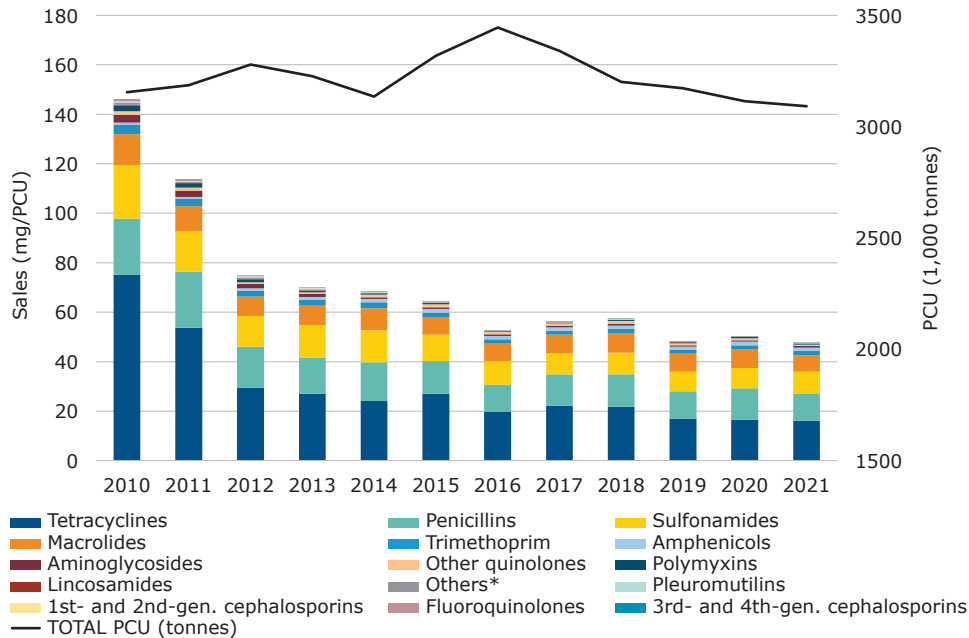


### Sales trends by antibiotic class (mg/PCU) from 2010 to 2021<sup>1</sup>



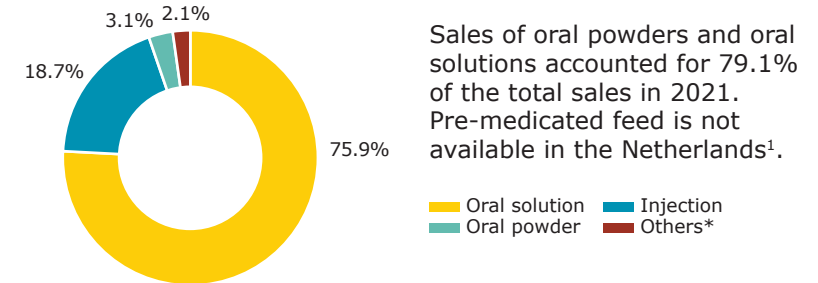
<sup>1</sup> Sales data sorted from highest to lowest in 2021.

\* 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:

- ⬇️ 58.1% overall annual sales (from 113.7 mg/PCU to 47.6 mg/PCU in 2021)
- ⬇️ 99.1% 3rd- and 4th-generation cephalosporin sales (from 0.19 mg/PCU to <0.01 mg/PCU in 2021)
- ⬇️ 92.3% fluoroquinolone sales (from 0.45 mg/PCU to 0.03 mg/PCU in 2021)
- ⬇️ 45.5% other quinolone sales (from 1.1 mg/PCU to 0.63 mg/PCU in 2021)
- ⬇️ 75.9% polymyxin sales (from 1.6 mg/PCU to 0.38 mg/PCU in 2021)
- ⬇️ The PCU decreased by 3.0% between 2011 and 2021

### Proportion of sales (mg/PCU) by product form in 2021<sup>1,2</sup>



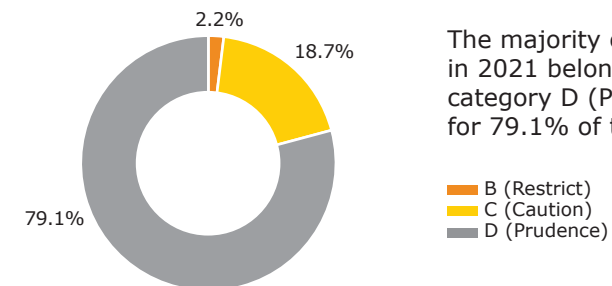
Sales of oral powders and oral solutions accounted for 79.1% of the total sales in 2021. Pre-medicated feed is not available in the Netherlands<sup>1</sup>.

<sup>1</sup> Sales of premixes are not included in the figure and represent 0.05% of total sales.

<sup>2</sup> No sales of bolus products in 2021.

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

### Proportion of sales (mg/PCU) by AMEG categories in 2021



The majority of antibiotic VMP sales in 2021 belonged to the AMEG category D (Prudence), accounting for 79.1% of the total sales.

### 2021 sales data

In 2021, overall sales decreased by 5.2% in comparison to 2020 (from 50.2 mg/PCU to 47.6 mg/PCU). The three highest selling antibiotic classes were tetracyclines, penicillins and sulfonamides, which accounted for 34.0%, 22.6% and 18.8% of total sales, respectively.

## Country information

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

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.

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 by livestock farms in the Netherlands has been monitored using benchmark indicators. The benchmark method for veterinarians was introduced in 2014 and veterinarians working in the monitored livestock sector have access to their Veterinary Benchmark Indicator (VBI). In 2020, the method of calculating VBI was adjusted to make it more intuitively understandable. Farms and veterinarians with a usage or VBI above the action level benchmark are obliged to adapt their use or prescription patterns.

The number of monitored sectors is gradually increasing. In 2021, the following sectors were included: dairy cattle, veal calves, other cattle, pigs, broilers, turkeys, rabbits and dairy goats.

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 animals<sup>1</sup>.

<sup>1</sup> [https://ec.europa.eu/food/audits-analysis/audit\\_reports/details.cfm?rep\\_id=3753&rep\\_inspection\\_ref=xxx](https://ec.europa.eu/food/audits-analysis/audit_reports/details.cfm?rep_id=3753&rep_inspection_ref=xxx)