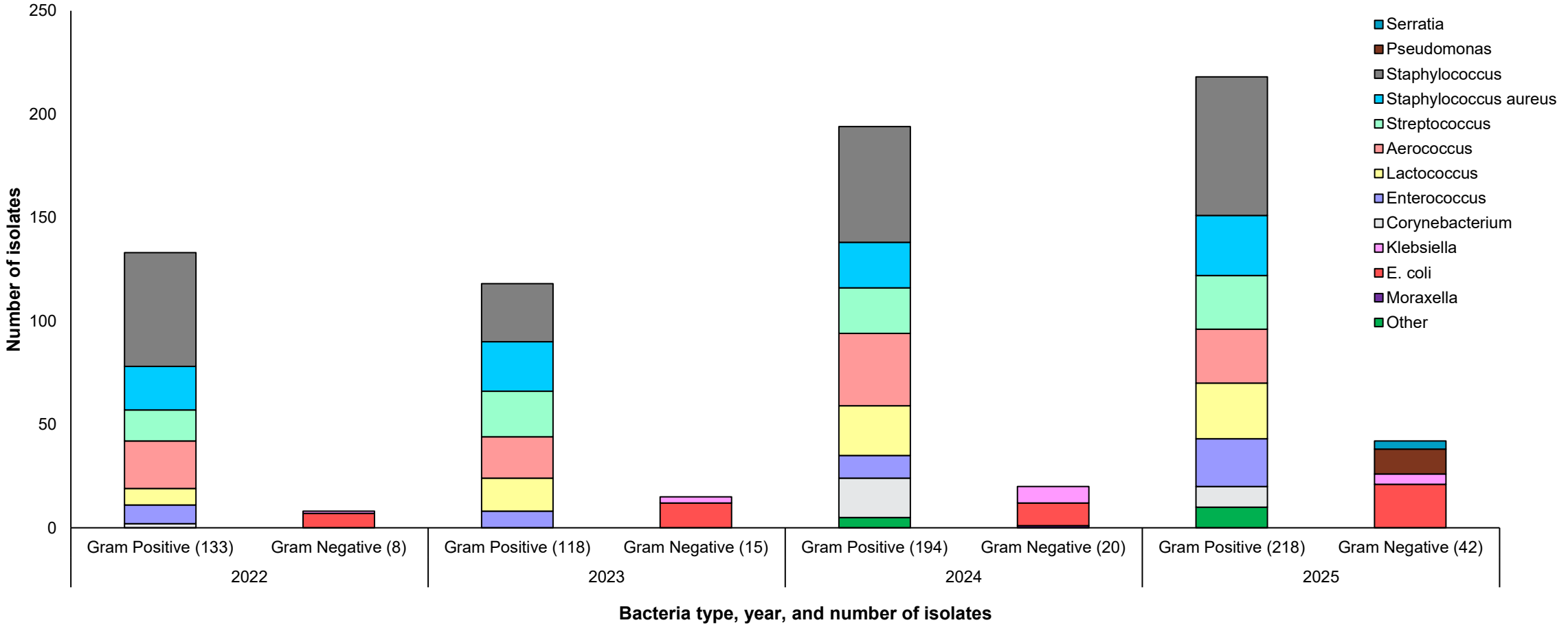
In the 2025 surveillance year, bacterial pathogens were recovered in 140/148 (95%) bulk tank milk samples (a total of 46 unique species)

- Bacteria included:
  - *E. coli*
  - *Aerococcus viridans*
  - *Corynebacterium* spp.
  - *Enterococcus* spp.
  - *Klebsiella* spp.
  - *Lactococcus* spp.
  - *Mammaliicoccus sciuri*
  - *Micrococcus* spp.
  - *Moraxella osloensis*
  - *Pseudomonas* spp.
  - *Raoultella* spp.
  - *Serratia* spp.
  - *Staphylococcus* spp.
  - *Streptococcus* spp.
  - *Trueperella* spp.

In 2022, new procedures were implemented for sample storage (glycerol), which have improved bacterial recovery in bulk tank milk samples

# Temporal trends in national BTM bacterial recovery distribution

## Higher recovery in 2025 with *Staph* being most common bacteria




- Higher recovery of gram-positive bacteria than gram negative, and higher recovery in 2025 compared to previous years
- *Staphylococcus* was the most commonly recovered bacteria with *Staph aureus* being the most common of the *Staph* species.

# Bulk Tank Milk: AMR Data Interpretation

## Limited breakpoint availability complicates interpretation

- AMR testing has been focused on *E. coli*, *Klebsiella* spp., *Staphylococcus aureus*, and *Streptococcus* spp.
  - Other bacterial species may be tested for AMR in the future
- Not all mastitis causing bacteria or species have available breakpoints – hence data is limited
- We are currently working to collect breakpoints for analysis
- Available breakpoints were obtained from CLSI and EUCAST; prioritizing:
  1. Human breakpoints where available;
  2. Cattle mastitis breakpoints where available
- Mastitis scoping review protocol: https://atrium.lib.uoguelph.ca/items/a8c9abb5-8cdb-4687-afd2-954b7a569728

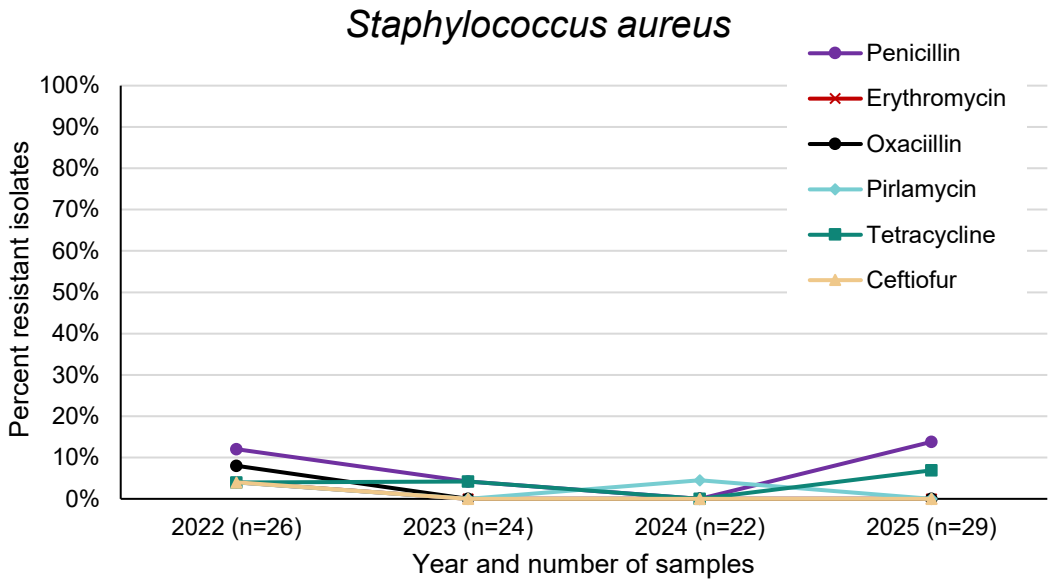
# AMR in G+ Pathogens from Bulk Tank Milk Samples

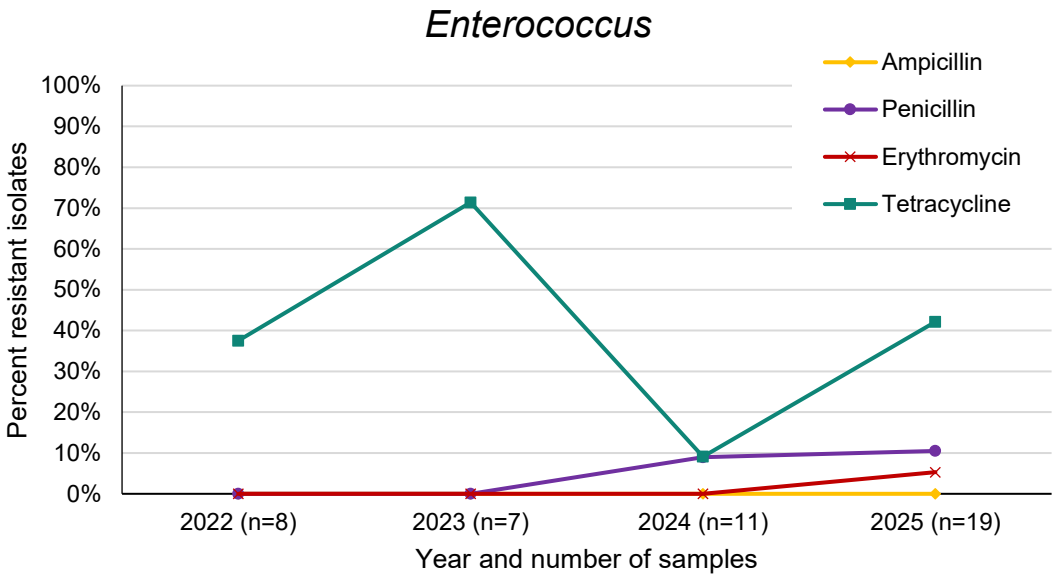
## High resistance in tetracycline in 2025

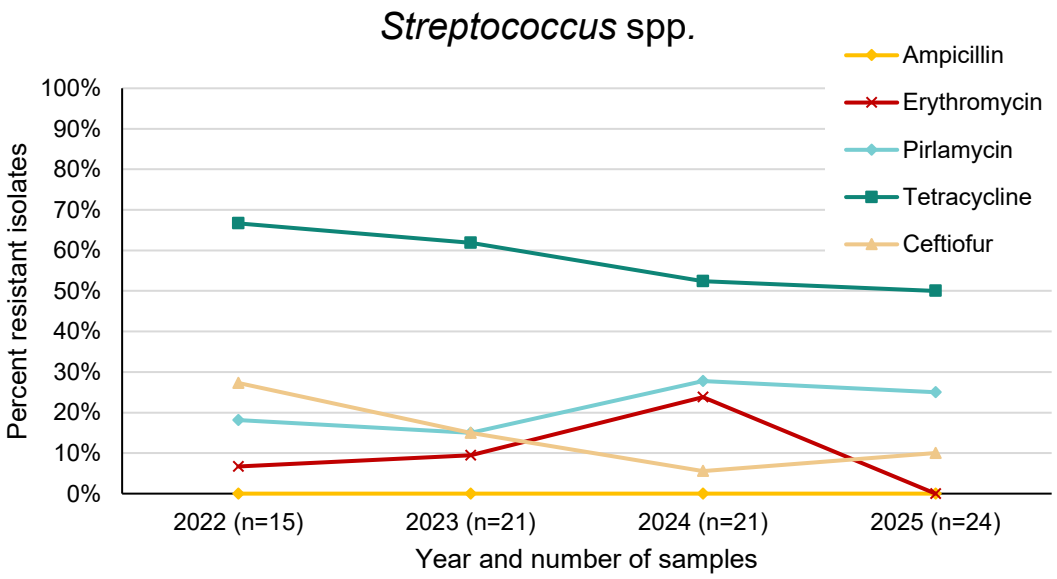
| | *Enterococcus faecalis* | *Enterococcus faecium* | *Enterococcus italicus* | *Staphylococcus aureus* | *Streptococcus dysgalactiae* | *Streptococcus parauberis* | *Streptococcus suis* | *Streptococcus uberis* |
|---|---|---|---|---|---|---|---|---|
| | n=8 | n=10 | n=1 | n=29 | n=5 | n=1 | n=3 | n=15 |
| Ampicillin | 0% | 0% | 0% | | 0% | 0% | 0% | 0% |
| Penicillin | 0% | 20% | 0% | 14% | | | | |
| Erythromycin | 13% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Oxacillin | | | | 0% | | | | |
| Pirlamycin | | | | 0% | 0% | | | 33% |
| Penicillin-novobiocin | | | | | | | | |
| Tetracycline | 63% | 30% | 0% | 7% | 100% | 0% | 67% | 33% |
| Cephalothin | | | | | | | | |
| Ceftiofur | | | | 0% | 0% | | | 13% |
| Sulfadimethoxine | | | | | | | | |

- Highest resistance seen in tetracycline
- Most diverse AMR profile in *Strep uberis* samples

# Bulk Tank Milk AMR – Gram Positive



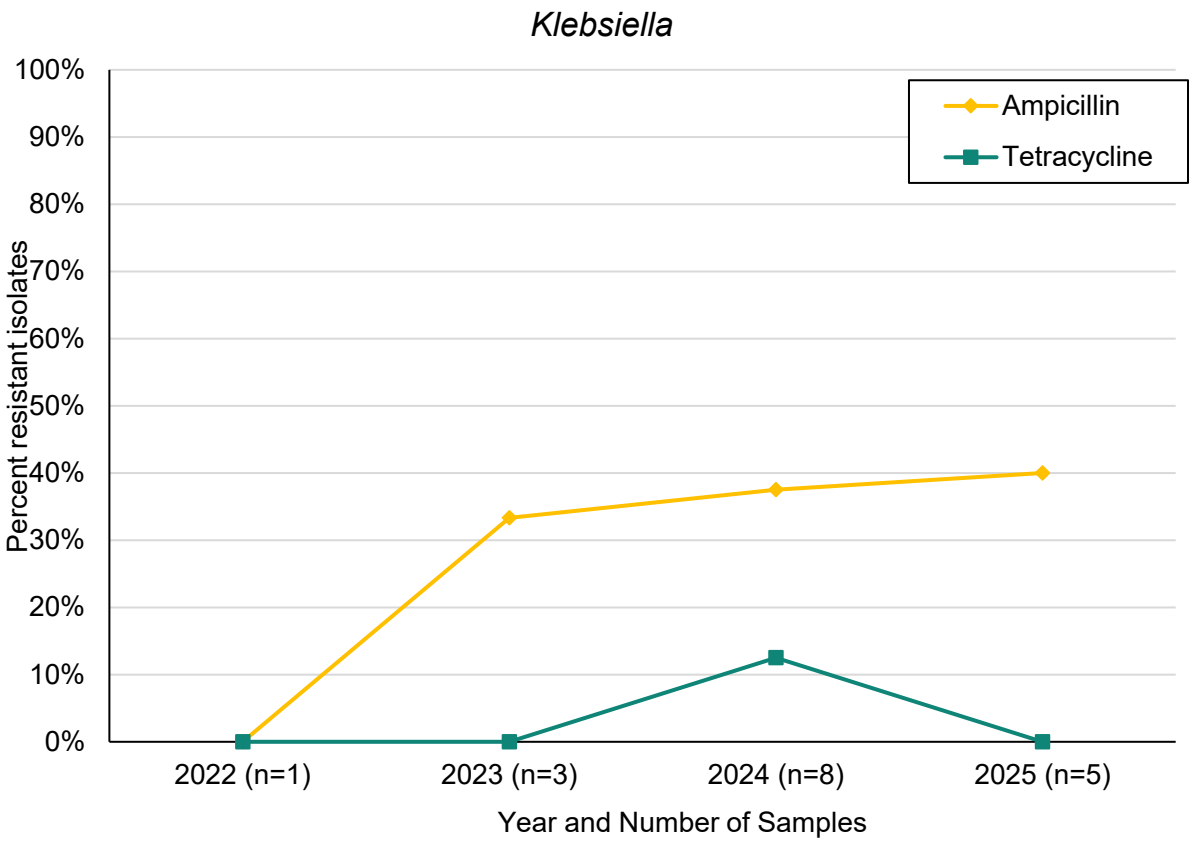



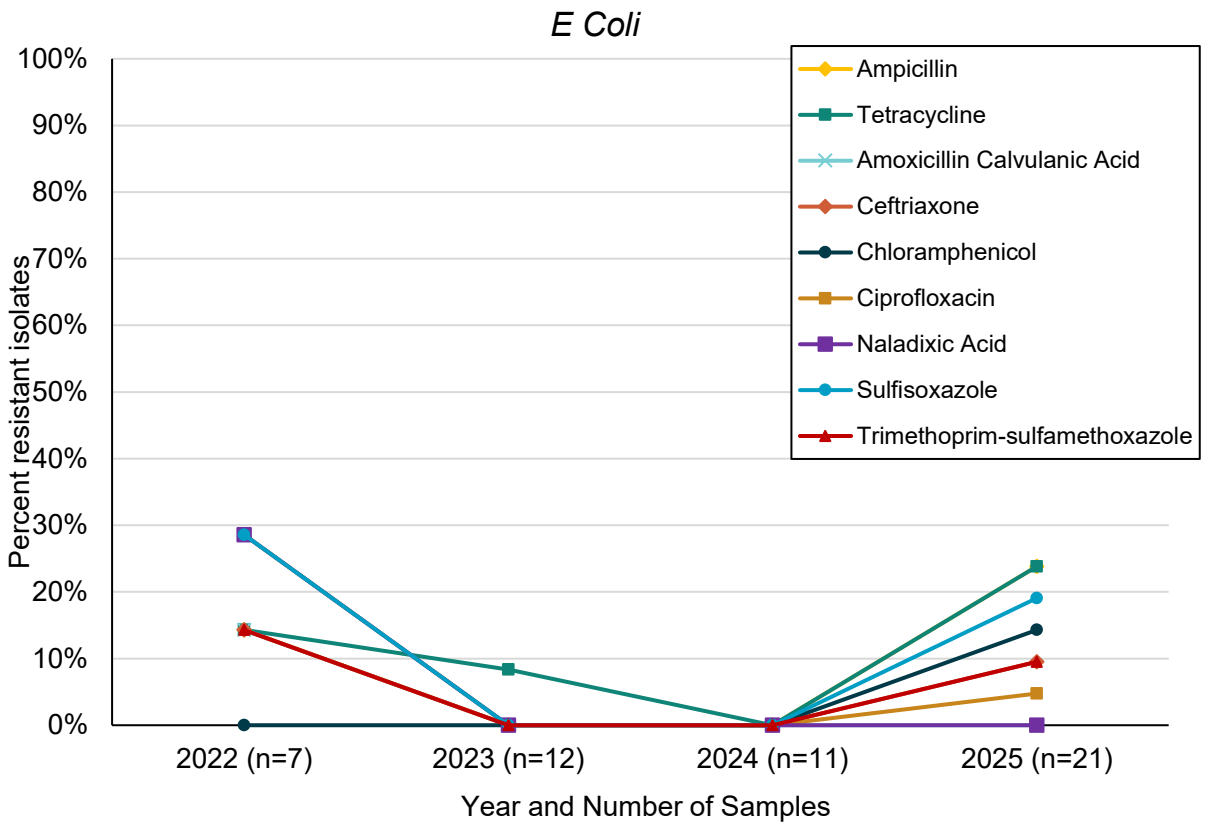




- Note: Small sample sizes, **interpret with caution**
- More variation and higher resistance in *Staph aureus* isolates in 2025 compared to previous years
- Potential trends in *Strep* isolates over time

- *Streptococcus* and *Enterococcus* refer to the combined individual species for these bacteria types
- Breakpoints were not always available for every *Streptococcus* spp.; therefore, denominators differ depending on the AM considered.

# Bulk Tank Milk AMR – Gram Negative



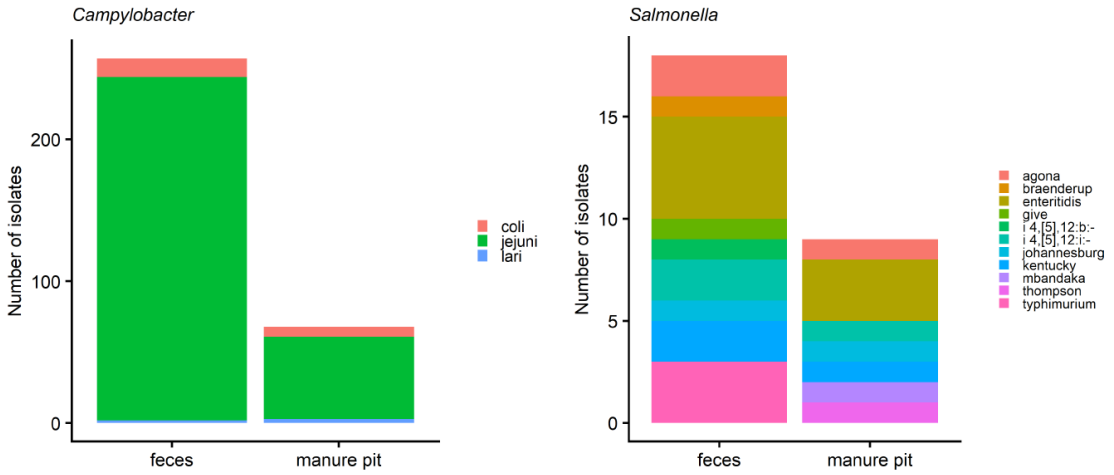




- Note: VERY Small sample sizes, **interpret with caution**
- *Klebsiella* isolates only have breakpoints for Ampicillin and Tetracycline. Low sample sizes but potential increase in AMP resistance over time.
- More resistance and variation in 2022 and 2025 for *E. coli* resistance compared to other years. In 2022 most resistance was driven by 1 sample with resistance to 6 AMs.

# Canadian Dairy Network of Antimicrobial Stewardship and Resistance (CaDNetASR)

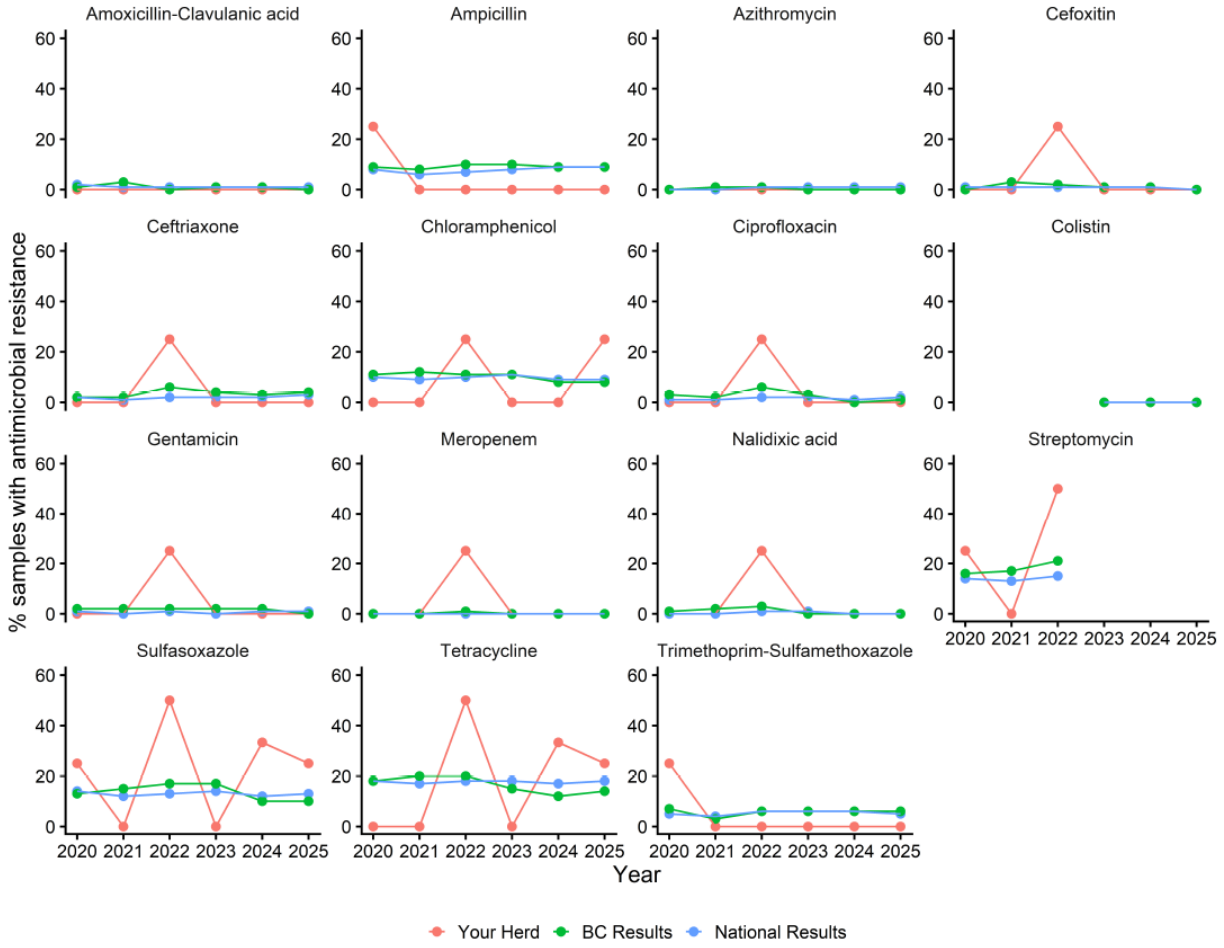
## Your antibiotic resistance report 2025

### Figure 1. National Speciation and Serotype Results 2025




Note: Feces represents calf, heifer, and lactating cow fecal samples combined.

| Antimicrobial | Cow Manure | Calf Manure | Heifer Manure | Manure Pit | All Samples | National results |
|---|---|---|---|---|---|---|
| Ceftriaxone | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 2% (10/466) |
| Ciprofloxacin | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 1% (4/466) |
| Colistin | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 0% (0/466) |
| Amoxicillin-Clavulanic acid | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 1% (5/466) |
| Meropenem | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 0% (0/466) |
| Ampicillin | 0% (0/1) | 100% (1/1) | 100% (1/1) | - | 67% (2/3) | 9% (44/466) |
| Azithromycin | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 1% (5/466) |
| Gentamicin | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 1% (5/466) |
| Cefoxitin | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 1% (4/466) |
| Trimethoprim-Sulfamethoxazole | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 6% (29/466) |
| Nalidixic acid | 0% (0/1) | 0% (0/1) | 0% (0/1) | - | 0% (0/3) | 0% (0/466) |
| Streptomycin | - | - | - | - | - | - |
| Tetracycline | 0% (0/1) | 100% (1/1) | 100% (1/1) | - | 67% (2/3) | 17% (81/466) |
| Chloramphenicol | 0% (0/1) | 0% (0/1) | 100% (1/1) | - | 33% (1/3) | 9% (43/466) |
| Sulfasoxazole | 0% (0/1) | 0% (0/1) | 100% (1/1) | - | 33% (1/3) | 12% (55/466) |



# Canadian Dairy Network of Antimicrobial Stewardship and Resistance (CaDNetASR)

## Your antibiotic resistance report 2025

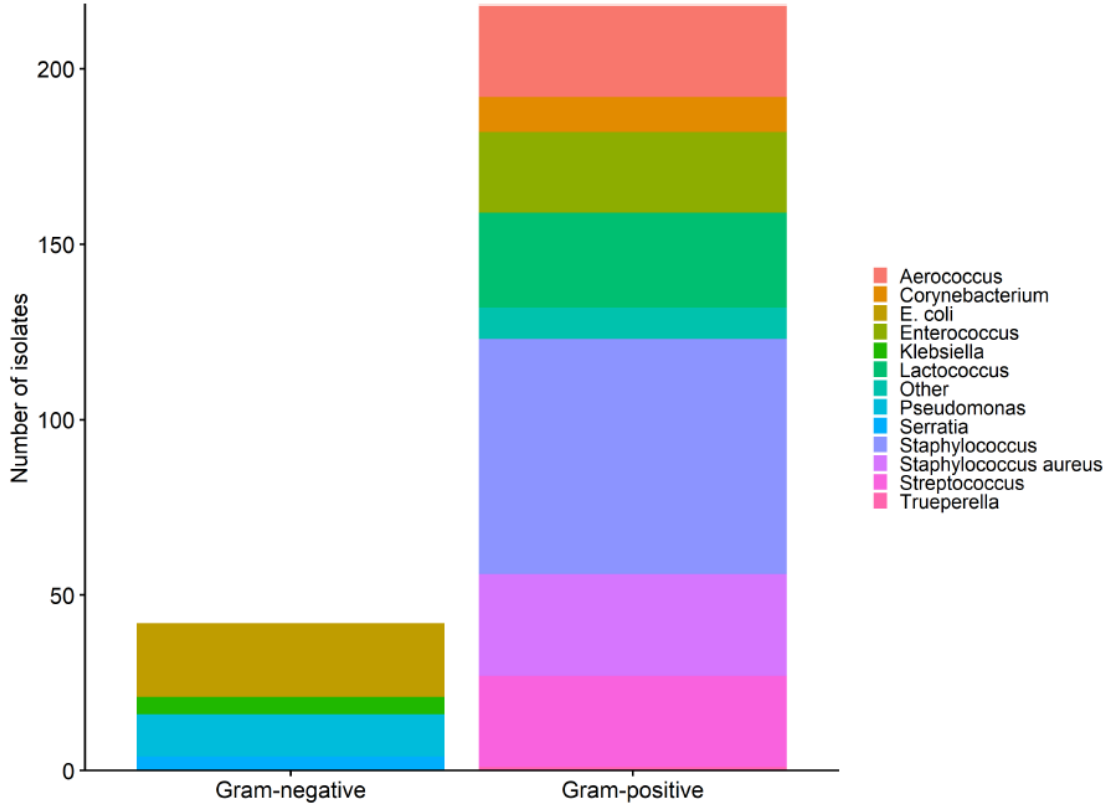
### Table 6. Bulk Tank Milk Bacteria Recovered

| Sample Type | Gram Negative | Gram Positive |
|---|---|---|
| *Bulk Tank Milk* | - | Staphylococcus aureus, Streptococcus uberis |

### Table 8. Gram Positive Bacteria

| Antimicrobial | Bacteria 1 | Bacteria 2 | Bacteria 3 |
|---|---|---|---|
| | ***Staphylococcus aureus*** | ***Streptococcus uberis*** | **-** |
| Ceftiofur | 0/1 | 0/1 | - |
| Ampicillin | - | 0/1 | - |
| Penicillin | 0/1 | - | - |
| Penicillin-Novobiocin | - | - | - |
| Erythromycin | 0/1 | 0/1 | - |
| Cephalothin | - | - | - |
| Oxacillin | 0/1 | - | - |
| Pirlamycin | 0/1 | 0/1 | - |
| Tetracycline | 0/1 | 0/1 | - |
| Sulphadimethoxine | - | - | - |

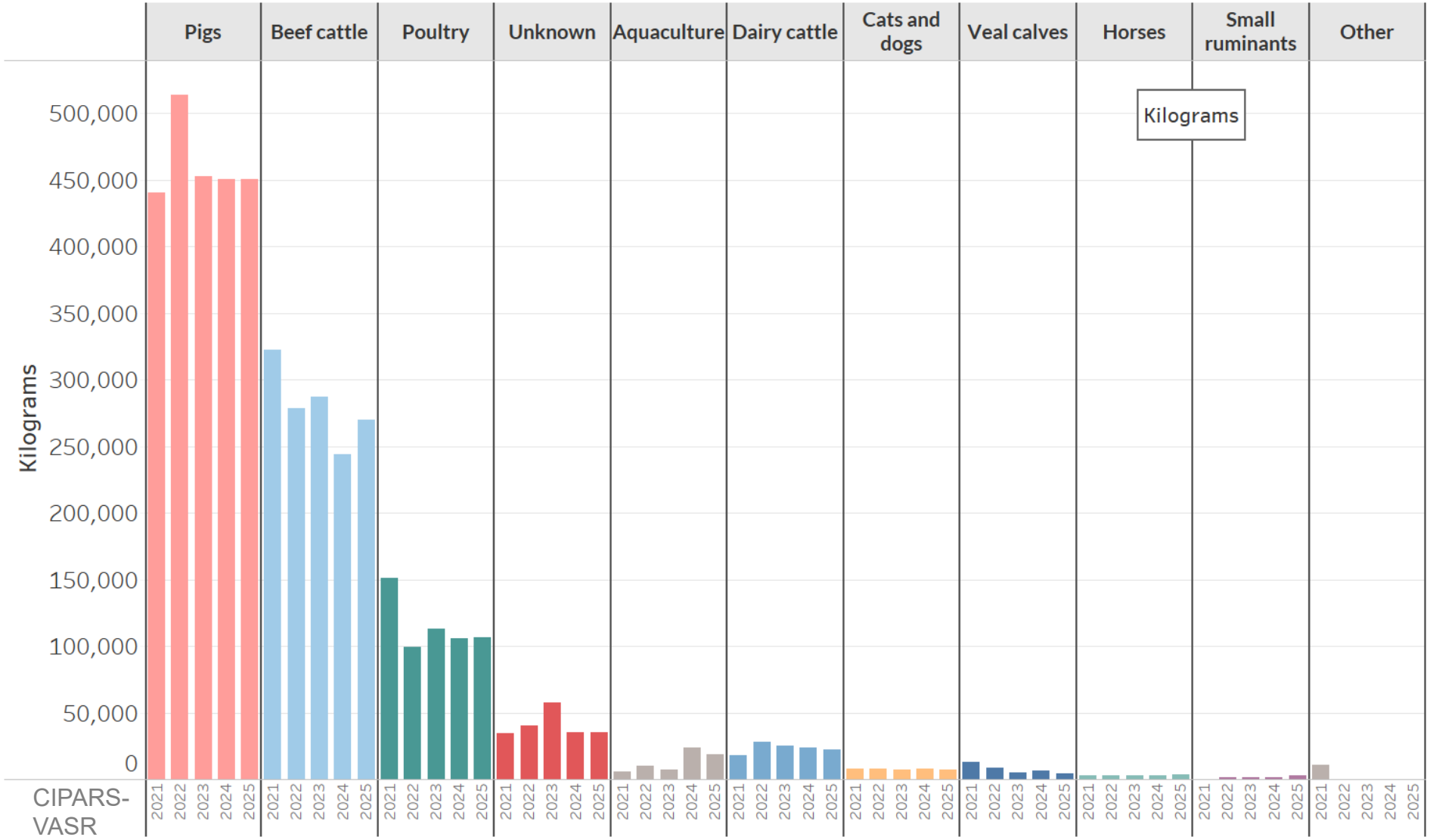
### Figure 5. National Mastitis Bacteria Results 2025





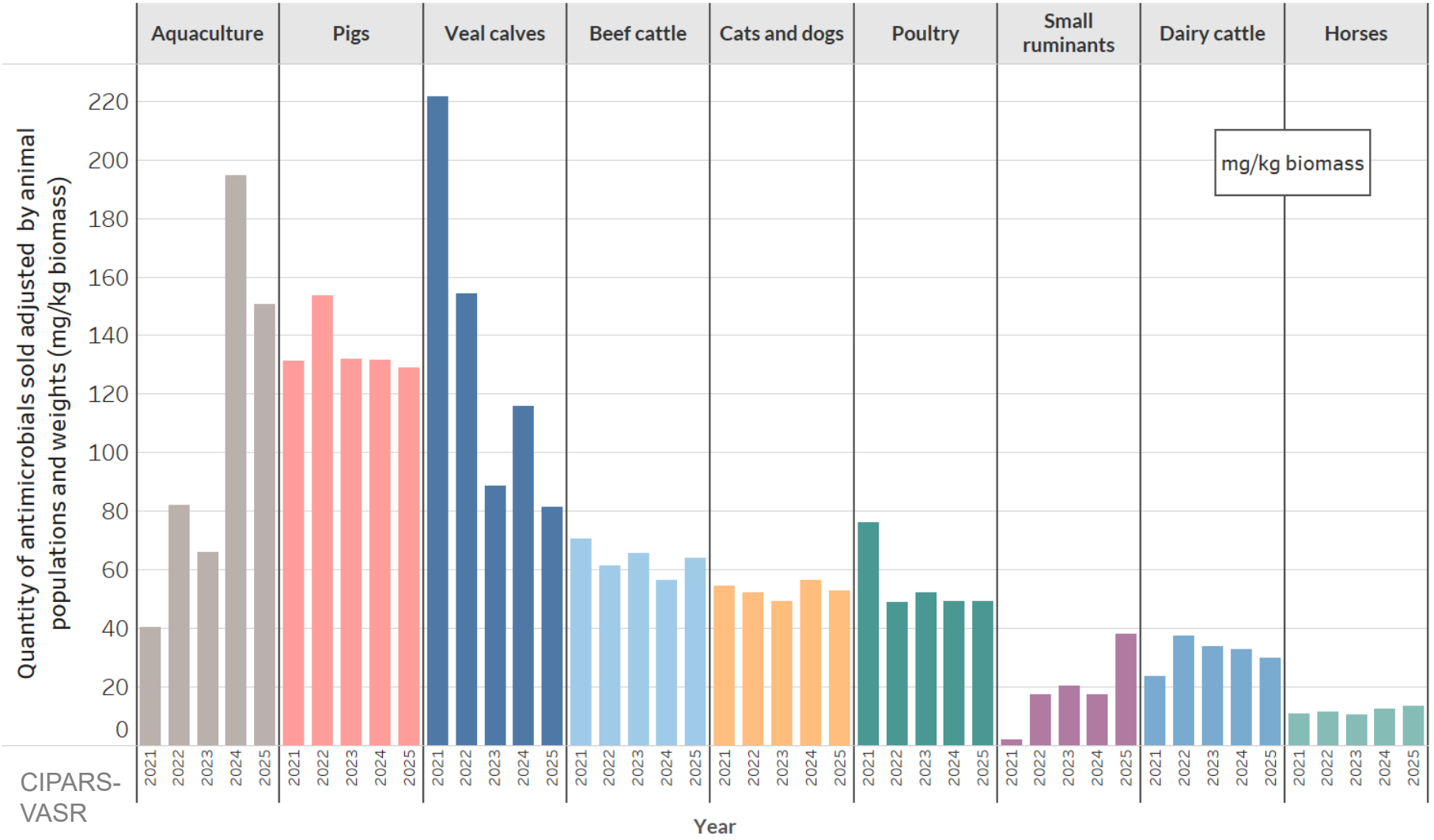
# Antimicrobial Use Results- Sales

# In kg, reported sales of medically important antimicrobials from manufacturers and importers are primarily for pigs, beef cattle, and poultry




- After pigs, beef cattle and poultry, the highest quantity of sales in 2025 was for unknown species
  - These sales for unknown species reflect reported quantities of raw ingredients destined for compounding

# After adjusting for biomass, sales (in 2025) of medically important antimicrobials (MIAs) from manufacturers and importers were primarily for aquaculture, pigs, and veal calves



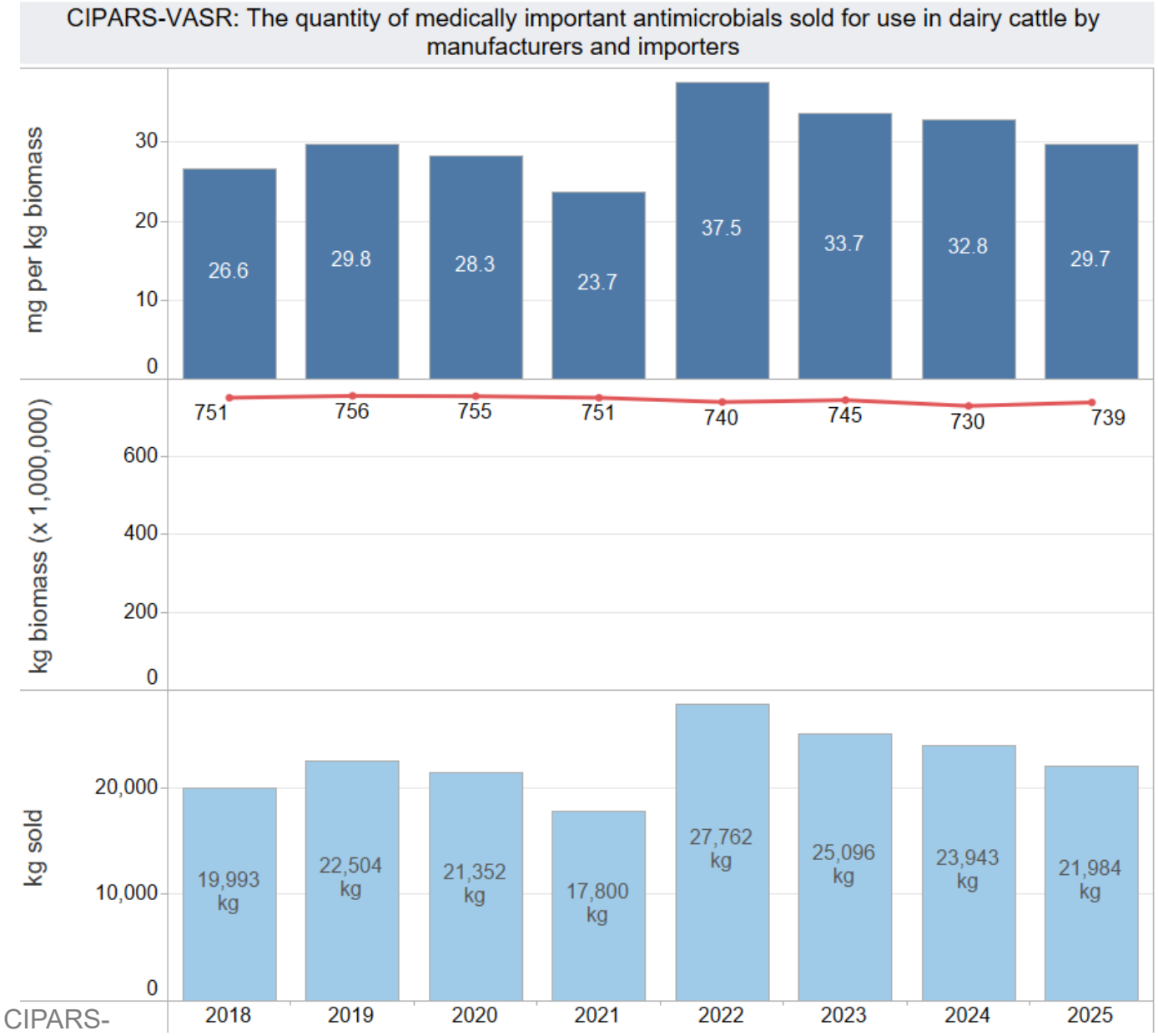

- After adjusting for biomass, aquaculture continues to have the highest quantity of MIAs sold in 2024 and 2025; sales decreased by 23% in 2025 relative to 2024
- Category I sales are <1% of total sales, however, sales for all animals increased by 20% in 2025 relative to 2021.
  - Category I sales for beef cattle have increased annually since 2020; 11% increase relative to 2024
  - Category I sales for dairy cattle increased by 20% relative to 2024

# Dairy cattle

Sales of medically important antimicrobials by **manufacturers and importers** have increased by 25% relative to 2021 (5-year trend) and decreased by 9% relative to 2024 (in mg/kg biomass).

The biomass of dairy cattle (red line on figure) has remained fairly stable.

In 2025, medically important antimicrobials reported by **compounders** for use in dairy cattle included trimethoprim-sulfa combinations for use in water and individual oral treatment, as well as aminocylitols, lincosamides, and tetracyclines by injection (data not shown).



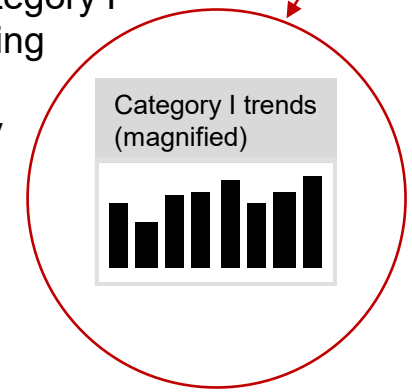
# Dairy cattle

Sales for dairy cattle by manufacturers and importers were primarily Category II and III antimicrobials.

- In 2025, penicillins were the top class sold, followed by tetracyclines, diaminopyrimidine-sulfonamide combinations, and phenicols

Sales by manufacturers and importers were primarily for use by injection, followed by use in water and in feed.

Between 2024 and 2025, Category I sales increased by 20%. During both years, third-generation cephalosporins were the only Category I class reported as sold by manufacturers and importers, with reported uses including intramammary and injectable routes.




| Category of Importance | Trends (mg/kg biomass) 2018-2025 |
|---|---|
| Category I (very high importance) | |
| Category II (high importance) | |
| Category III (medium importance) | |
| Uncategorized Medically Important | |

CIPARS-VASR

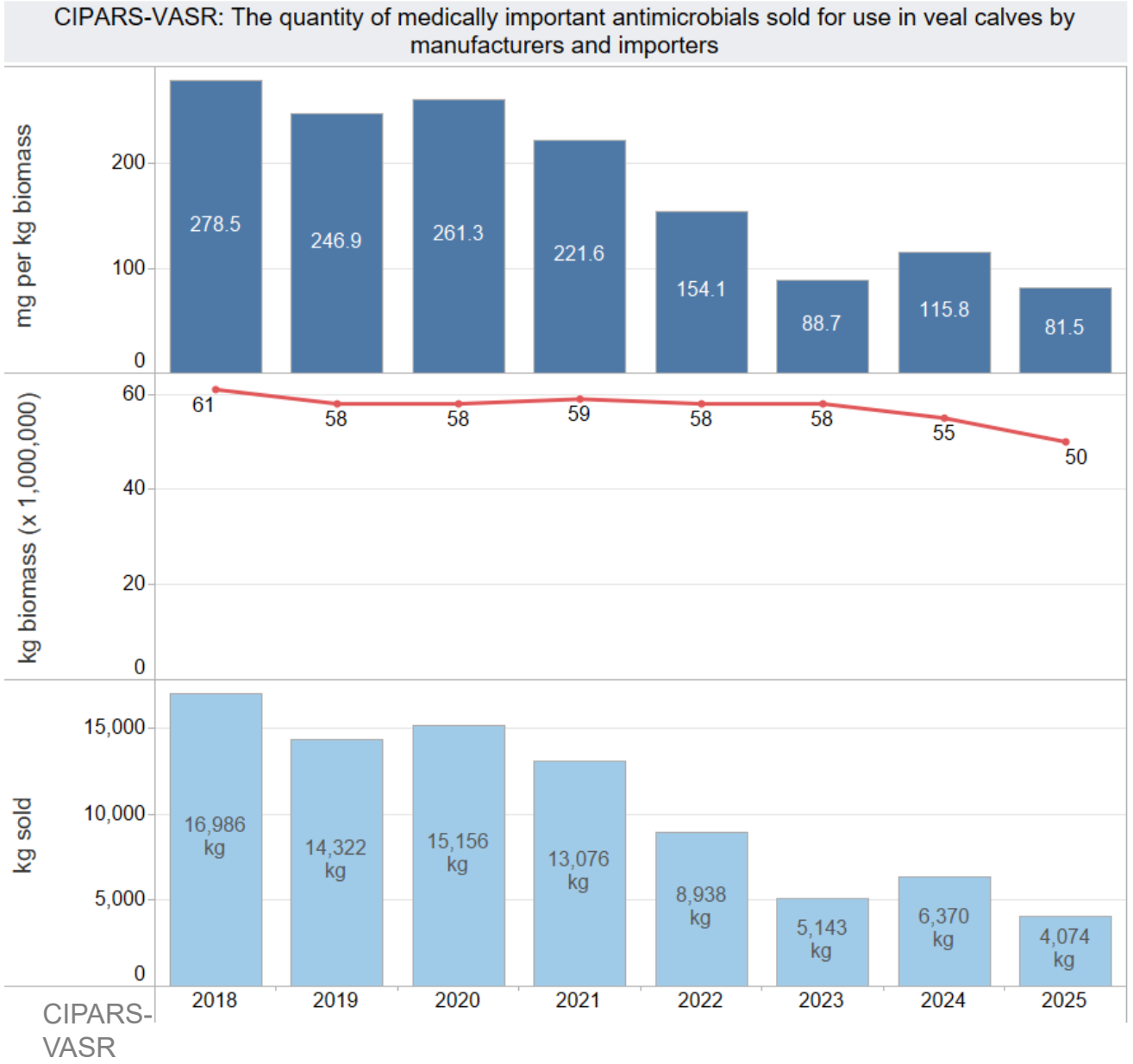
Note: Uncategorized medically important antimicrobials can include: aminocoumarins, gramidcin, orthosomycins, pleuromutilins and pseudomonic acids

# Veal calves

Sales of medically important antimicrobials by **manufacturers and importers** have decreased by 63% in 2025 relative to 2021 (5-year trend) and decreased by 30% relative to 2024 (in mg/kg biomass).

The biomass of veal calves (red line on figure) has decreased since 2018.

In 2025, diaminopyrimidine-sulfonamide combinations (for use in water), penicillins, and sulfonamides (for individual oral use) were the main classes reported sold by **compounders** for use in veal calves (data not shown).



# Veal calves

Sales for veal calves by **manufacturers** and **importers** were primarily Category II and III antimicrobials.

- In 2025, tetracyclines were the top class sold, followed by penicillins

Sales by manufacturers and importers were primarily for in feed, followed by use in water and use by injection.

There were no Category I or Uncategorized Medically Important antimicrobial sales reported for use in veal calves.

| Category of Importance | Trends (mg/kg biomass) 2018-2025 |
|---|---|
| Category I (very high importance) | |
| Category II (high importance) |  |
| Category III (medium importance) |  |
| Uncategorized Medically Important | |

CIPARS-VASR

Note: Uncategorized medically important antimicrobials can include: aminocoumarins, gramicidin, orthosomycins, pleuromutilins and pseudomonic acids



# Reasons for Antimicrobial Use Results

# Questionnaire data: reasons for AMU

## Questionnaire data is collected annually at the farm visit

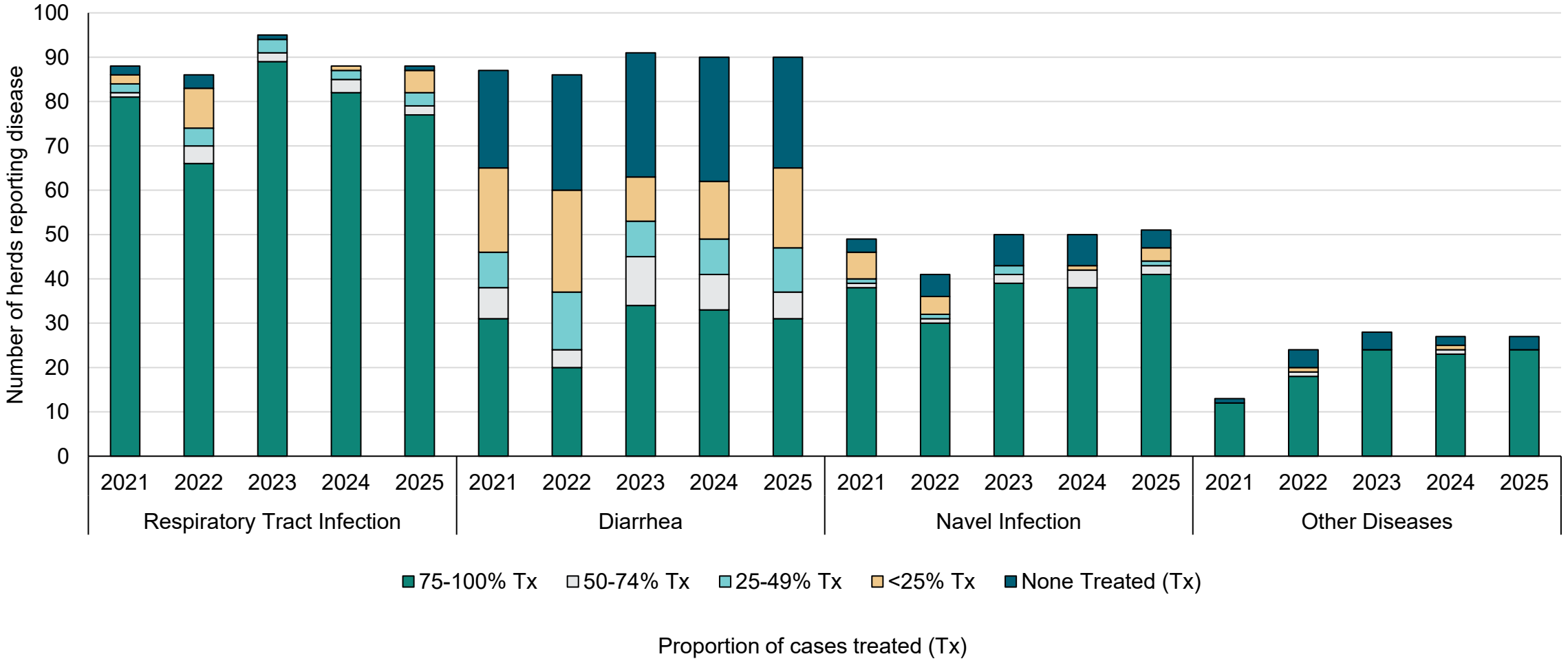
- During the annual farm visit, a surveillance questionnaire is applied
- This questionnaire collects information on:
  - Herd demographics (number of animals, milking system, housing type, etc.)
  - Vaccination and biosecurity information
  - Reasons for antimicrobial use by disease category and production group



# Questionnaire data: reasons for AMU - calves

## Respiratory disease is a major driver of use in dairy calves

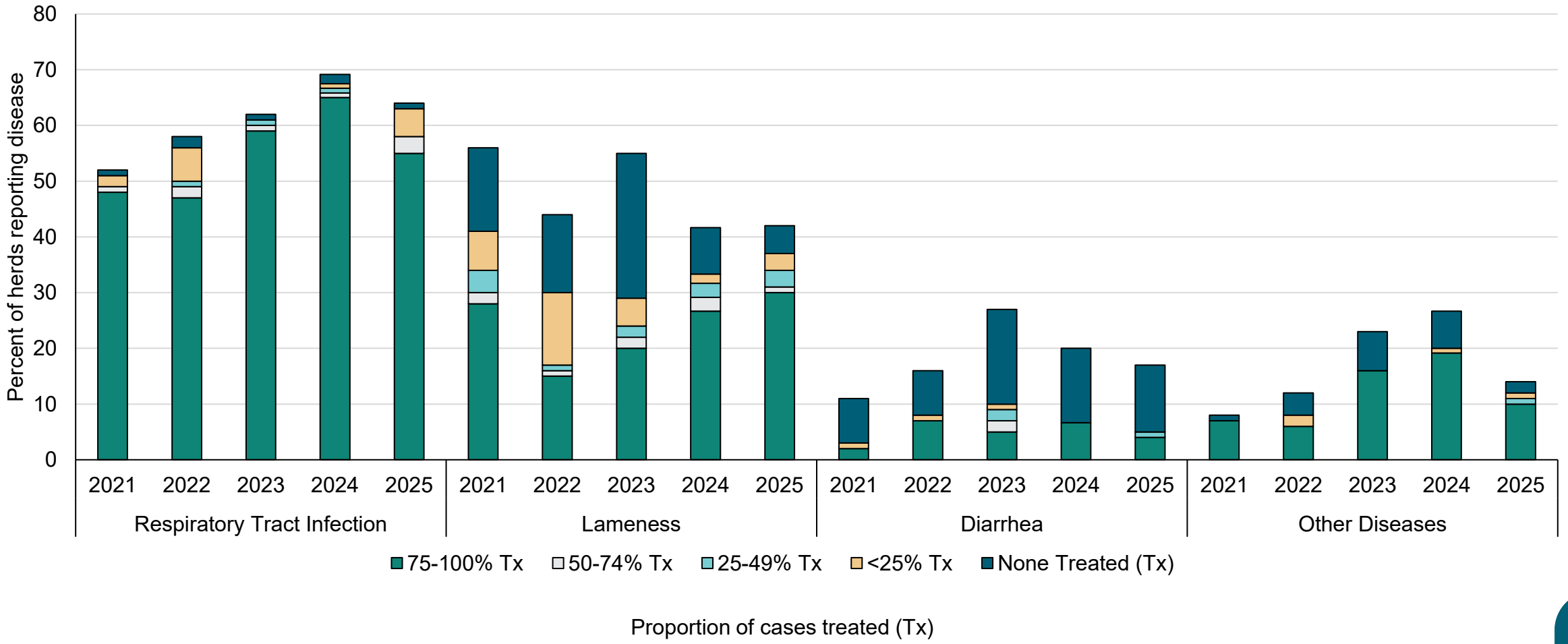
- Respiratory and intestinal infections in calves were reported by a majority of farms



# Questionnaire data: reasons for AMU - heifers

## Respiratory tract infections remain high drivers of use in heifers

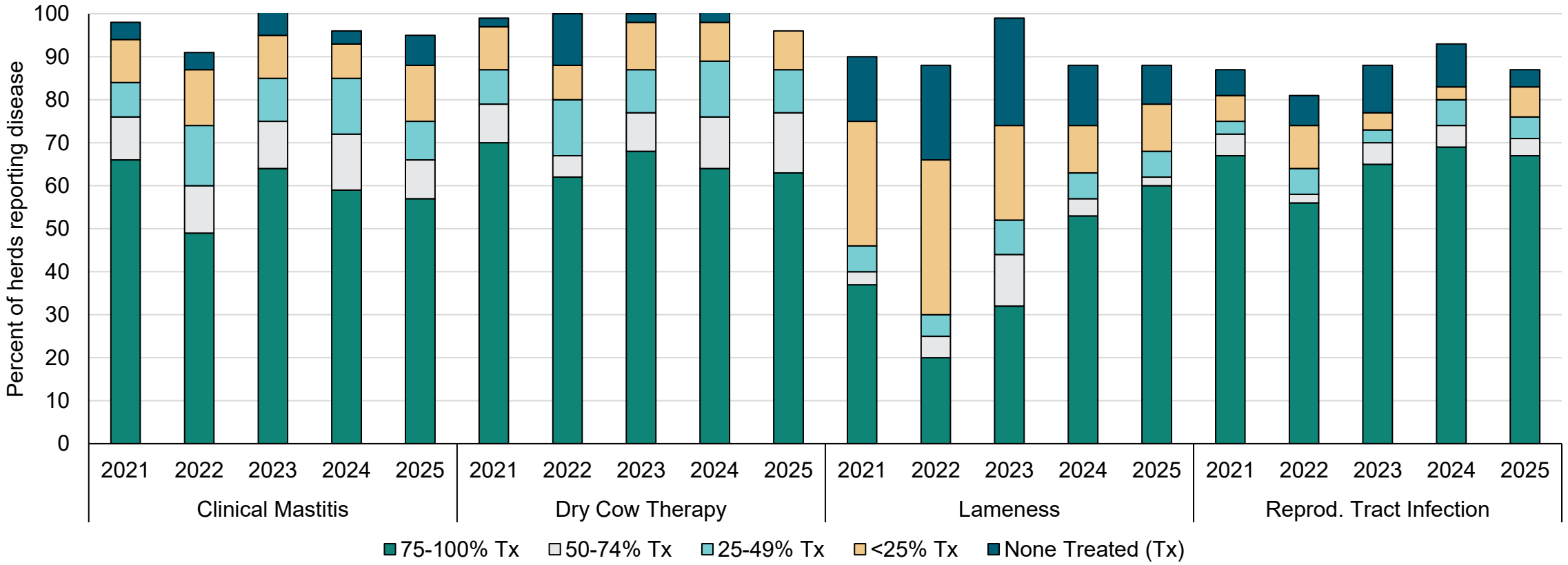
- Lameness and respiratory tract infections were reported by just over half of participating farms



# Questionnaire data: reasons for AMU - cows

## Clinical mastitis and dry cow therapy remain drivers of use in cows

- Clinical mastitis, dry cow therapy lameness and reproductive tract infections were reported by most of farms



# Survey: Oral Tetracycline Use

## Study Overview

- National survey of Canadian bovine veterinarians conducted from May to August 2026
- Objective: characterize oral tetracycline prescribing practices among Canadian bovine veterinarians



# Survey: Oral Tetracycline Use

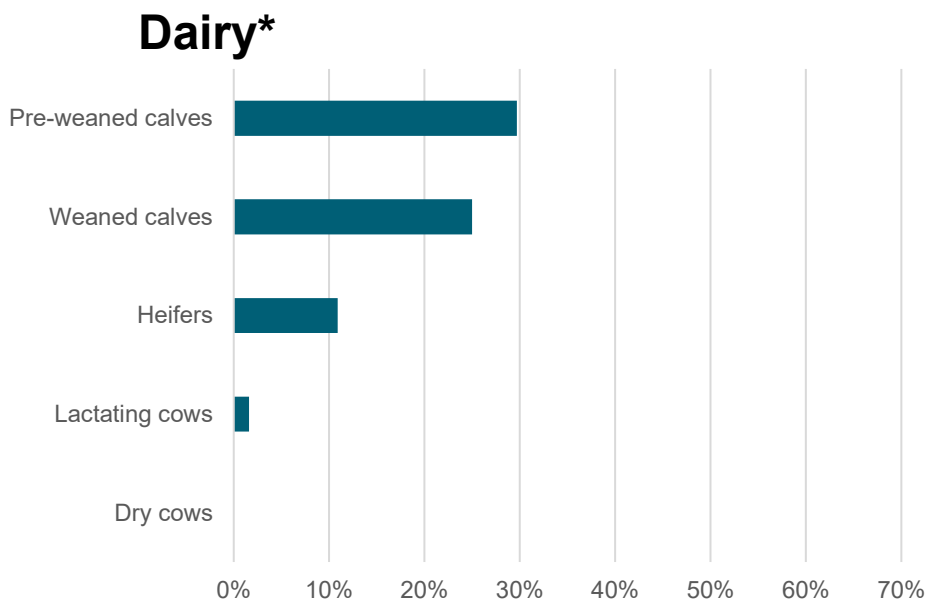
## Respondent Characteristics

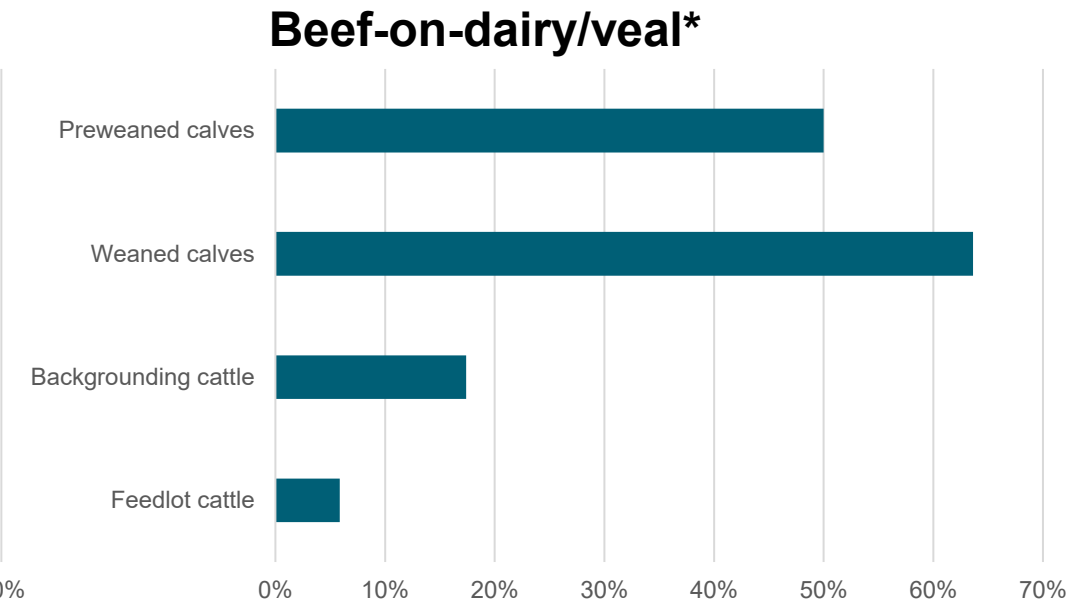
- 76 veterinarians from all 10 Canadian provinces responded
  - Approximately 10% of the Canadian Association of Bovine Veterinarians (CABV) membership was represented
  - Most respondents (80%) had more than 10 years of practice experience

- Results were analyzed by commodity type
  - This presentation focuses on dairy (n = 64) and beef-on-dairy/veal (n = 53) findings

# Survey: Oral Tetracycline Use

## Percentage of respondents reporting oral tetracycline use by production stage



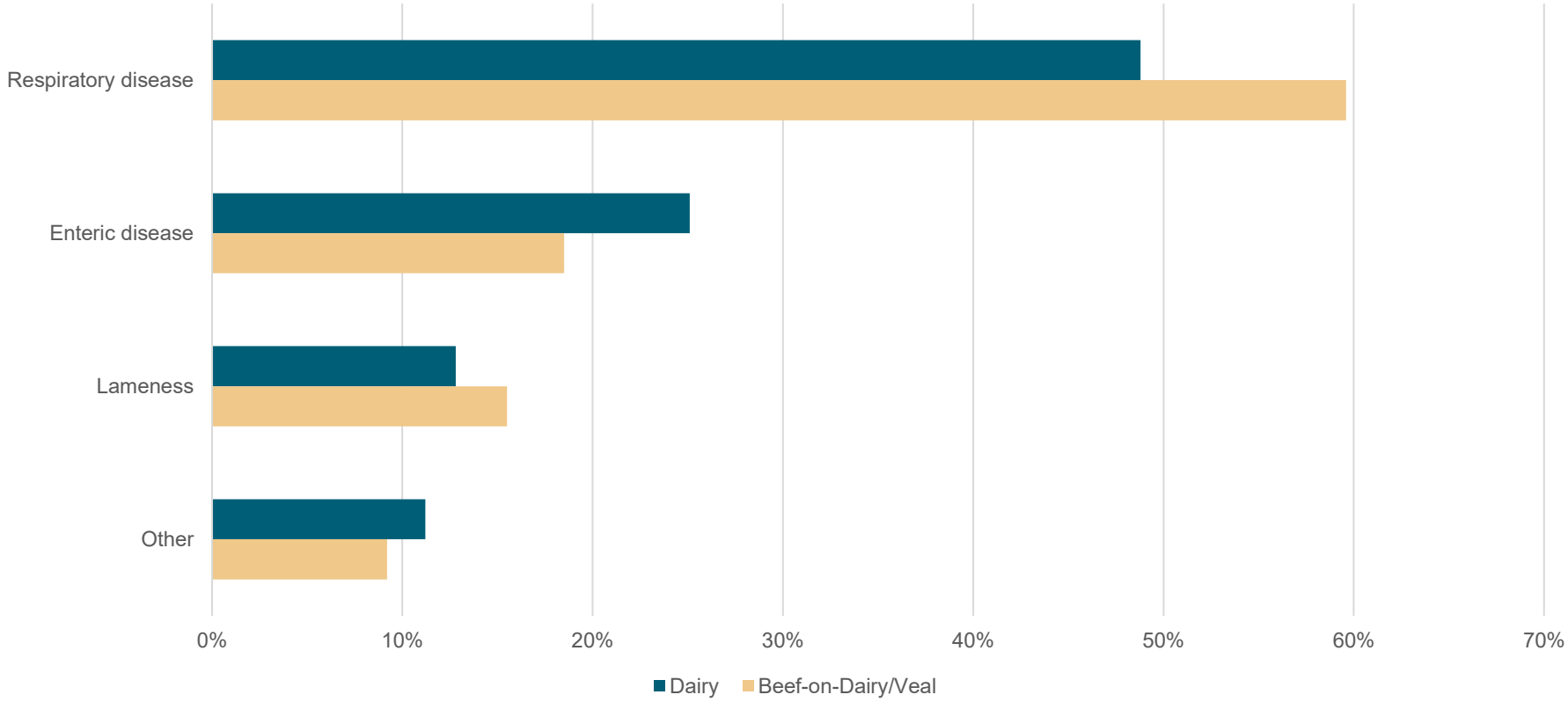




- Oral tetracycline use was most commonly reported in pre-weaned and weaned calves, with higher reporting frequencies in beef-on-dairy/veal than dairy systems.

*Values represent the percentage of respondents who indicated oral tetracycline use in each production stage. Respondents could select more than one production stage.

# Survey: Oral Tetracycline Use

## Percentage of respondents reporting oral tetracycline use by indication*

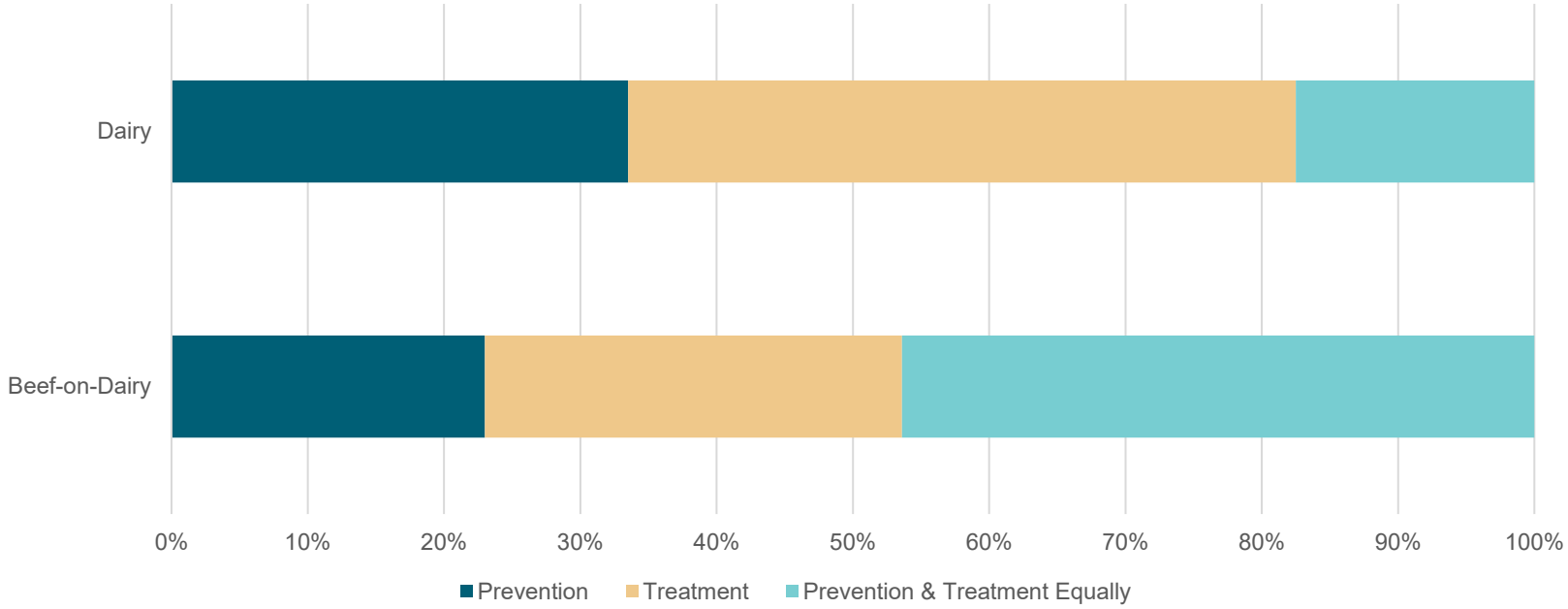



- Respiratory disease was the most commonly reported indication for oral tetracycline prescribing

*Among respondents completing the dairy (n = 64) or beef-on-dairy/veal (n = 53) sections, percentages represent the proportion reporting oral tetracycline use for each indication at least occasionally (e.g., respondents selecting Rarely, Sometimes, Often, or Most Frequently). Respondents could select multiple indications.

# Survey: Oral Tetracycline Use

## Reported Preventive and Therapeutic Use of Oral Tetracyclines




Percentages represent respondents completing the dairy (n = 64) and beef-on-dairy/veal (n = 53) sections. Values indicate whether oral tetracyclines were reported as being used primarily for prevention, treatment, or equally for both purposes.

- Dairy respondents most commonly reported oral tetracycline use for treatment (49.0%), while beef-on-dairy/veal respondents most commonly reported equal use for prevention and treatment (46.4%).

# Take-Home Messages – Reasons for Antimicrobial Use

In 2025, penicillins were the top class sold for use in dairy cattle, followed by tetracyclines, diaminopyrimidine-sulfonamide combinations, and phenicols.

After adjusting for biomass, veal calves had the third-highest antimicrobial sales; however, sales have declined since 2021.

Oral tetracyclines were most commonly reported in pre-weaned and weaned calves and were primarily used for respiratory disease.

Mastitis, dry cow therapy and reproductive tract infections are the main drivers of AMU in lactating cattle.

Respiratory tract infections most often listed as reason for AMU across animal groups.

# Take-Home Messages – Antimicrobial Resistance

*E.coli* resistance is low with stable trends, but most prevalent in isolates from calves

Increase in gyrA(D87Y) mutation in *S.* Enteritidis over time, will continue to monitor

Emerging ciprofloxacin resistance among *Campylobacter* isolates

Large proportion of bulk tank milk sample isolates resistant to tetracycline



# Coming soon!

Farm-Level AMU Data

Industry report

Stakeholder meeting

# Acknowledgements


- PHAC-CIPARS
- CaDNetASR contributors
  - Prince Edward Island Laboratory
  - Field workers
  - Regional project managers
  - Academic and federal collaborators
- Dairy Farmers of Canada




# Post-presentation LimeSurvey

## English

https://form-formulaire.phac-aspc.gc.ca/index.php/733517?lang=en

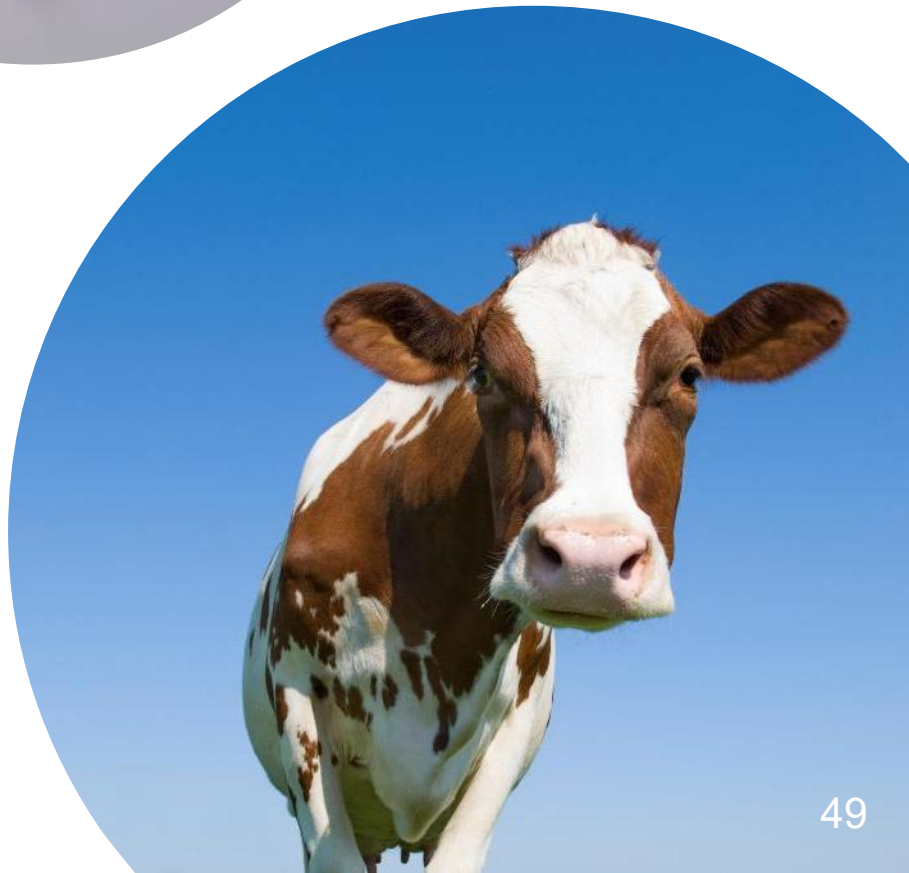
# Sondage LimeSurvey après la présentation

## Français

https://form-formulaire.phac-aspc.gc.ca/index.php/733517?lang=fr

# Questions?



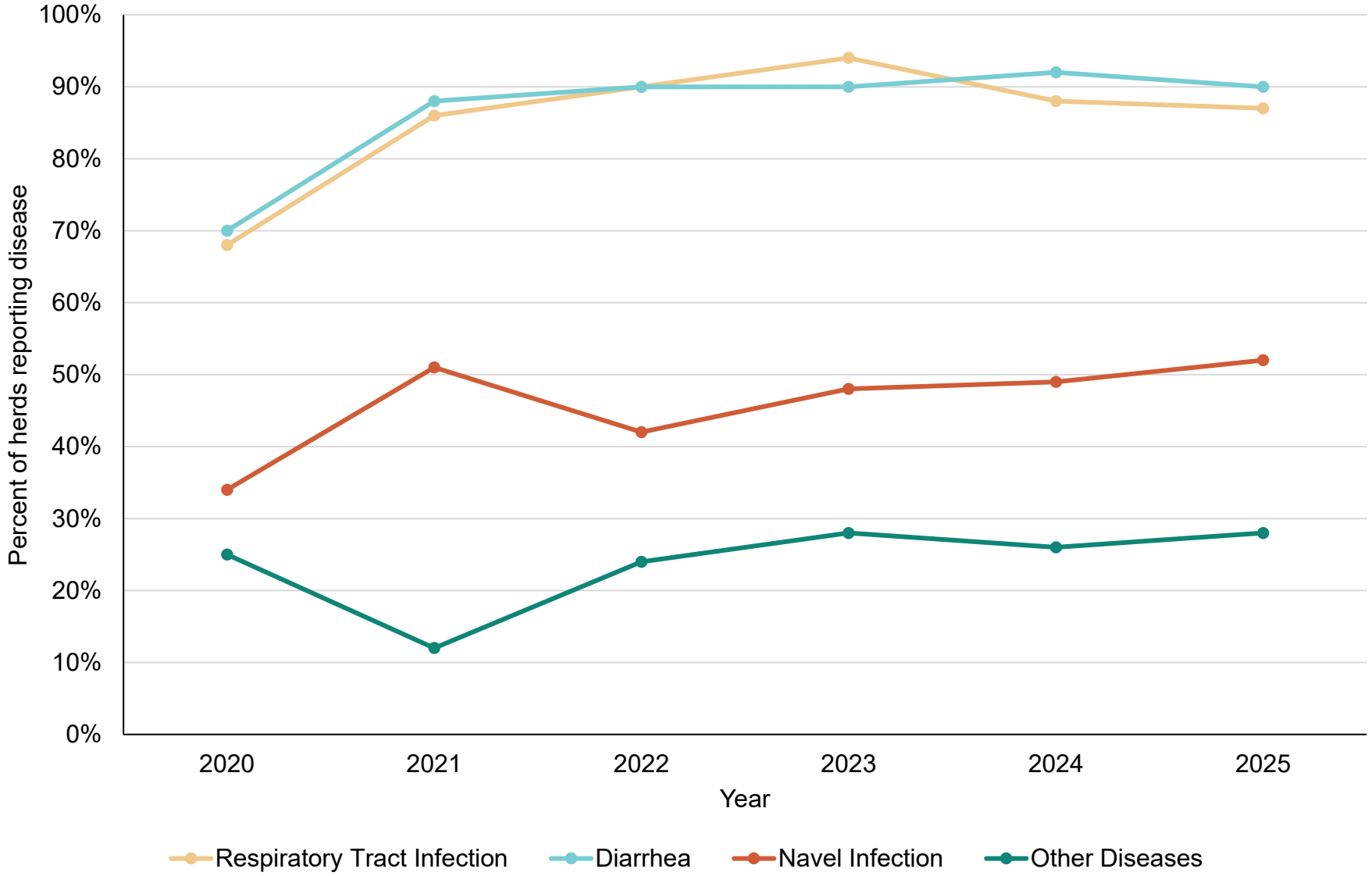




# Annex

# Disease Prevalence

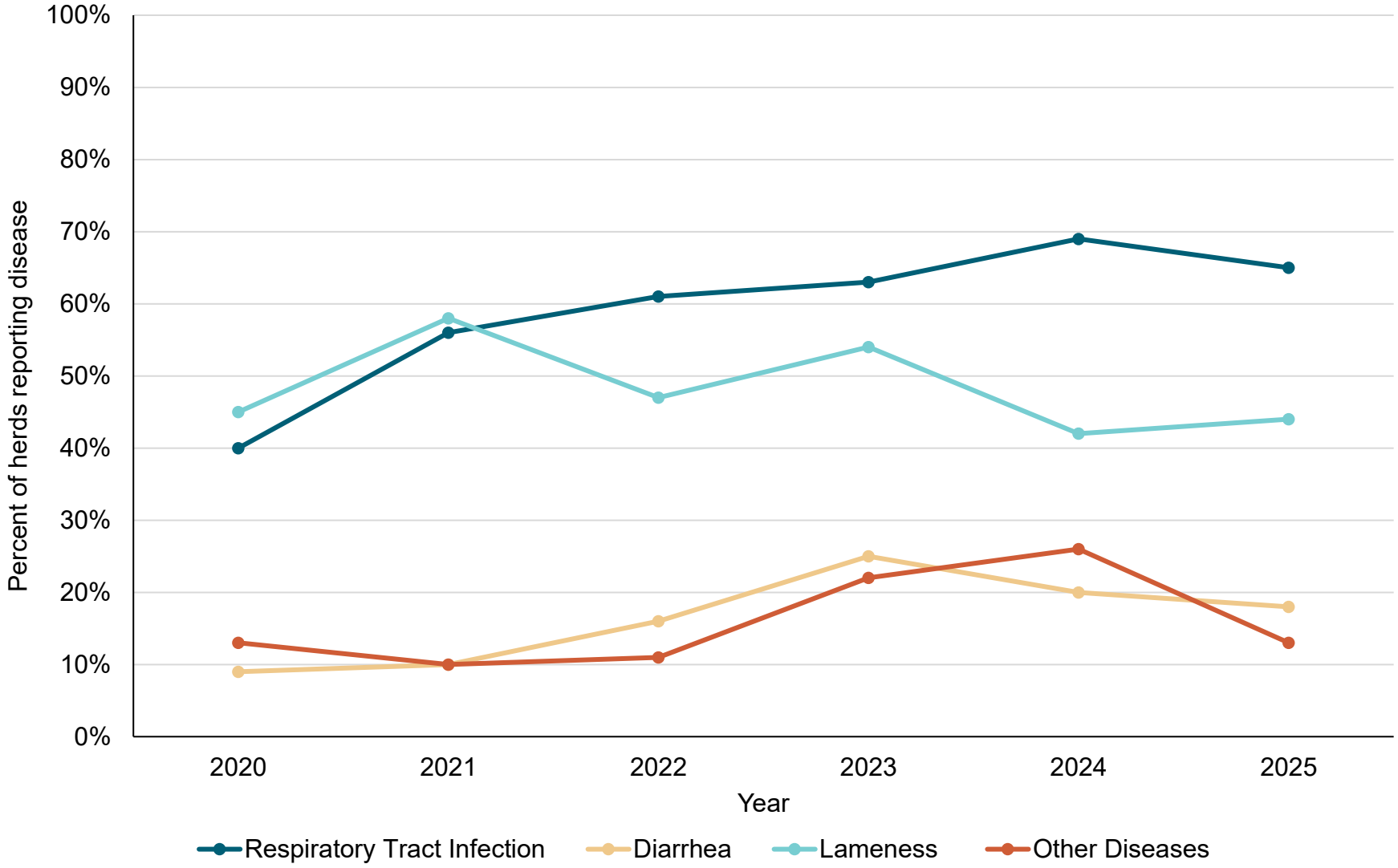
## Calves




- % of herds reporting at least 1 case of disease
- Potential upward trend over time for all reported diseases
  - Many of these stem from low 2020 values which may result from difference in data collection tools for 2020 compared to subsequent years
- Respiratory tract infections and diarrhea have highest reported prevalence among calves.

# Disease Prevalence

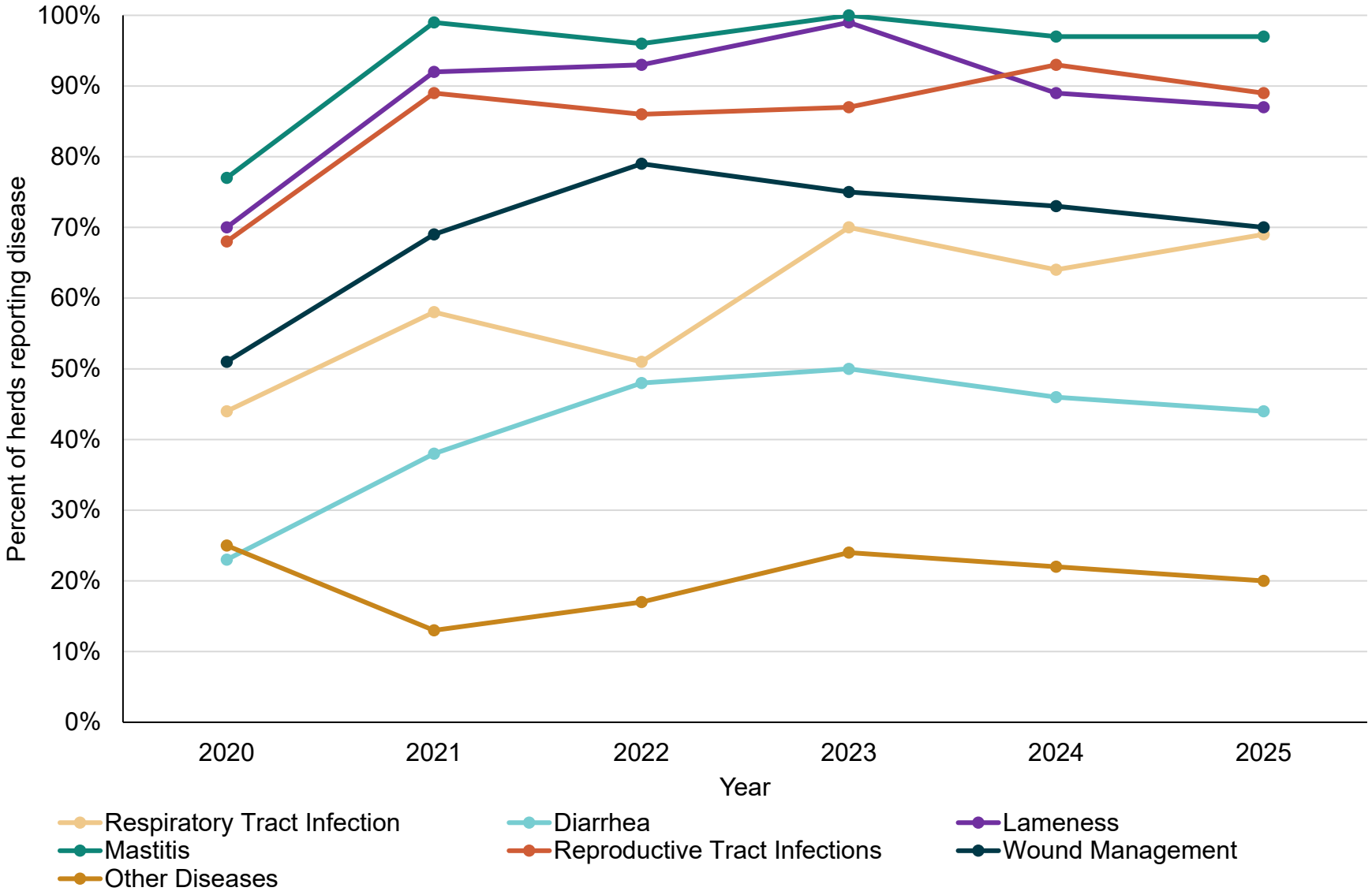
## Heifers




- % of herds reporting at least 1 case of disease
- Potential upward trend over time (excluding lameness)
  - However, this may be due to more complete reporting from field workers.
- Respiratory tract infections and lameness have highest reported prevalence among heifers.

# Disease Prevalence

## Cows




- % of herds reporting at least 1 case of disease
- Relatively stable over time, some potential upward trends
  - However, this may be due to more complete reporting from field workers.
- Mastitis, lameness, and reproductive tract infections have highest reported prevalence among lactating cows.