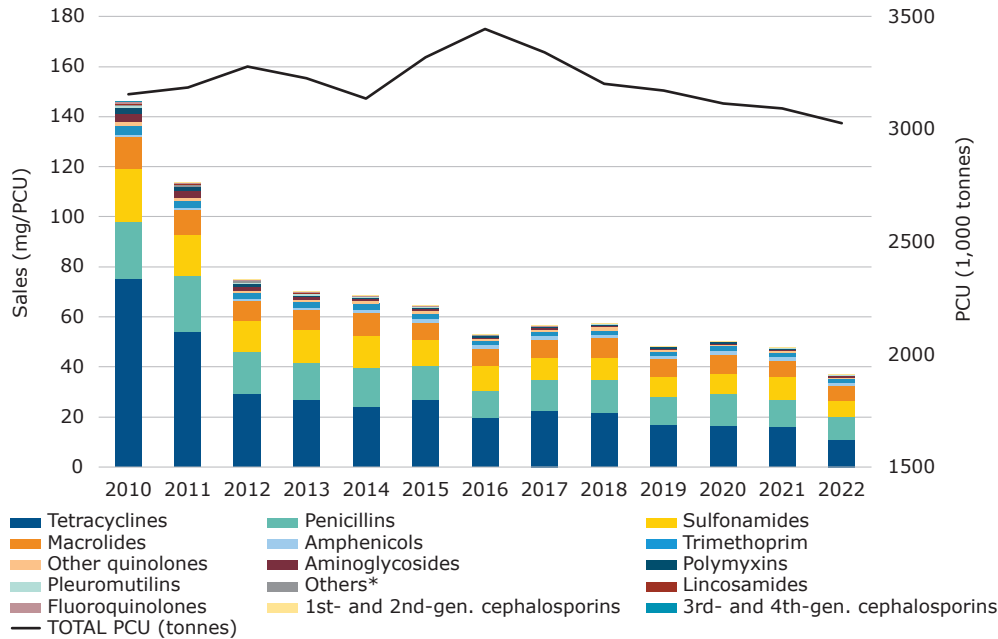


Sales trends by antibiotic class (mg/PCU) from 2010 to 2022¹



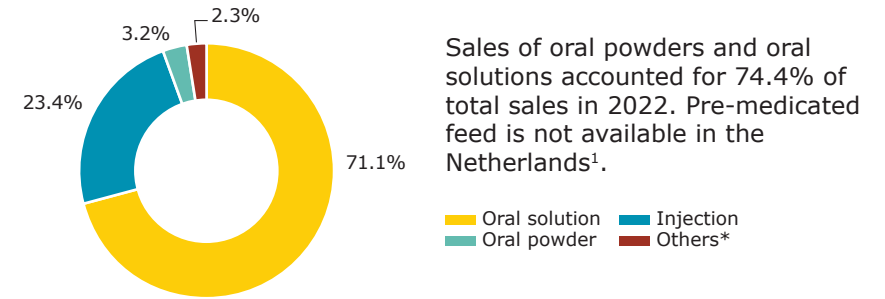
¹ Sales data sorted from highest to lowest in 2022.

* The class 'Others' includes sales of the following sub-classes: imidazole derivatives (metronidazole) and other antibacterials (bacitracin and spectinomycin). Of note is that some of the sales could be for non-food-producing animals.

Since 2011:

- ↓ 67.5% overall annual sales (from 113.7 mg/PCU to 37.0 mg/PCU in 2022)
- ↓ 99.5% 3rd- and 4th-generation cephalosporin sales (from 0.19 mg/PCU to <0.01 mg/PCU in 2022)
- ↓ 93.3% fluoroquinolone sales (from 0.45 mg/PCU to 0.03 mg/PCU in 2022)
- ↓ 34.6% other quinolone sales (from 1.1 mg/PCU to 0.75 mg/PCU in 2022)
- ↓ 82.0% polymyxin sales (from 1.6 mg/PCU to 0.28 mg/PCU in 2022)
- ↓ PCU decreased by 5.0% between 2011 and 2022

Proportion of sales (mg/PCU) by product form in 2022^{1,2}



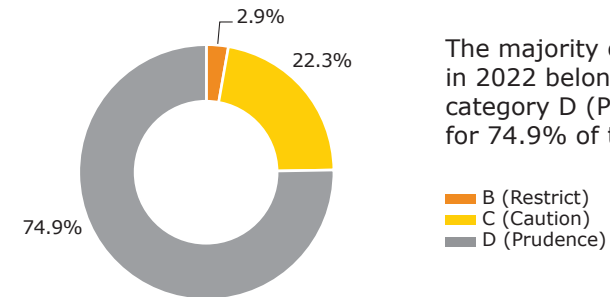
Sales of oral powders and oral solutions accounted for 74.4% of total sales in 2022. Pre-medicated feed is not available in the Netherlands¹.

¹ Sales of premixes are not represented in the figure and account for 0.06% of total sales.

² No sales of bolus products in 2022.

* Other forms include intramammary, intrauterine and oral paste products.

Proportion of sales (mg/PCU) by AMEG categories in 2022



The majority of antibiotic VMP sales in 2022 belonged to the AMEG category D (Prudence), accounting for 74.9% of total sales.

2022 sales data

In 2022, overall sales decreased by 22.3% in comparison to 2021 (from 47.6 mg/PCU to 37.0 mg/PCU). The three highest selling antibiotic classes were tetracyclines, penicillins and sulfonamides, which accounted for 28.8%, 25.4% and 17.4% of total sales, respectively.

Country information

Sales (mg/PCU) of 3rd- and 4th-generation cephalosporins have fallen by almost 100% since 2011. This result was achieved through efforts within private quality-production systems, which prohibited most uses of 3rd- and 4th-generation cephalosporins for pigs. Since 2013, antimicrobial susceptibility testing has been mandatory by law for veterinarians before using 3rd- and 4th-generation cephalosporins and fluoroquinolones for all species. Since 2015, adherence to this obligation has also been monitored for companion animals.

In the Netherlands, other quinolones are categorised as second-line antimicrobials in contrast to fluoroquinolones, which are classified as third-line antimicrobials. Quinolones (mainly flumequine) share some indications with, e.g. colistin, which is also classified as a second-line antimicrobial but with additional restrictions for use comparable to those that apply to third-line antimicrobials; 97% of AMEG category B in Figure 3 is flumequine and colistin use in FPA, 3% are fluoroquinolones.

Several treatment guidelines have been introduced and are updated regularly, addressing treatment of both food-producing and companion animals. For instance, for cattle veterinarians, a guideline for dry cow management was introduced in 2014, which resulted in a shift in treatment methods from second-line towards first-line antimicrobials and an overall reduction in the antimicrobial treatment of dry cows.

Since 2011, antibiotic use (AMU) by livestock farms in the Netherlands has been monitored using the indicator number of defined daily doses animal (DDDA) per animal-year. The benchmark method for veterinarians was introduced in 2014 and veterinarians working in the monitored livestock sector are supplied with their Veterinary Benchmark Indicator (VBI). In 2020, the method of calculating VBI was adjusted to the same indicator as is applied in reporting AMU in animal species to make it more intuitively understandable. Farms and veterinarians with AMU or VBI above the action level benchmark-value are obliged to adapt their use or prescription patterns.

The number of monitored sectors is gradually increasing. In 2022, the following sectors were included: dairy cattle, veal calves, other cattle, pigs, broilers, turkeys, laying hens, poultry parents / grandparents, rabbits and goats.

The Netherlands has had a national antibiotic policy for animals since 2008 and a new National Action Plan is expected in 2023. Every year the government writes a letter to the parliament to set out the results of the antibiotic policy¹.

A fact-finding mission was carried out in the Netherlands between 13 and 20 September 2016 to gather information on the prudent use of antimicrobials in animals².

¹ <https://www.rijksoverheid.nl/documenten/kamerstukken/2023/08/24/kamerbrief-stand-van-zaken-veterinair-antibioticumbeleid-2023>

² <https://ec.europa.eu/food/audits-analysis/audit-report/details/3753>