FINRES-Vet 2024

Finnish Veterinary Antimicrobial Resistance Monitoring and Consumption of Antimicrobial Agents

SUMMARY

The full report is available at www.ruokavirasto.fi

RUOKAVIRASTO
Livsmedelsverket • Finnish Food Authority

fimea
Lääkealan turvallisuus- ja kehittämiskeskus
Säkerhets- och utvecklingscentret för läkemedelsområdet
Finnish Medicines Agency

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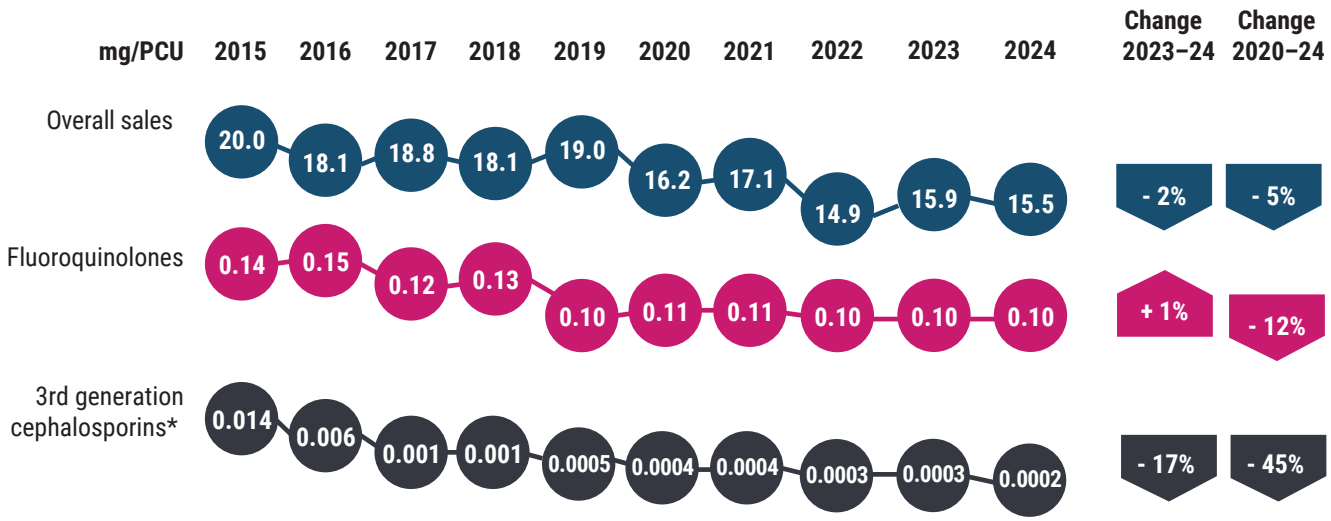
Co-funded by the European Union

ANTIBIOTICS FOR FOOD-PRODUCING ANIMALS

EU-indicators for the sales of antibiotics in food-producing animals (mg/PCU)

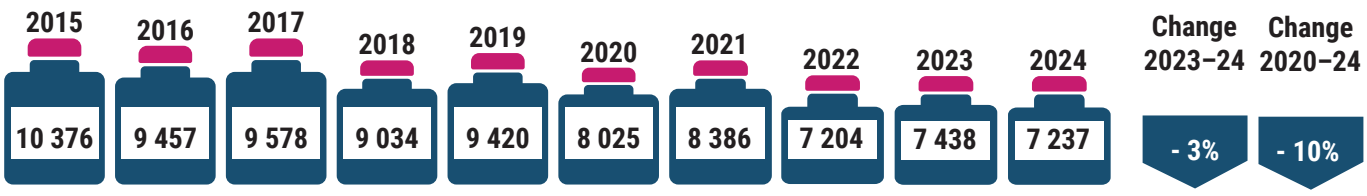
Population adjusted overall sales of veterinary antibiotics in 2024 was 15.5 mg/PCU, being the second lowest ever recorded. Overall sales decreased by 2% from 2023 to 2024. Sales of critically important antibiotics for human medicine continued to be very low.



* Since 2017, 3rd generation cephalosporins have been sold only for the treatment of foals and companion animals.

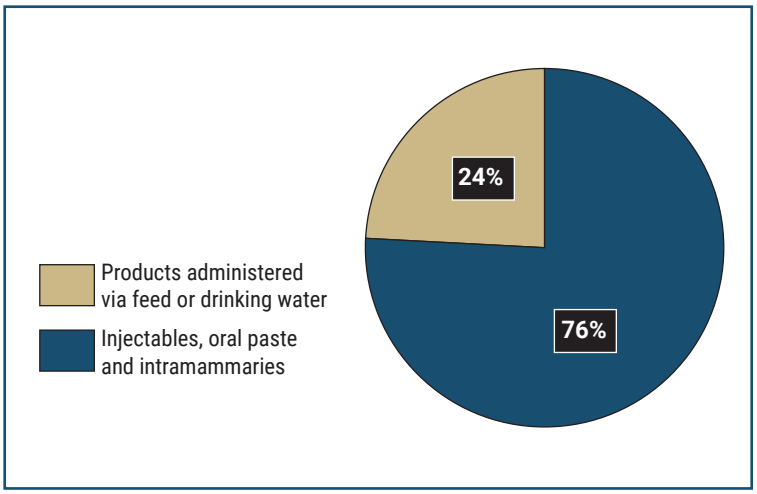
Total sales (kg active ingredient)

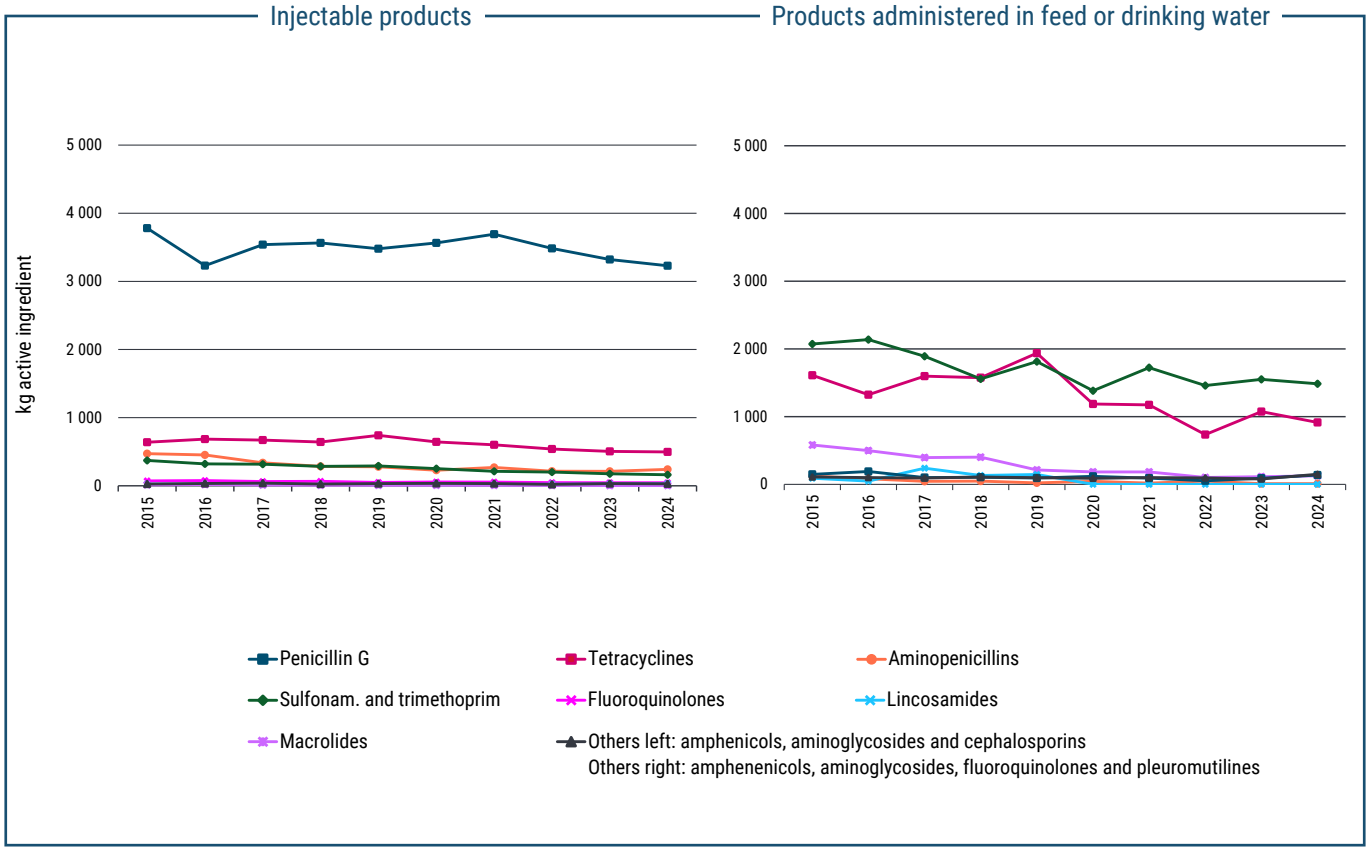
Total sales of veterinary antimicrobials for use in food-producing animals decreased by 3%.
On international comparison, sales of antibiotics in Finland continues to be modest and prudent both considering EU-indicators and total sales.



Sales by administration route (kg active ingredient)

Over three quarters, 76%, of the antibiotics for food-producing animals were products intended for treatment of individual animals (injectables, oral paste, intramammaries). The remaining quarter was antibiotics administered via feed or drinking water to groups of animals. By far the most used antibiotic was injectable benzylpenicillin followed by oral sulfonamide-trimethoprim combination and oral tetracyclines.

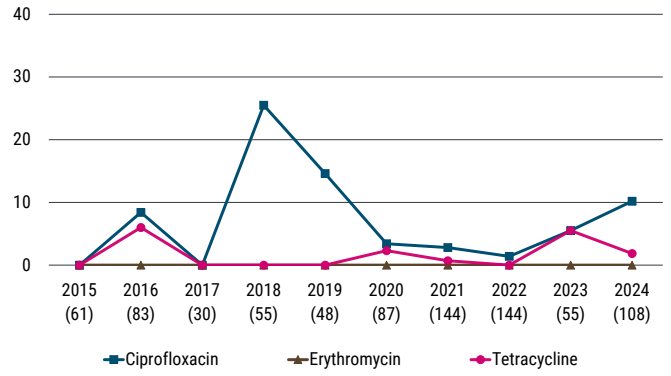




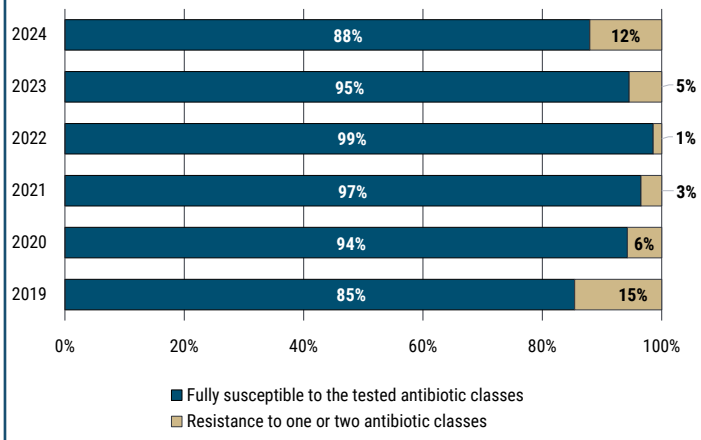
CAMPYLOBACTER IN FOOD-PRODUCING ANIMALS

For the most part, *Campylobacter jejuni* isolates from the national campylobacter programme have been fully susceptible to the tested antibiotics. However, the proportions of isolates resistant to quinolones and tetracycline have varied starting from the mid 2010's. Strains concurrently resistant to three or more antibiotic classes (multidrug resistance) have not been detected. Between 2020 and 2022, tetracycline and ciprofloxacin resistance remained at a low level (< 5%). In 2023 and 2024, ciprofloxacin resistance has again increased and was detected in approximately 5.5 and 10% of the studied *C. jejuni* strains, respectively.

Resistance to ciprofloxacin, erythromycin and tetracycline in *C. jejuni* from broilers (%)



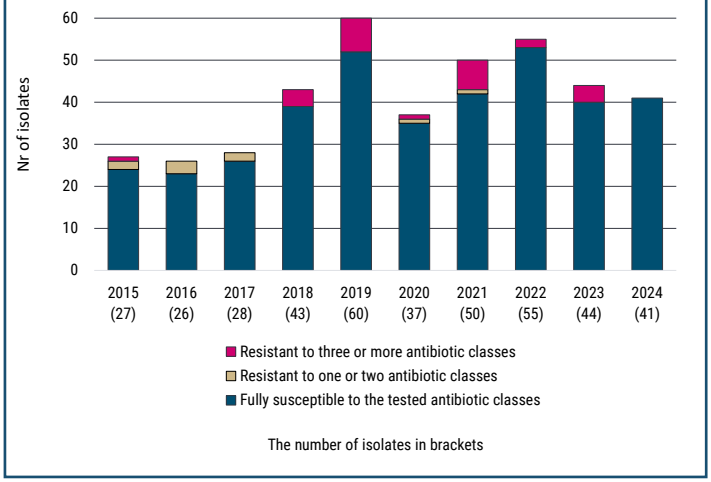
Antibiotic susceptibillity in *C. jejuni* from broilers



SALMONELLA IN FOOD-PRODUCING ANIMALS

Salmonella isolated from Finnish food-producing animals have mostly been susceptible to the tested antibiotic classes. Multidrug-resistant salmonella strains have been detected yearly between 2018 and 2023, and they have originated from chicken, pig and cattle farms. In 2024, resistance was not detected to the tested antibiotics among the 41 strains included in the resistance monitoring.

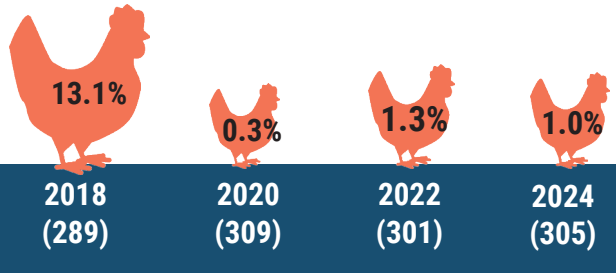
Detected salmonella strains and their resistance in Finnish food-producing animals



ESBL BACTERIA IN FOOD-PRODUCING ANIMALS AND MEAT

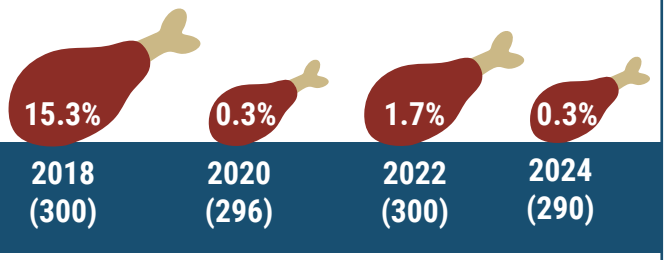
The prevalence of ESBL- and AmpC-producing *E. coli* in broilers and broiler meat has decreased significantly between the years 2018 and 2024. In 2024, the prevalence was 1% in broilers and 0.3% in broiler meat. Since 2022, each sample from broilers has consisted of a pooled sample of ten birds instead of a sample from one bird as in the previous years. In turkey meat, which was included in the monitoring for the first time in 2022, neither ESBL- nor AmpC-producing *E. coli* were detected. Carbapenemase-producing *E. coli* have not been found.

ESBL/AmpC-*E. coli* in slaughtered broilers (%)



The numbers of tested samples are in brackets

ESBL/AmpC-*E. coli* in fresh broiler meat at retail (%)



The numbers of tested samples are in brackets

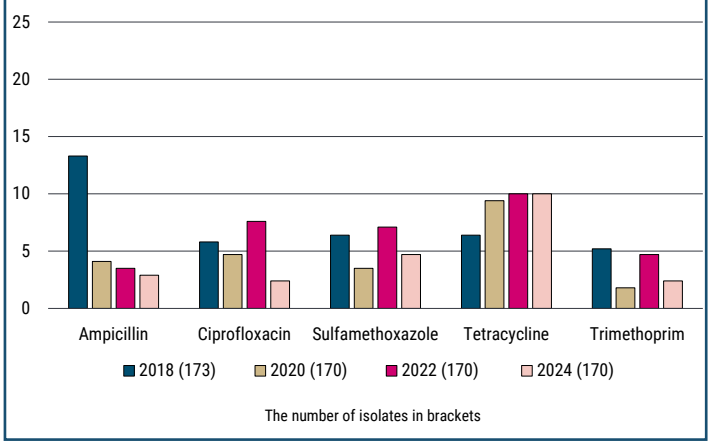
ESBL/AmpC-*E. coli* in fresh turkey meat at retail (%)

The numbers of tested samples are in brackets

INDICATOR BACTERIA IN FOOD-PRODUCING ANIMALS

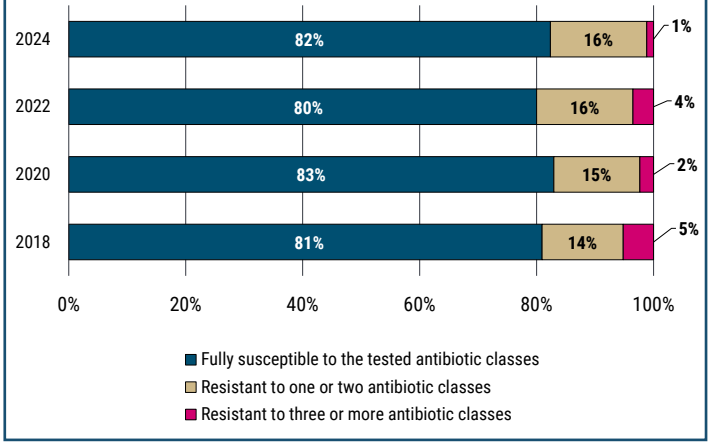
The majority of indicator *E. coli* isolates from broilers have been fully susceptible to the tested antibiotic classes. Resistance has mostly been detected against tetracycline, sulfamethoxazole, ampicillin, ciprofloxacin and trimethoprim. The proportion of multidrug resistance was 2.4% in 2024.

Resistance in indicator *E. coli* from broilers to selected antibiotics (%)



The number of isolates in brackets

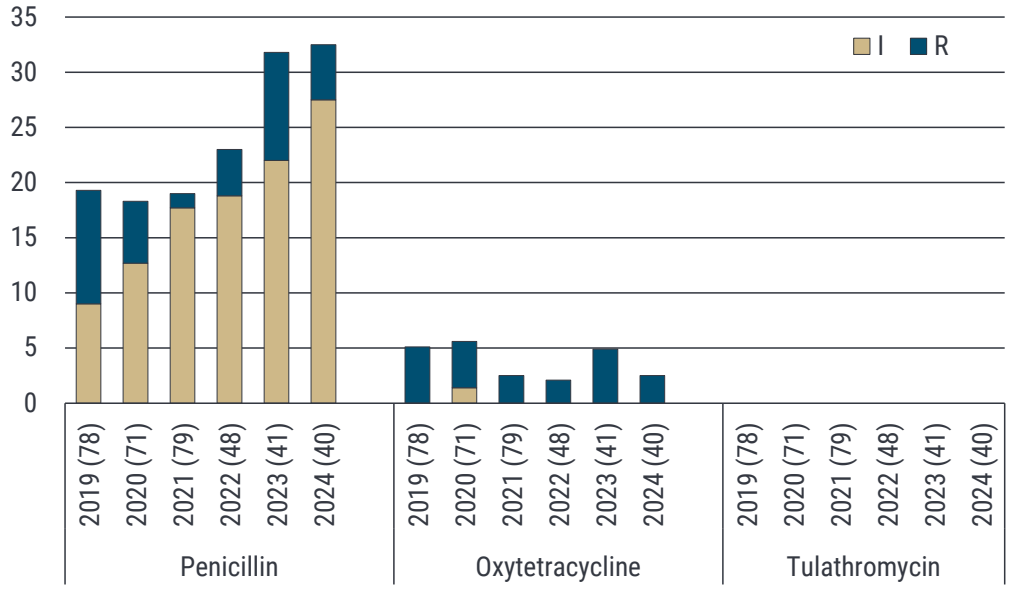
Antibiotic resistance in indicator *E. coli* from broilers



PATHOGENS IN FOOD-PRODUCING ANIMALS

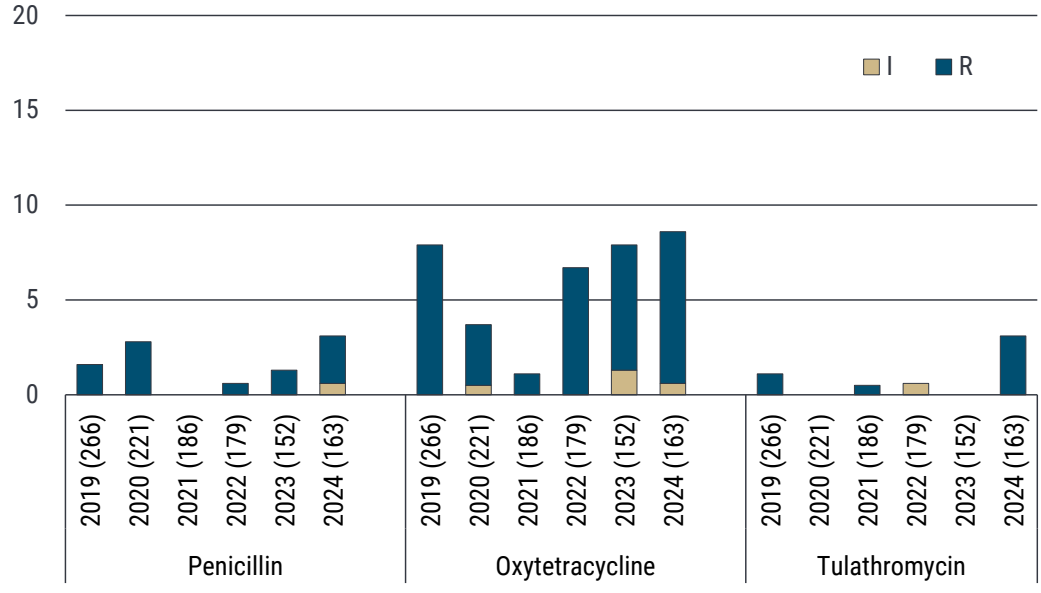
Among bovine respiratory pathogens, antibiotic susceptibilities of *Mannheimia haemolytica*, *Pasteurella multocida* and *Histophilus somni* isolated from diseased animals are reported. The proportion of resistant bacteria has remained at a low level.

The proportion (%) of *M. haemolytica* from bovine respiratory disease with decreased susceptibility*



The number of isolates in brackets

The proportion (%) of *P. multocida* from bovine respiratory disease with decreased susceptibility*

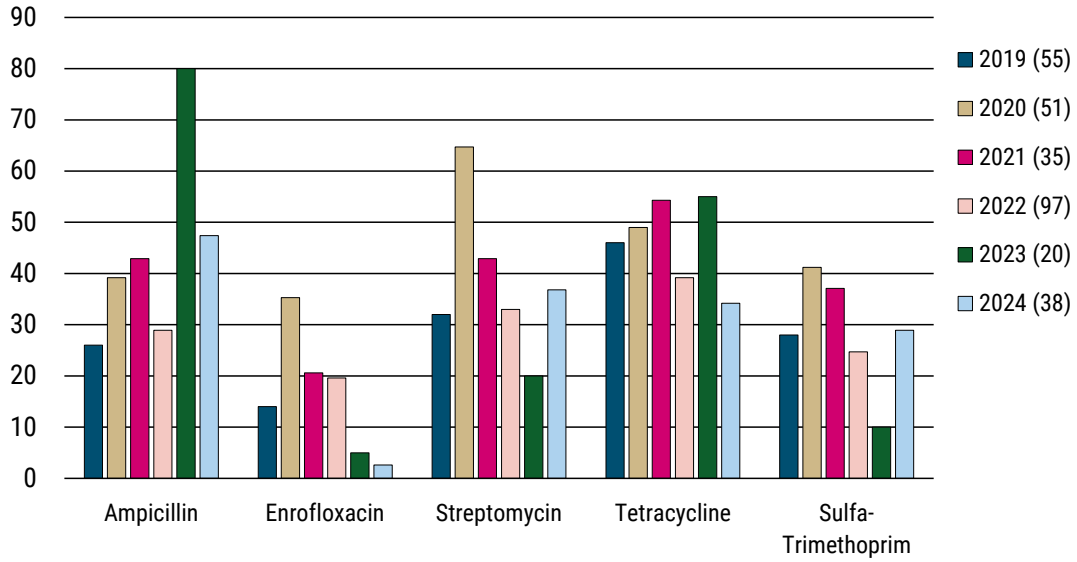


The number of isolates in brackets

*Decreased susceptibility means that bacterial strains are phenotypically either resistant (R) or intermediately susceptible (I) to the antibiotic in question according to clinical breakpoints.

Among swine pathogens, antibiotic susceptibilities of enterotoxigenic *E. coli*, *Brachyspira pilosicoli* and *Actinobacillus pleuropneumoniae* isolates from diseased animals are reported. In *B. pilosicoli*, no significant changes were detected in 2024 compared to the previous years. In *A. pleuropneumoniae*, susceptibility to oxytetracycline is annually decreasing but resistant isolates were not found in 2024. Regarding enterotoxigenic *E. coli*, no dramatic changes have been observed in antibiotic resistance situation, although there seems to be a slight decrease in resistance against enrofloxacin in recent years. AmpC-producing *E. coli* strains were detected in two farms, but no ESBL-*E. coli* was observed.

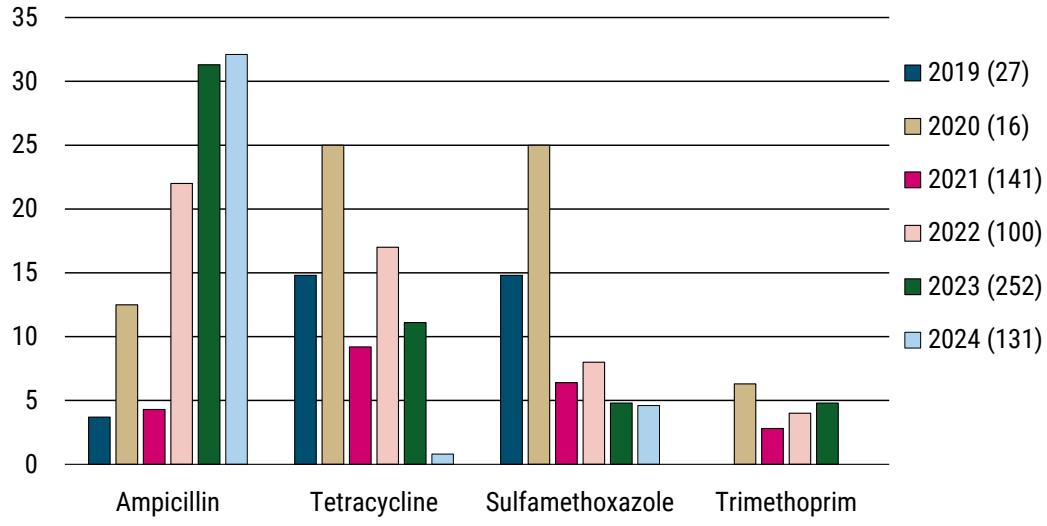
The proportion (%) of enterotoxigenic *E. coli* from porcine enteritis with decreased susceptibility*



The number of isolates in brackets

Among poultry pathogens, the antibiotic susceptibilities of *E. coli* from colibacillosis cases are reported. In 2024, resistance to ampicillin stayed at a high level as in 2023. No resistance to third generation cephalosporins was detected.

The proportion (%) of *E. coli* from broiler colibacillosis with decreased susceptibility*



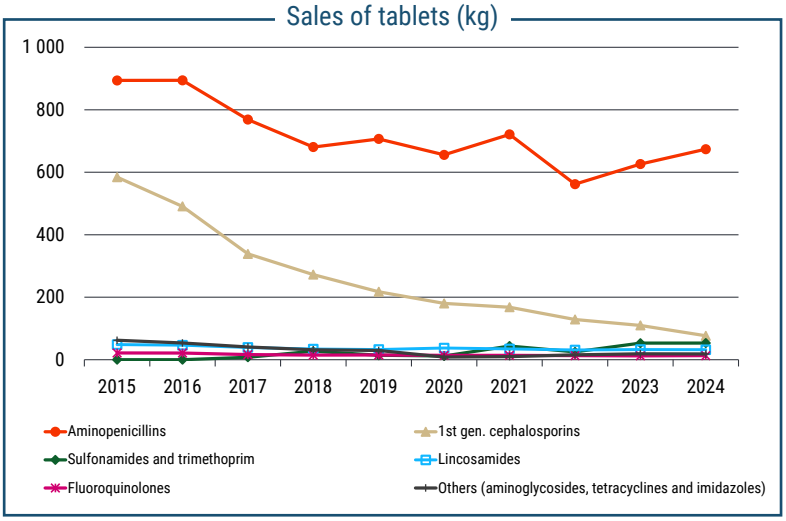
The number of isolates in brackets

*Decreased susceptibility means that bacterial strains are phenotypically either resistant (R) or intermediately susceptible (I) to the antibiotic in question according to clinical breakpoints.

ANTIBIOTICS AND PATHOGENS IN COMPANION ANIMALS

Sales of tablets

Monitoring of sales of antibiotics intended for companion animals is currently possible only for products in the form of tablets. Their sales have more than halved in ten years but increased by 2% in 2023-2024. This was mainly due to a rise in sales of the most sold veterinary antibiotic tablet, amoxycillin-clavulanic acid combination (+8%). Decrease in sales of first generation cephalosporins continued (-30%). Sales of fluoroquinolone tablets increased by 6%.

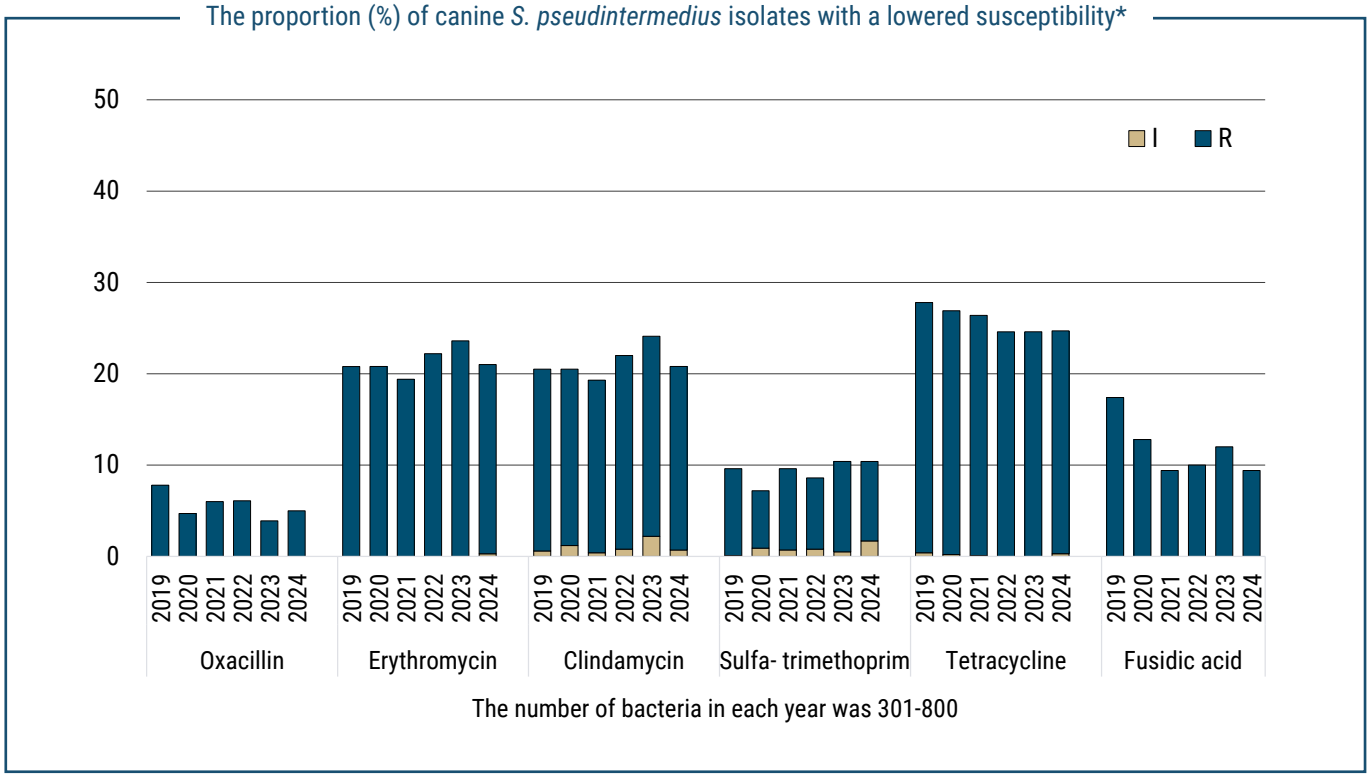


The number of dogs and cats

According to Statistics Finland, the number of dogs and cats in Finland in 2016 was about 700 000 and 600 000, respectively. It has been estimated that the number of companion animals increased during the Covid-19 pandemic. According to a survey commissioned by the Finnish Kennel Club, there were approximately 800 000 dogs in Finland in 2023.

Antibiotic resistance

The proportion of oxacillin resistance in canine *Staphylococcus pseudintermedius* increased slightly compared to 2023 and was 5% in 2024.



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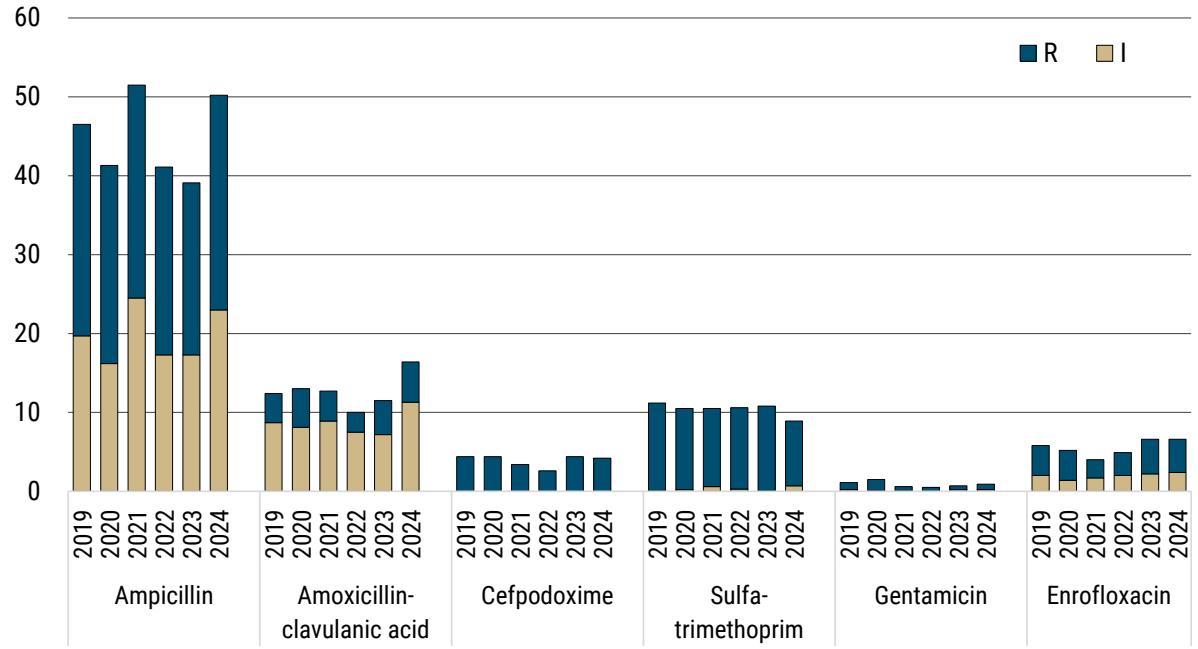
The proportion of cefpodoxime resistance among canine *E. coli* remained almost at the same as it was in 2023, being 4.2% in 2024.

The proportion (%) of canine *E. coli* isolates with a lowered susceptibility*



The number of bacteria in each year was 549-1265

*Decreased susceptibility means that bacterial strains are phenotypically either resistant (R) or intermediately susceptible (I) to the antibiotic in question according to clinical breakpoints.